Singing Dialogue : Music therapy with persons in advanced stages of dementia.

A case study research design

Ridder, Hanne Mette Ochsner

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Hanne Mette Ochsner Ridder

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Abstract

Persons suffering from primary degenerative dementia at later stages of the disease experience problems in perceiving environmental information and in expressing themselves in verbal language. This leads to difficulties in entering and maintaining dialogue. Failing possibilities of entering dialogue, psychosocial needs are not easily fulfilled, which leads to serious secondary symptoms of dementia. In this research the use of familiar songs in music therapy is suggested as a way of entering dialogue, where the communication is adjusted to the individual person.

A flexible mixed-method research design is carried out based on video observations, heart rate data, and observations from staff, external assessors, and the music therapist. One part of the research consists of 6 case studies where physiological data are used to validate observational data. Next part is a hermeneutic analysis of observations done by external assessors, leading to a catalogue of gestural responses and a coding and categorization of the qualities of these responses. In a third part examples from the case studies are analysed, using the categories that evolved in the previous part and describing various levels of communication.

The results show that; 1) Singing has a positive influence on the 6 participants, defined by degree of compliance, by changes in heart rate levels, and by various ways of taking part in the music therapy; 2) The six participants communicate responsively, and this communication can be recognised by a system of communicative signs, representing different levels of communication: emotional valence, receptive participation, sociality, active participation, communicative musicality, and dialogue. There exists a relationship between a balanced arousal level and communication at more intensive levels for all six participants; 3) In 5 of 6 concrete cases music therapy shows an influence on aspects in residential daily life, defined in a statistical significant decrease in heart rate levels pre/post therapy, for persons with severe dementia showing agitated behaviour.

The participants clearly profit from the music therapy sessions, and most important: these persons suffering from severe dementia are communicating and are able to be brought into a state where a communicative dialogue takes place. The songs offer a structure, which functions in focussing attention by mediating stability, as well as social and contextual cues. Additionally the songs are used in regulating the arousal level of the participant towards environmental attention and a state most optimal for entering dialogue.

Danish abstract

Personer med en primær degenerativ demens vil på senere stadier af sygdommen have vanskeligheder med at omsætte sanseindtryk og med at udtrykke sig verbalt. Det kan føre til problemer med at indgå i dialog med andre. Psykosociale behov kan vanskeligt opfyldes uden muligheder for at være i dialog, hvilket igen fører til sekundære symptomer på selve demenssygdommen. I dette forskningsprojekt tages der udgangspunkt i brugen af velkendte sange i musikterapi som en måde at indgå i dialog hvor kommunikationen er tilpasset den enkelte person.

Forskningsdesignet er et *fleksibelt* design baseret på en integration af definerede metoder og med data bestående af video observationer, pulsmålinger samt observationer udført af personale, eksterne observatører og af musikterapeuten. Den første del af forskningen består af 6 casestudier hvor fysiologiske data indgår i analysen sammen med de øvrige observationer. Næste del er en hermeneutisk analyse af observationer, som er udført af eksterne observatører. Dette munder ud i en systematisk opstilling af gestisk respons samt en kodning og kategorisering af de kvalitative aspekter af denne. I en tredje del samles de to indfaldsvinkler, og udvalgte eksempler fra casestudierne analyseres med udgangspunkt i de kategorier,

der førhen er opstillet, og som beskriver forskellige grader af kommunikation.

Resultaterne viser at 1) Sang her en positiv indflydelse på de 6 personer med svær demens. Denne indflydelse kan defineres ud fra graden af kompliance, ændringer i pulsfrekvens og ud fra forskellige måder at deltage i musikterapien på. 2) De seks deltagere formår at kommunikere med musikterapeuten, og denne kommunikation kan karakteriseres ud fra et system af kommunikative signaler der afspejler forskellige grader af kommunikation: grundstemning, receptiv deltagelse, socialitet, aktiv deltagelse, kommunikativ musikalitet samt dialog. Der ses en sammenhæng mellem et afbalanceret arousalniveau og mere intensive grader af kommunikation. 3) I 5 ud af 6 konkrete tilfælde viser musikterapien en indflydelse på aspekter i dagliglivet udover musikterapien, defineret i et statistisk signifikant fald i pulsfrekvens i en periode før og efter terapien for personer med svær demens som udviser agiteret adfærd.

Deltagerne viser tydeligt at de har gavn af musikterapiforløbet, og vigtigst: disse 6 svært demensramte kommunikerer, og de lader sig lede til en tilstand hvor dialog kan opstå. Sangene er udtryk for en struktur som kan fungere som opmærksomhedsstimulering ved at formidle stabilitet samt sociale og kontekstuelle cues. Sangene har ydermere den funktion at de kan bruges til regulering af arousal, således at deltageren kan ledes til en tilstand hvor vedkommende er mest opmærksom overfor sansestimuli. Dette giver de bedste betingelser for at indgå i dialog med et andet menneske.

Acknowledgements

This work has only been possible because a large number of people have given me support. Support in very different ways, ranging from inspiration, challenge, information, trust, encourage and time.

I want to thank David Aldridge in his position as my supervisor. A supervisor is literally a person who is able to view matters from a broader sight. In German a supervisor is a Doktorvater (doctor father). Even though Germans traditionally would say "Sie" to their Doktorvater, there is familiarity and confidence connected with the naming. In Danish a supervisor is a Vejleder (*way-leader*), a guide and instructor. It is a person who *knows* the way and the direction to go, and is able to *show* which direction to go. To carry out research and writing a thesis is a privilege when one person, who manages being your supervisor as well as your Doktorvater and Vejleder, is at your side! Although there is a great distance between Witten-Herdecke (Germany) and Aalborg (Denmark), David Aldridge has been present in cyberspace, and always promptly answered my mails. The supervisions fully answered my questions, gave me lots of inspiration, information, encouragement, and new questions – and helped me in keeping my focus.

Thanks to Tony Wigram who arranged very giving, inspiring, and instructive courses for the PhD-students enrolled in the doctoral programme at Aalborg University. He invited leading authorities in the music therapy field to present at the courses, and made the basis for exciting and educational discussions at a very high level. Additionally, Tony Wigram organized presentations done by the PhD-students in the peer group in a professional and confident atmosphere, and the very constructive and challenging feedback – from Tony Wigram, the guest researchers, and the rest of the peer group – on our works in progress meant a lot to the quality of these respective works. He has made the PhD-courses a highlight in the study period and after each course I was loaded with new ideas, information, and perspectives.

Six persons, Mr A, Mr B, Mrs C, Mrs D, Mrs E, and Mrs F, spend 20 music therapy sessions with me and in this way contributed considerably to the clinical part of this research. I still often think of these six, forceful personalities and I am grateful about what the gave to

me without themselves being aware of it. I want to thank their relatives for the very positive attitude towards the research project and by letting the anonymized stories of their loved ones be part of this work.

For my colleagues, staff members on unit II, Plejehjemmet Caritas, the research project caused them extra work when filling out questionnaires and putting on equipment for heart rate measurements on the participants. I am thankful about our good collaboration, our talks, and the daily information about the participants. The knowledgecenter for Århus county at Caritas supplied me with important information. Inga I. Petersen supervised ethical issues concerning the participants, and principal, Birgit Mikkelsen, backed up the project from the very beginning.

My five music therapy colleagues: Bent Jensen, Niels Hannibal, Morten Højgaard, Sanne Storm and my teacher and Vejleder Inge Nygaard Pedersen spend many hours doing valuable analyses on the video clips, and contributed with important data to this work.

Christian Gold, the peer group expert in statistics, willingly discussed t-tests and statistical calculation with me. Tom and Gitte Duus, and Irene and Carsten Bro Brinkmeyer offered Bed & Breakfast when I needed to stay in Aalborg, and supported me with giving talks and very useful social research literature. Ulla Holck, whom I first time met when I started studying music therapy in 1985 and who finished her PhD in 2002, supported and encouraged me with comments on the text, talks and mails, and Lise Overgaard supported in a very special manner by pulling me out into the fresh air for long joggings.

When I write these lines, that are my last lines before this material goes to the printers, Christoph, my husband, is sitting at his computer working with layout details, while Christa Ridder, my mother-in-law is with the children. Together with Karen Ochsner, my mother, who spend hour after hour proofreading and trying to teach me a proper English, they have been the most supportive team to have around. Christoph's IT-support and layout knowledge has been indispensable, and not least our dialogues.

Introduction

By mere chance I saw a small advertisement in the local paper offering a job as music therapist. I was attracted to the outer aspects of the job; it was close to my home, it was a part time job, and the conditions of appointments were all right. But! ... the job was with old people. Having worked with children and adolescents I had no experience in working as a music therapist with old people, and felt I had to start from scratch. Giving it a try I applied, and plunged headlong into the job. What I first saw were old patients with various deficits. Some had spent long periods of their lives on psychiatric wards, and were now offered a home here. Others had led a "normal" life, but were struck by dementia and could no longer take care of themselves.

There were only 24 residents at the unit, and soon this group of patients or strangers became familiar to me. Not only did I learn their names, hear about their lives, and meet their relatives, but my perspective seemed to change, and I saw a person behind the deficits and saw the resources that were still there. I realised that my job as a music therapist was very privileged. The music often worked as a key that gave assess to pleasure, achievement, and expression within the person. I saw Mrs S close her eyes, smile, and sigh with contentment when she heard Placido Domingo sing, and Mr R accurately tapping the beat with his hand, when I played old songs from revues, and the tears in Mr G's eyes when he joined in singing the song he had asked me to sing. Pleasure, achievement, and expression is described by the music therapist Trygve Aasgaard (2002, p. 219) as connected to Homo Ludens, a being who plays, Homo Faber, a being who creates/produces, and Homo Communicans, a being who communicates. – Aspects that again are connected to environmental characteristics in a culture of leisure, a culture of creativity, and in a culture of dialogues. Seeing these old people having fun, enjoying themselves, being creative and giving, expressing themselves and entering dialogue was seeing the person behind the deficits.

It was a privilege too when 5 years later I had the possibility to carry out research in this field. It was clear to me that my focus would be on the use of familiar, pre-composed songs in individual music therapy, although in my clinical job I worked in various ways with music. I see the songs as a key to the person, and a key to enter dialogue with persons who might have lost the ability to use words in spoken language and the ability to play on music instruments. Actively playing with instruments and improvising seems to be the most described form of music therapy.

This work deals with a group of "clients" or "patients" with severe symptoms of dementia, and the participants described in the study suffer from dementia in advanced stages and are living in a special gerontopsychiatric care unit. When I refer to texts I might repeat the authors' way of naming this group of people as patients, clients, or subjects, but otherwise I name them as persons with dementia or as the participants.

Readers who have the courage to take a plunge into all these words are most likely professionals in the health care sector, interested in a non-pharmacological approach to dementia care, therapists with an interest in the clinical application of music therapy with a client group close to the one described here, and/or researchers with an interest in flexible research design strategies.

The research is carried out in close collaboration with Care Unit II, the Nursing home Caritas, the Knowledge Centre on dementia in Århus County, and Aalborg University, and with approval from relatives, from the ethical committee in Århus County, and the Danish register inspection.

Overview of the thesis

The first three chapters contain a theoretical introduction and presentation of terms and understandings relevant to the research. Chapter 4 describes the research methodology, and chapter 5 the clinical background. The next three chapters imply different research strategies and give different perspectives on what I want to present as the essence of this kind of music therapy work, approaching this essence with different means. Chapter 6 consists of 6 case studies, chapter 7 of a hermeneutic analysis (using the computer software ATLAS.ti) of eight short video clips with observations done by external assessors, and chapter 8 is a synthesis of chapter 6 and 7, using the coding tool formulated in chapter 7 on examples from the case studies in chapter 6. Chapter 9 is a conclusion of the work.

Each section or chapter is completed with a short summary. The index on the very last pages facilitates the search for certain topics in the material, and at page 354 are listed the abbreviations used in the text.

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Chapter 1

Music therapy and dementia

> "Neurology's favourite word is "deficit", denoting an impairment or incapacity of neurological function: loss of speech, loss of language, loss of memory, loss of vision, loss of dexterity, loss of identity and a myriad other lacks and losses of specific functions (or faculties)." (Sacks 1985, p. 1)

1.1 Deficits

The poor relief brings Johann F. to the psychiatric clinic. He was a day-labourer, 56 years old, and not able to carry out any work. Since his wife died, two years ago, he is dull and passive and for the last 6 months he forgets things (probably not as a result of drinking). He is not able to clean himself up or to cook a meal, although he greedily eats the food served to him. He knows how to count to ten, and the days of the week; when the doctor asks him the colour of *blood* he answers; "red"; of *snow*; "white"; but to the question of *milk* he answers; "good"; *soot*; "(no answer)". With this simple sequence of questions, where the doctor does not repeat the basic question, Johan F loses the thread already in the third question. Of the Lord's Prayer he only remembers the first half. But he knows how to blow a mouth organ and when the doctor, who is a passionate cigar smoker, gives him a cigar, he puts it in his mouth, strikes a match and smokes.

He stays at the psychiatric clinic for the next 3 years, until he dies of pneumonia on October 3^{rd} 1910. His doctor, Alois Alzheimer, publishes his case on January 11^{th} 1911 and describes "Fibrillenver´anderung" and "spongi´osen Rindenschwund" found at microscope inspection after brain biopsy at autopsy. He found the same neurofibrillary tangles and senile plaques at autopsy after the death of Auguste Deter, a case he published in 1907 for the association of "S´udwestdeutscher Irren´artzte".

Alzheimer describes Johann F.'s pathological picture with many details, and in May 1908 he writes:

> "Other patients have taught him to sing. When requested he sings: "Wir sitzen so fr´ohlich beisammen" (We're sitting so merrily together). At this he must have the text repeated, the tune he catches quite correctly." (Alzheimer 1911, p. 360, *my translation*)

About 7 months later, in December 1908, Alzheimer notes that Johann F. suffers from incontinence, has stopped speaking, and fiddles endlessly with his clothes or his bed linen. But he . . . :

> "still sings when the others start: "We're sitting so merrily together." (Alzheimer 1911, p. 361, *my translation*)

For the next two years Alzheimer makes only few notes of mainly medical observations on Johann F. In these notes he establishes that Johann F. is in a state of "tiefer Bĺodsinn", what he nowadays might have called global and profound impairments of memory function and breakdown of semantic knowledge. He describes the signs of aphasia, agnosia and apraxia and speculates about aetiology. He excludes "senile Demenz" as a possible explanation, due to Johann F's young age with the first symptoms starting when he was only 54. The round clumps of "cellular trash", also called senile or amyloid plaques, and the excessive collection of proteins in tangles found by autopsy, appear equally in normal ageing, but the pattern and the quantity is different in what we now call Alzheimer's disease (AD).

During the 3 years that Johann F. is hospitalised, Alzheimer writes down his observations with intervals of weeks, months and even more than a year. He notes the progressive deterioration, but also observes that little incident where Johann F. sings "Wir sitzen so fŕohlich beisammen" with the other patients (see a full version of the song at page 303). He writes that Johann F. learns the song from the other patients, but when I try to imagine the situation with patients singing merrily together, the scene becomes grotesque, and I get associations of Monty Python or the film One flew over the Cuckuck's nest. I do not know how daily life was for Johan F, but if the way psychiatric patients was treated in Germany at that time resembled the conditions in Denmark, he would live in a big dormitory with up to 20-30 beds, with patients having a wide range of diagnoses, with no personal belongings, wearing the same clothes as the other patients, and no private toilets or bathrooms with doors to lock (Abelskov in: DemensNyt 2001a). Staff would use physical restraints as strapping down with belts on beds or chairs, if patients were agitated. Patients might also get medication with strong sedative effects (psychopharmacological treatment was not introduced until the 1950s). – And they sing merrily together!!

This singing might be part of a routine at the ward, or it might have a significant emotional (sarcastic?) function for the patients. But whatever the function of the singing, Johann F. is able to learn the song and to sing the tune, even though he has problems with the text. Later in his work Alzheimer diagnosed the patient described in his first case, Auguste Deter (Alzheimer 1907), as an atypical case of senile dementia (she had a degeneration of the smaller cerebral blood vessels, a process now referred to as Alzheimer's sclerosis (www.whonamedit.com). If Johann F. is seen as a *typical* case of AD, I find it interesting whether his ability to relate to the singing is *typical* too. As well as Johann F.'s seemingly remaining procedural memory (the ability to carry out the processes of lighting and smoking a cigar), ability to repeat and keep phonological and syntactical functions of language, and to carry out simple motor functioning, his ability to communicate musically is interesting, and it is worthwhile considering his remaining functions instead of focussing on his deficits. In order to illustrate procedural memory in connection with the memory system I have included figure 1.1 giving an overview of short-term and long-term memory.

In continuation of this "typical" case of AD, a relevant question would be, if there is reason to believe that musical skills might be preserved to some degree in persons with dementia of Alzheimer's type? A few research studies in the late eighties and in the nineties have examined this. In documented case studies Beatty *et al.* (1988, 1997), Crystal *et al.* (1989), and Polk & Kertesz (1993) describe that former skilled music players (2 piano players, a guitar player and a trombone player) retained considerable skill at playing although they suffered from AD in mild to moderate degree. The trombone player continued playing in his Dixieland jazz band even though he showed a form of dressing apraxia (Beatty 1997). The guitar player could no longer read music notation but could produce music improvisations, which were continuous

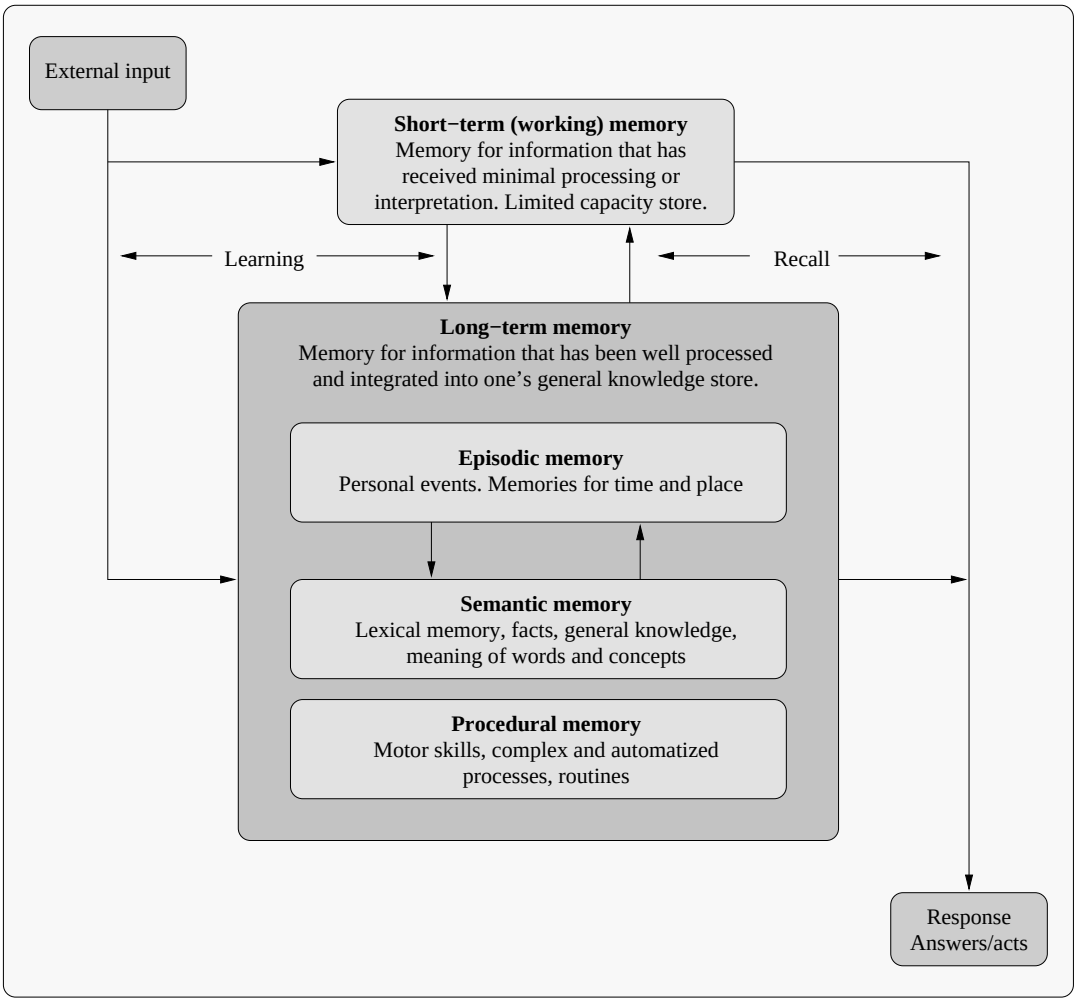


Figure 1.1: Various aspects of memory, a conceptional model (after Bruhn 2000):

and lengthy (Polk & Kertesz 1993), and the two piano players would still play the piano well when playing familiar music (Beatty *et al.* 1988; Crystal *et al.* 1989). Polk & Kertesz (1993) describe a piano player who is no longer able to play the piano, but able to complete melodic phrases and name familiar tunes accurately. When she is improvising there is no trace of meter or rhythmic organization, but she is able to reproduce rhythmic patterns by clapping hands without error.

Crystal *et al.* (1989) conclude that the skill of playing previously learned compositions from memory represents a special kind of procedural memory which is partly stored in the neostriatum, an area of the brain spared until the latest stages of AD. The dissociations of the musical skills, e.g. the ability to either play rhythms spontaneously or to reproduce rhythms, or the dissociations between initiating or joining in music, imply that parallel functional and anatomical systems exist, and support cognitive models that describe several separable, multicomponent processing systems (Polk & Kertesz 1993). These cognitive models deal with studies of the interaction and the co-operation between the two hemispheres instead of

studying the differences between the hemispheres (Gade 1998).

Beatty *et al.* (1997) suggest the possibility that skills are preserved to some degree, but the ability to initiate and carry out an act is lost, as the memories that control this ability is inaccessible. They recommend an effort to devise and evaluate therapies designed to foster access to stored knowledge. When the other patients sing, Johann F. seems to gain access to stored knowledge of e.g. intervals, expectations, and tempo in music. The persons with AD in the case studies mentioned here were all trained music players. It would surely have been noted if Johann F, the day-labourer, had had musical education. Nevertheless he shows ability to sing with the group, but for how long he preserves this ability is not described in the medical charts for the last two years of his life.

In a longitudinal study over 2 years Johnson & Ulatowska (1996) describe a "typical" case with a woman with AD showing impairments in language and cognition, but being still able to sing familiar songs. For her the ability to sing remained longer than the ability to relate to the song text. As the dementia progressed her ability to sing decreased, the tune became monotonic, and rhythmic organization was lost. "It is important to note that the subject continued to attempt to sing the songs, although the integrity of the song was compromised." (Johnson & Ulatowska 1996, p. 164) Swartz *et al.* use an electrophysiological diagnostic technique ERP (event-related potential, loosely interpreted as measures of the strength and speed of neural processing) to test auditory discrimination tasks employing music stimuli. Six persons with AD participate in the test with a control group of 12 healthy old people. Results suggest that subjects with AD respond to music and are capable of discriminating between fundamental music elements, though their responses are somewhat slower than those of the control group, and though they are significantly degraded in terms of performance (Swartz *et al.* 1992). Swartz *et al.* state that patients with AD need nonpharmacologic forms of treatment, so that neuropsychologic studies of musical expression and memory, and of musical memory and comprehension abilities, are called for.

In a literature review from 1989 Swartz *et al.* establish that many successful neuropsychologic studies of aphasia in persons with AD have been done, and that there is evidence of a remarkable responsiveness of patients with AD to music (Swartz *et al.* 1989, p. 156). They conclude that where the discourse in AD can be characterized as empty and verbose including many semantic errors, it is seen that syntax, complexity of syntax, fluency, phonology, and morphology are more normal, and degenerate only later in the disease. All these aspects of language; syntax, fluency, phonology, morphology, as well as intonation, tempo, pitch, word stress, and rhythm, are musical or prosodic aspects of language. A great deal of what is communicated by speech is contained in its prosody. Alzheimer (1911) writes that Johann F. repeats questions instead of answering them, and that the ability to repeat is not disturbed. That means that he does not react on the semantic meaning of the words in the question, but reacts on the syntactic features, and responds by taking his turn in the communication. Answering a question in a conversation by simply repeating the question is normally seen as wrong. In a musical dialogue repeating might be seen as "part of the game", and repetition of motives might even be considered very important to the music (like singing Brother Jacob (see page 305) without repetitions gives the song a totally different feeling).

"Neurology's favourite word is deficit", says the quotation from Sacks at the beginning of this chapter. Dementia or AD is synonymous with deficits and losses, and it is important to recognize the losses in order to understand and be able to meet the needs of persons suffering from dementia. But there are situations as well where we need to turn things upside down by subordinating the deficits and focus on the surplus stocks. Surpluses might be activities related to procedural memory, prosodic aspects of language and of music; skills that seem to be preserved longer in the degenerative process of AD.

1.2 Dementia

> "When dialogue fails then we have alienation and despair. The maintenance of the self degenerates through isolation ... we have the potential for dialogic degenerative disease. Patients may be forced into a silence that they have no possibilities to neither transform nor structure, they are banished from the social to an isolated and degenerated self." (Aldridge 2001a)

In the next part I give an introduction to the dementia syndrome and describe general deficits and symptoms. These lead to an understanding of certain constructs (dialogic degenerative disease, psychosocial needs) that I later refer to often.

Prevalence

The prevalence of dementia increases with age. The population of persons older than 65 is increasing. In US only 4% of the population were more than 65 years old in the year 1900. At the turn of the century the number is about 11%, and according to prognoses a fifth (20%) of the population will be over 65 in about 30 years (Zillmer & Spiers 2001). About 1% of the group of 65 years old suffer from dementia. This percentage increases dramatically with age, and in a population of persons over 90 years 30-40% will suffer from dementia (Bekkelund 2002), which shows that the biggest risk of getting primary degenerative dementia is age. The fact that the percentage of old people is increasing means that the number of persons suffering from dementia will be increasing.

These statistics refer to the American population, and as this study has been carried out in Denmark I want to include information on the Danish context as well. Where nothing else is indicated the following statistics are based on Statistics Denmark (Statistisk Årbog 2002; Statistikbanken.dk), which is responsible for the co-ordination of all offcial statistics concerning Denmark and Danish society (see the English version at www.dst.dk).

Denmark is a small country with a population of 5,350,000 persons in 2002, and we see the same prevalence of dementia as in other Western countries. In the group of 60-65-years old 1% suffer from dementia, whereas 20% of the 85-90-years old suffer from the disease. A number of about 80,000 persons suffer from dementia which is 2% of the population as a whole. If we just look at the group of persons over 65 years, we see a prevalence of dementia of 7% which means that about 55,000 persons of this age suffer from the disease (Sundhedsstyrelsen 2001). The incidence for developing dementia is estimated to be 2.5% for this group. This means that during one year about 19,000 persons will develop the disease. So apart from a great need for professional staff, community care services, and nursing homes, there is also a need for diagnostic assessment, family counselling, and support.

Expenses

With the progressive dementias a large group of persons end up having a need for total care which is a big economic factor. In 2002 the social expenses in Denmark were 358 billion Danish crowns (48 billion €) which is about 29% of the GDP (Gross Domestic Product). The largest expense was used for the elderly, such as pensions, respite care, home nursing, and residential care (Statistisk Årbog 2002, p. 163). Altogether 77,721 persons live in either residential homes (27,806 persons), in senior citizens' suites (37,860 persons), or they attend programs in day care centres (8,004 persons). The social welfare system in Denmark makes it financially possible for every old person to live in a residential home that has a good standard with single rooms and professional carers (although there sometimes is a waiting list problem).

How many of these persons living in residential homes suffer from dementia? It is impossible to give exact numbers, as few residents have gone through a diagnostic assessment procedure, but from different homes it is estimated that between 50% - 80% of the residents suffer from dementia. It is estimated as well that 60-75% of the persons suffering from dementia - with early as well as late onset - live at home and are taken care of mostly by a wife or a daughter. In the "Odense study" from 1999 (Andersen *et al.* 1999) 245 persons suffering from dementia (or their caregivers) and 490 persons not suffering from dementia were interviewed about their use of the social system, e.g. use of hospital system, general practitioner, dentist, physiotherapist, chiropractor, or of home care, local health center, nursing home, aids and appliances. Based on this material the following annual costs for each person were calculated:

- no dementia 22.000 kr. (€2900)
- very mild dementia: 49.000 kr. (€6.500)
- mild dementia: 93.000 kr. (€12.400)
- moderately severe dementia 138.000 kr. (€18.400)
- severe dementia 206.000 kr. (€27.500)

From these numbers we see that persons suffering from moderately/severe dementia form a considerable financial factor to the health care system; as an example a person suffering from severe dementia is calculated to cost more than 200.000 kr. (€27.500) each year. Diagnostic assessment might be very expensive, and we see that only about 15% of elderly Danes with dementia have gone through an exact and systematic assessment procedure. With new assessment tools and clinics with expert staff, it is expected that a higher percentage of patients will go through a systematic assessment. Increased assessment, and in succession with this, increased professional counselling might in the short term increase expenses, but in the long term lead to more effective and cost reducing treatment and care.

Counselling and support

Knowledge and counselling are important to patients, relatives and professionals, and special centres and institutes mediate information and research in Denmark, among these: Dansk Gerontologisk Selskab (www.gerodan.dk), Alzheimerforeningen (www.alzheimer.dk), Ældrenetværket (www.eldrenetverket.dk), Ældresagen (www.aeldresagen.dk), and Socialministeriets Institut for pensions- og Ældrepolitik (tidl. Formidlingscenter Nord) (www.fcnord.dk). If a family member is struck by dementia the family has a right to require psykosocial treatment or support according to Danish social laws (Johannsen *et al.* 1999). The support services include telephone help lines, community care service (home nursing, help with housework, meals, bathing, shopping, gardening, etc.), respite care (by paid workers or volunteers), short term stays at nursing homes, recreation together with caregiver, residential care, and support groups for carers. The support services seldom include music therapy. There is only one music therapy course in Denmark, a five-year study at the University of Aalborg, and few music therapists with a master degree are employed in elderly care. Individual music therapy is offered at less than 10 nursing homes in Denmark. But music activities lead by occupational therapists, nurses, social and health care assistants, or volunteers are common (see page 38). The many initiatives on music activities and music stimulation are often inspired by the work of the Danish music therapy pioneer, Synnøve Friis (Friis 1987). There is a growing interest in employing music therapists in elderly care, and during the last years at least 5 new employments of music therapists have taken place. There is a growing interest in gaining knowledge about music and dementia as well, and in the year

2001 the Ministry of Social Health initiated a project that combined a literature review on music therapy and music activities with persons with dementia, together with instructions of the different implementations resulting in the book "Musik & Demens" (Ridder 2002a).

The dementia syndrome

Dementia is a syndrome representing nearly 100 different diseases. One of these diseases is Alzheimer's disease (AD) that represents a majority of diagnosed dementia cases. Other dementia diseases are e.g. Lewy body dementia, multi-infarct (vascular) dementia, AIDS dementia, alcoholic dementia, herpes encephalitis, dementia pugilistica (boxer's syndrome), heavy metal poisoning, and diseases named after Pick, Creutzfeldt-Jakob, Huntington, Parkinson, Wilson, and Binswanger.

Dementia is normally categorized as cortical, subcortical, or mixed dementias, but may also be a result from other conditions, e.g. vascular, infectious, or toxic. In cortical dementias primarily the grey matter is affected as in Alzheimer's disease, where massive cell loss and brain shrinkage is seen. But even if AD is termed a cortical dementia, changes in subcortical areas (e.g., hippocampus and amygdala) are seen. The neural changes, where some may not be registered until post-mortem inspection, show atrophy, deterioration of the large neurons, missing neurotransmitter activity, cell death, accumulation of neurofibrillary tangles or betaamyloid, and clumps of neuritic plaques between the cells.

> "Noticeably spared are the primary motor and sensory areas (tactile, auditory, visual) and the basal ganglia. The affected structures correspond to areas of higher cognitive functioning and memory, leaving relatively untouched more basic sensory and motor abilities." (Zillmer & Spiers 2001, p. 367)

Subcortical dementias, such as Parkinson's disease, Huntington's disease, or Creutzfeldt-Jakob disease, affect noncortical structures, e.g. basal ganglia or cerebellum. This affects the motor system and leads to response latencies and executive dysfunction. Where the primary degenerative dementia diseases are progressive, secondary neurotoxic conditions (e.g. caused by alcohol) may be static when the influence on the brain has stopped. It is clear that the term dementia covers very different symptomalogies, but in WHO's diagnostic criteria ICD-10 or in DSM-IV some general main features are described, e.g. *loss of cognitive or intellectual function*. In this study I refer to persons with progressive cortical dementia in advanced stages. Figure 1.2 illustrates how the different cognitive domains are affected by the progression in AD.

The figure shows that episodic memory is the first to disappear in the beginning of dementia, whereas basic sensory and motor function remains unaffected until late in the disease. In severe dementia aspects of procedural memory, simple judgements, orientation in familiar environment, syntactic language functioning, recognizing of faces or objects, basic sensory and motor functioning are the last spared.

In order to describe the different general stages of deterioration I here use the GDS; The Global Deterioration Scale for Assessment of Primary Degenerative Dementia defined by Professor at New York University Berry Reisberg (Reisberg *et al.* 1982), and the FAST; Functional Assessment Staging (Reisberg 1988). The Global Deterioration Scale describes 7 stages, beginning with stage one where the person shows no cognitive decline. At stage 4 the person suffers mild cognitive impairment, and on stage 5 the person suffers moderate dementia and is no longer able to survive without some assistance. In his theory of retrogenesis Reisberg (1999) compares the functional abilities on this stage with the functional abilities of a child aged 5-7 years. Stage 6, moderately severe dementia, is compared with the functional abilities

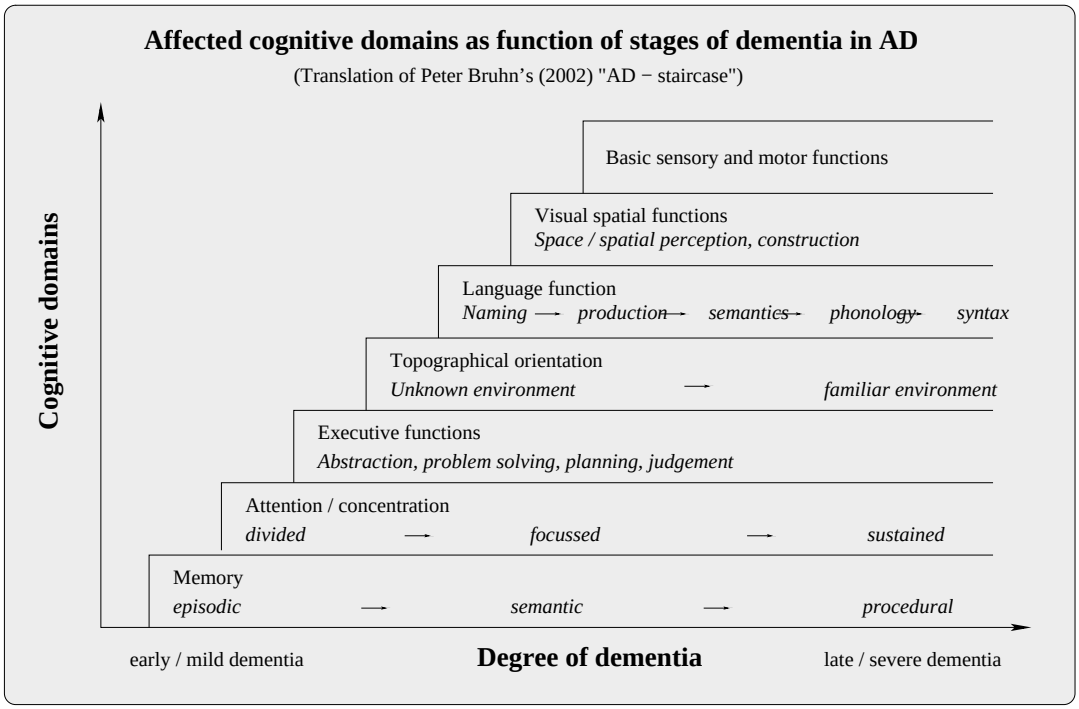


Figure 1.2: AD-staircase

that a child aged 2-5 year shows. On stage 7, severe dementia, the person is totally dependent on help from other people. This study particularly refers to persons with *moderately severe dementia*, stage 6, and *severe dementia*, stage 7, showing severe cognitive decline (The GDS scale can be found at www.geriatric-resources.com). The six participants in the study are at the borderline between stage 6 and stage 7. Three participants at the very 'low' end of stage 6, and three participants on the first steps of stage 7. They are refered to suffer from severe dementia or dementia in advanced stages.

As a very general rule of thumb there are 5 main symptoms of dementia, the five A's: amnesia, aphasia, agnosia, apraxia, and agitation.

Amnesia means loss of memory, e.g. loss of old memories (retrograde amnesia) or loss of the ability to encode and learn new information (anterograde amnesia).

Aphasia is a partial or complete loss of language abilities.

Agnosia is inability to recognize the form and/or function of objects and people.

Apraxia is impaired cortical motor processing and inability to perform voluntary actions despite adequate amount of motor strength and control. (Zillmer & Spiers 2001)

Agitation starts with the letter A, and is therefore mentioned among the 5 A's. Agitation is not the only behavioural and psychological symptom associated with dementia, but it is a symptom that reduces quality of life for the sufferer and makes dementia care very demanding and challenging. Here a distinction between *primary symptoms* that are related to neurological changes, and *secondary symptoms* originating in causes not

directly related to the dementia disease, and which might be treatable by pharmacological as well as non-pharmacological means. Agitation is just one symptom of dementia embraced by the term BPSD (behavioural and psychological symptoms of dementia, see *www.ipa-online.org*) that replaces the term "behavioural disturbances". BPSD also includes symptoms of e.g., psychosis, delusions, paranoia, hallucinations, aggression, hyperactivity, and depression. The term is increasingly used, at least in the Nordic countries, but is not (yet) classified as a subtype in the dementia diagnoses in DSM-IV or ICD-10 showing that especially psychological symptoms are underestimated as a health problem in official registration.

Two extreme states

In persons with dementia two extreme states might appear; either a state, where the person is sitting apathetic in a chair not taking part in any activities or in the social life, or a state where the person is reacting with exuberance, frenzied activity or aggression. - A state of a) total withdrawal or a state of b) catastrophic reactions.

a) States of withdrawal resemble Tom Kitwood's (1997) description of 'burnt-out' states. Professor Tom Kitwood (1937-1998), who established the Bradford Dementia Group, has done influential research on the subjective experience of dementia, and I will refer to his ideas. Burnt-out states

> "typically ensue after the nervous system has been at a high level of arousal for a long period; there comes a stage when it can no longer sustain such intensity of discharge. The burnt-out condition is not one of positive peace, but of very severe depletion." (Kitwood 1997, p. 80)

b) The state of catastrophic reactions is similar to Kitwood's description of three global states of terror, misery, and rage;

> "...these are raw emotions associated with a high level of arousal of the sympathetic nervous system. Here a meaning is diffuse – not attached to specific situations, persons or objects." (Kitwood 1997, p. 80)

Cohen-Mansfield (research director at Research Institute on Aging, Rockville, USA) describes four categories of agitated behaviour;

1. physically aggressive agitated behaviour,
2. physically non-aggressive agitated behaviour,
3. verbally aggressive agitated behaviour, and
4. verbally non-aggressive agitated behaviour.

Physically and verbally aggressive behaviour might reflect the states of catastrophic reactions and emotional arousal: "Agitation may be an over-expression of emotional arousal" (Aldridge 2001). Catastrophic reactions might lead to stress, which affects the progression of dementia in a malicious way, as "prolonged exposure to stress can cause irreversible loss of hippocampal neurons, and may be relevant to the cognitive deficits seen in many aged individuals" (McEwen & Sapolsky 1995, p. 205).

Additional to implying serious stress to the person, states of catastrophic reactions are very challenging to caregivers, and carry economical costs to the whole society. Consequences

seem to be physical restraints and medication. In dementia care focus is on agitation, as this is most challenging to our systems, both physically and economically. States of burnt-out or vegetation reduces quality of life dramatically, but mainly "only" to the person him/herself, and there seems to be not so much focus on this problem as with problems of agitation.

In between the two extreme states people might undergo a degree of 'rementing' and reacquire capacities for meaning-giving (Kitwood 1997, p. 80). In these periods the dementing process is reset and good care might even create conditions that allow some degree of neuroregeneration (ibid., p. 101). Instead of merciless progression of the disease with stagnant periods, the 'rementing' idea illustrates varying periods of ups and downs, and most importantly an interaction or causal connection to the environment.

Kitwood (1997) and Naomi Feil (1992) describe the two extreme states seen in dementia in their respective work. The states are seen as more permanent conditions for longer periods of time. Contrary to this I see them as fluctuations that happen throughout the day. In the next chapters I describe similar states of hyper- and hypo-arousal, where the person with dementia in periods of the day, e.g. in the late afternoon, shows more or less extreme states of agitation which then later is replaced by burnt-out states. The cause of these fluctuations in mood and behaviour might be neurological or physiological, but might also be influenced by environment, by social interaction and by fulfilment – or *no* fulfilment – of needs.

Dialogic degenerative disease

The various clinical symptoms of dementia occur very differently according to type of dementia. Alzheimer's disease is often associated with anomic aphasia, characterized by word-finding and -naming difficulties. The way the person talks can be illustrated as "word salad"; there seems to be no meaning in what is said, but the way things are said sounds quite "normal". In these cases semantic meaning has disappeared but phonological and syntactical aspects of language seem to be preserved. Other types of dementia, e.g. vascular dementia may show very small signs of aphasia, or the opposite; showing signs of global aphasia, according to which parts of the brain that are most inflicted. Some persons may show signs of nonfluent aphasia, where they clearly know what they want to say, but can't find the word even though it is "just on the tip of the tongue".

In general, loss of conversational skill is likely to be an early marker of dementia syndrome (Orange *et al.* 1998, p. 135), at later stages of the different dementia diseases it seems very troublesome or even impossible to maintain conversation or dialogue. Language deterioration is a serious problem and might cause secondary consequences of dementia.

> "Studies that consider communication-related stress show that communication breakdown is perceived by caregivers to be a primary problem in coping with the disease, and that communication problems increase the risk of early institutionalisation of the individual with DAT." (Orange & Colton-Hudson 1998, p. 57)

Considering the severe implications of communication breakdown David Aldridge calls dementia a dialogic degenerative disease:

> "...rather than neuro-degenerative diseases, we are faced with dialogic-degenerative diseases." (Aldridge 2001a)

In dialogic degenerative diseases following symptoms of dementia mainly disturb the communication:

- Semantic anomic aphasia
- Expressive speech deficits
- Speech comprehension deficits
- Attention and orientation disturbances
- Response latencies

Orange & Colton-Hudson suggest that caregivers must show attention to the communication breakdown that might lead to isolation, depression and agitation:

> "... caregivers will need to learn that they may be able to overcome these progressive declines in communicative performance if they adjust their language, speech, and nonverbal components of their communication, the environments in which communication takes place, and their attitudes, perceptions, and expectations of performance." (Orange & Colton-Hudson 1998, p. 136)

Lacking abilities to communicate might cause secondary symptoms that are not primarily caused by the neurological deficits. Robert & Algase (1988) set up 3 types of behaviour that indicate a disordered person-environment interaction:

- Repetitive behaviour (wandering, trailing, rubbing, etc.) may indicate that the person is unable to access adequate physical and/or social environmental information.
- Catastrophic reactions (emotional outbursts, aggressive acts) may indicate that environmental demands exceed the capacity of the person to respond adaptively.
- And situationally inappropriate behaviour (hiding and wrapping things, fiddling, making noises, eating non-food) suggests that the person is misinterpreting environmental or personal information. (Robert & Algase 1988, p. 89)

To catastrophic reactions I want to add reactions where the person is in a more or less constant state of stress caused by too high environmental demands, but also by total isolation, as it is not possible to fulfil psychosocial needs. In the next chapter it is described that it is only possible to fulfil psychosocial needs in a dialogue. From research in infant development it is broadly accepted that children deprived of social communication react seriously on the lack of bonding. It is not enough to fulfil physical needs and give the child food, clothes, and a place to live; psychosocial needs must be fulfilled too. For grown-ups isolation and no personal network are seen to increase risk of getting psychiatric problems. Only through social contact and communication is it possible to understand and validate psychosocial needs.

Psychosocial needs

The definition of psychosocial needs are related to humanistic theories. Abraham Maslow (1908-1970) described a hierarchy of needs; physiological needs, safety, affiliation, esteem and self-actualisation. Erik Erikson (1902-1994) focussed on social relationship and described psychosocial development, stressing the interaction between the person and the psychical and social environment. Tom Kitwood (1997, 1997b) focussed his research into the subjective world of dementia and defined a cluster of five great psychosocial needs – comfort, attachment, inclusion, occupation, and identity – which come together in the central need for love (Kitwood 1997). He sees that the first psychological task in dementia care is to generate interactions of

a really positive kind, and the second to enable the interactions to continue (Kitwood 1997, p. 96). For caregivers this means that the more severe the dementia, the greater the need for special interactive competencies will be (Kitwood 1997, p. 97).

Kitwood uses the term *need* to illustrate "that without which a human being cannot function, even minimally, as a person" (Kitwood 1997b, p. 19). He sees the needs as grounded in our evolutionary past and related closely to the way the nervous system functions, but dependent on a particular cultural framework. When needs are met it is possible to break the situation where a person is trapped in states of burnt-out or catastrophic reactions:

> "As the whole cluster of needs is met, it is likely that there will be an enhancement of the global sense of self-worth. At some point in the meeting of needs a person may be enabled to move out of fear, grief and anger, into the domain of positive experience that we have thus far left uncharted." (ibid., p. 20)

By realizing and recognizing the causes to secondary symptoms of dementia it is possible for caregivers first of all to understand the symptomatology, secondly to implement strategies for social interaction in order to meet psychosocial needs.

> "All so-called problem behaviours should be viewed, primarily, as attempts at communication, related to need. It is necessary to seek to understand the message, and so to engage with the need that is not being met." (Kitwood 1997, p. 136)

Kitwood defines 12 types of positive interaction that might function as strategies to meet psychosocial needs; recognition, negotiation, collaboration, play, timalation, celebration, relaxation, validation, holding, facilitation, creation, and giving (ibid., p. 90; Innes & Hatfield 2002). He describes validation, holding, and facilitation as distinctly psychotherapeutic techniques. I will not describe each of these positive interactions, but will accentuate validation and holding as terms very relevant to music therapy. *Validation* literally means to make strong or robust;

> "to validate the experience of another is to accept the reality and power of that experience, and hence its 'subjective truth'. The heart of the matter is acknowledging the reality of a person's emotions and feelings, and giving a response on the feeling level. Validation involves a high degree of empathy, attempting to understand a person's entire frame of reference, even if it is chaotic or paranoid, or filled with hallucinations." (ibid., p. 91)

Naomi Feil (1992) has centred her work on validation and describes her approach as 'validation therapy'. The music therapist, Erndomnez-Grocke (1993), illustrates how she uses well known songs as a way of validating experiences of a client with AD, and contrasts this to the Reality Orientation approach described, e.g. by Riegler (1980).

Holding is a term used in client-centred therapy by Rogers (1951) and by Donald Winnicot (Davis & Wallbridge 1988). Kitwood defines holding as follows: "To hold, in a psychological sense, means to provide a safe psychological space, a 'container'; here hidden trauma and conflict can be brought out; areas of extreme vulnerability exposed" (Kitwood 1997, p 91).

In this work I will not directly relate to the single needs Kitwood defines, or define the needs in depth, but relate to his ideas of social contact and communication.

Summary of the dementia part

It is important to stress that dementia shows other symptoms than neurological deficits, and that behavioural and psychological symptoms of dementia) (BPSD) are considered and

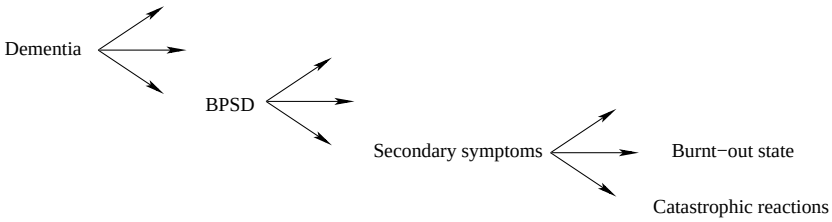


Figure 1.3: Dementia might lead to catastrophic reactions or to burnt-out states

taken seriously. BPSD might be expressed as secondary symptoms in burnt-out states or catastrophic reactions (see figure 1.3). Persons suffering from dementia suffer a dialogic degenerative disease, which makes it problematic and very challenging to fulfil psychosocial needs. If psychosocial needs are fulfilled, extreme states of burnt-out or catastrophic reactions might be avoided. By adjusting the communication with the person focussing on nonverbal components, on adaptation of environment and stimuli, and on attitude, expectations, and demands, it might be possible via the communication to fulfil psychosocial needs (see figure 1.4).

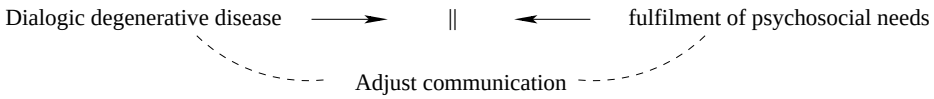


Figure 1.4: Summary of terms presented in chapter 1

1.3 Function and application of music

I have now introduced an understanding of dementia that is referred to later in this material. Next, I want to relate this to music therapy. A great number of research studies dealing with music therapy or effects of music earmark a section in the beginning to define the phenomenon; music. Often a list of historical arguments and cultural, social, religious or other implementations of music and healing are presented. Instead of such a section I refer to professor Even Ruud's article: "Music therapy – history and cultural contexts" (Ruud 2000), where he reviews two major new texts on music therapy: Horden, 2000: *Music as medicine. The History of Music Therapy since Antiquity* and Gouk, 2000: *Musical Healing in Cultural contexts*. I also want to refer to Foster's (1998) dissertation on the effect of music on recall with persons with dementia, where he starts the introductory chapter with: "Music is a world-wide phenomenon." Hence, instead of the section defining the phenomenon music I will introduce the application of music in a very pragmatic way by examining the function and application of music. The focus will be on persons with dementia and their participation in music activities or music therapy, described in newer published studies from 1980-2001. As such my focus is on the kind of music activities Johann F. might have met if he would have been born about a 100 years later.

The use of music with persons with dementia

A systematic literature review (Ridder 2002a) demonstrates that there is a growing interest in using music in dementia care. *(For an updated review, see Ridder 2005a, 2005c).* There is a large basis of knowledge on the influence of music on persons with dementia and a great number of studies testing e.g. the stimulating effects of music. In all these studies more than 800 people with dementia have participated in music tests, music activities, or in music therapy. The way music has been applied as well as the function of the music has differed very much, which I try to describe in headlines in the following. Inclusion criteria for the literature search and search methods are described in "Musik og Demens" (Ridder 2002a). In a meta-analysis concerning music therapy for dementia symptoms in the Cochrane Database carried out in 2000, Koger & Brotons find "no randomised controlled trials, or trials with quantitative data suitable for analysis" (Koger & Brotons 2000). To me this reflects that music therapy research in dementia care still is in its initial phase where studies describing the precise nature of the research topic are needed.

Just as the research in Alzheimer's disease started with a precise description of single finds there is a need for precise descriptions of the details; of techniques, methods, settings and client groups, before these are put together in large-scale outcome studies.

By means of systematic literature search, of Brotons' overview of the music therapy literature relating to elderly people (Brotons 2000), and of using the music therapy article collection at Witten-Herdecke university, as well as the music therapy library at Aalborg University, I got hold of the following material (see the list below) dealing with music and dementia. In the material various research strategies are used such as: 1) (randomised) controlled trials, 2) single case designs (AB, ABA, ABAB, multiple base-line designs), 3) pre/post test designs, 4) surveys, 5) comparative methods (here focussing on assessment tools), 6) documented case descriptions, and 7) anecdotal case descriptions. The latter are included when they embrace elaborate and relevant descriptions of the clinical setting and of the participant(s). It is important to notice that entirely theoretical literature, handbooks, and background material (e.g. Aldridge 2000; Bright 1986, Bunne 1986, Friis 1987) not are included in the list.

Aldridge, G. 2000
Ansdell 1995
Ashida 2000
Baumgartner 1997
Beatty *et al.* 1988
Beatty *et al.* 1994
Bolger & Judson 1984
Braben 1992
Bright 1997
Brotons & Pickett-C. 1994
Brotons & Pickett-C. 1996
Brotons & Koger 2000
Brown *et al.* 2001
Brust 1980
Carruth 1997
Casby & Holm 1994
Christie 1992
Christie 1995
Clair 1991
Clair 1996
Clair & Bernstein 1990a
Clair & Bernstein 1990b
Clair & Bernstein 1993
Clair & Bernstein 1994
Clair & Ebberts 1997
Clair *et al.* 1995
Clark *et al.* 1998
Crystal *et al.* 1989
Denney 1997
Eeg 2001
Fitzgerald-Cloutier 1993
Foster 1998
Gaertner 1999
Gardiner 2000
Gerdner & Swanson 1993
Glynn 1992
Goddaer & Abraham 1994
Groene 1993
Groene *et al.* 1998
Götell *et al.* 2000
Hanser & Clair 1996
Hanson *et al.* 1996
Hintz 2000
Johnson & Ulatowska 1996
Johnson *et al.* 1998
Korb 1997
Lauvland *et al.* 1992
Lindenmuth *et al.* 1992
Lipe 1991
Lipe 1995
Lord & Garner 1993
Mathews *et al.* 2000
Munk-Madsen 2001a
Newman & Ward 1993
Norberg *et al.* 1986
Odell-Miller 1996
Olderog-M. & Smith 1989

Palo-Bengtsson *et al.* 1998
Polk & Kertesz 1993
Pollack & Namazi 1992
Prickett & Moore 1991
Ragneskog & Kihlgren 1997
Ragneskog *et al.* 1996
Ridder 2001
Riegler 1980
Sambandham & Schirm 1995
Silber 1999b
Simpson 2000
Smith-Marchese 1994
Swartz *et al.* 1992
Tabloski *et al.* 1995
Thomas *et al.* 1997
Tomaino 2000
Wellendorf 1991
York 1994

These studies that all include persons with dementia are dealing with very different implementations of music, e.g. background music, active improvisation with instruments, singing, or folk dancing. Various kinds of settings are described, e.g. group or individual settings. Considering the overall function of music and purpose of the setting I here set up the following main groups of musical approaches:

Function of music	Purpose
Evaluative	Assessment
Regulative	Sedative/relaxing adaptation
	Behavioural adaptation
Stimulative	Bodily stimulation
	Cognitive stimulation
	Social interaction
Communicative	Personal interaction

In our everyday understanding, music as art may mostly be considered for its aesthetic function. In literature covering the areas music therapy and dementia I see the four main categories listed in the table dealing with other functions of music.

When music is used with the function to *evaluate*, singing, playing together, or reactions to the music therapy are observed and used for assessment procedures in order to obtain evidence or information (see Wigram, Pedersen & Bonde 2002, p. 246).

With a *regulative* function musical elements are used to change e.g. behaviour or mood. Not to be confused with "Regulative Musiktherapie" developed by Schwabe, Germany (see Decker-Voigt *et al.*, p. 317). Music played at dinnertime might regulate agitation or time spent on eating. Techniques used for receptive or active music therapy such as the iso-principle defined by Ira Altschuler (1948), as well as entrainment (Rider 1997), might make it possible for the therapist to "provoke" a change in the participant.

Music might also be used for the purpose to *stimulate* the participants to be active in various ways. Music is used to motivate and engage e.g. by focussing on language functioning, cognitive abilities or physical movements, with the view on a function either to "use it, or lose it".

At last, music is described to function as a way to *communicate* with a person. Focus is on interaction at a social-pragmatic level (see page 51) where the "whole" person is considered, – a person with emotions, cultural identity, psychosocial needs, and story of life.

The various approaches to music in the studies reflect different music therapeutical traditions and especially reflect the different needs of the client group. In only 15 studies there is a description of the participants' stage of dementia. Knowing the precise stage of dementia or precise descriptions of needs makes it possible to search information of music implementations targeted at a specific group. This is difficult with the little number of studies that indicate this specific information about the participants.

The way an activity is carried out is strongly dependent on social, cognitive and functional abilities of the participants. When the demands in the activity are adjusted to participant's

capacities the consequence seems to be a wide range of initiatives. The music can be used actively or receptively, in groups or individually, with or without instruments, with accompaniment or a cappella, with live or taped music, in structured activities or in activities of daily living (ADL), including other participants (staff, relatives, children) in open groups, where participants are free to come and go, or in closed groups where the constellation of group members is carefully composed.

I want to describe in which way the music is implemented and to correlate this with the main findings from each research study. In order to do this I have set up 14 different ways music therapy is implemented with a client group of persons suffering from dementia. These are characteristics of activities or therapy described in the present literature with this client group and roughly divided in categories. I am not describing each implementation here (they are described in Ridder 2002a) but I give an overall characteristic in table 1.1. I call the different implementations "techniques of music therapy", being aware of the broad span between implementations that are therapeutical in a curative sense, and activities with the function to entertain and/or divert.

Techniques of music therapy	*Live music (Mt plays)*	*Taped music*	*Instrument playing (pp)*	*A cappella singing*	*Structured programme*	*Structured framework*	*Open area*	*Closed group*	*Open group*	*Individual*
Background music		X					X		X	
Music listening		X								X
Music & movement	X	x			X	X		X		
Music-reminiscence	x	X			x	X		X		
Music-stimulation	X	x	X		X	X		X		
MTC/music therapeutical care				X		X				X
Play-along		X	X				X		X	
Sing-along	X				X	X	X		X	
Social dancing, folk dancing	X	x			x	X	x	X	x	
Stress reduction	x	X	x	x	X	X		X		
Therapeutical improvisation	X	x	X	x		X		X		X
Therapeutical singing				X		X				X
Vibroacoustic therapy		X				X				X
Vibrotactile stimulation	X		X		X			X		

Table 1.1: Overview of different techniques of music therapy described in the literature

14 techniques are listed in table 1.1, e.g. *background music* and *music listening*. The X indicate that the approach is used in the initiative, while the small x indicate that it *might* be used. Considering which music therapy techniques are used in the setting (the categories set up in table 1.1) I now want to correlate the findings or results from the 75 studies lined up at page 28 with the overall function of the music described at page 29.

Evaluative approach: Music as an assessment tool

> "Music therapy appears to offer a sensitive assessment tool. It tests those prosodic elements of speech production, which are not lexically dependent. Furthermore, it can be used to assess those areas of functioning, both receptive and productive, not covered adequately by other test instruments, that is fluency, perseverance in context, attention, concentration and intentionality." (Aldridge 1998, p. 27)

The following studies are suggesting assessment tools using active music activities and/or improvised music; Hintz (2000), Lipe (1995), York (1994), or with taped music (Glynn 1992). The clinical assessment tools are seen as supplements to the MMSE or other tests. The use of musical assessment tools is still in its initial phase with persons with dementia. The studies are of a newer date, and there seems to be a growing interest in the evaluative function of music. Additionally it should be mentioned that more material, e.g. Aldridge, G. (2000) and Munk-Madsen (2001b) describe the evaluative function of music.

Regulative approach. Music with sedative function

Hanser & Clair (1996) implement direct *stress reduction* techniques with early stage of possible AD, together with their caregiver or a family member. Body movement, self-massage of facial muscles, muscle relaxation, guided imagery experience, tips for sleep induction, etc., are included in the settings, showing that "music therapy is a viable approach" for persons with AD and for their caregivers.

Music listening, using cassettes intended specifically for relaxation and played whenever nurses found the patients restless, made persons with AD in a experimental group (n=9) sleep significantly longer than persons with AD in a control group (n=9) (Lindenmuth *et al.* 1992).

Up to now only two studies have examined the sedating regulative function of music and how music can function to enhance relaxation with persons suffering from dementia.

Regulative approach. Music leading to behavioural adaptation

Reduction of agitated behaviour, such as ambulation or aggressive and disturbing behaviour is seen in a great number of studies. *Music-stimulation* reduces agitation (Ashida 2000; Brotons & Pickett-Cooper 1996; Groene 1993), also when implemented individually (Gardiner 2000). *Music therapeutical singing* reduces ambulation (Fitzgerald-Cloutier 1993; Olderog-Millard & Smith 1989), and singing used in music therapeutical care (*MTC*) reduces agitation during bathing episodes (Brown *et al.* 2001).

The use of tapes with familiar music reduces agitation during bathing episodes too, and even reduces aggressive behaviour (Clark *et al.* 1998; Thomas *et al.* 1997). During dinnertime that might be noisy and turbulent if food is served in canteen-like surroundings, the use of *background music* reduces aggressive behaviour (Denney 1997; Goddaer & Abraham 1994) and even increases the time spent on eating (Ragneskog *et al.* 1996).

At last, individual *music listening*, where the person with dementia might sit in his/her own room listening to familiar tapes, reduces symptoms of agitation (Casby & Holm 1994; Gerdner & Swanson 1993; Korb 1997; Tabloski *et al.* 1995; Sambandham & Shirm 1995). In a study from 1994 Clair & Bernstein are not able to establish an effect on agitation of stimulating or sedating background music played during dinnertime and in the day room of the unit (Clair & Bernstein 1994).

Nearly a fourth of the studies deal with the regulative effect of music on behavioural adaptation. Two of these studies are from Sweden, the rest from US, where there is a strong tradition for behavioural research.

Stimulative approach. Music as bodily stimulation

Music & movement, a group activity where moving, dancing or exercises to taped or live music are part of the programme, show increased response, increased quality of life, reality orientation (RO), active participation and sociability (Götell *et al.* 2000; Groene *et al.* 1998; Hansson *et al.* 1996; Newman & Ward 1993; Smith-Marchese 1994). In Newman & Ward's (1993) study preschool children were invited to participate in music & movements, and the conclusion was that the presence of young children taking part in the activity might produce positive behaviour that demonstrate responsiveness and involvement in activities.

Social dancing (Palo-Bengtsson *et al.* 1998) is concluded to preserve and support patients' intellectual, emotional and motor functions, and group activities where dancing is part of the programme are concluded to elicit adequate positive behaviour, engagement, reminiscence, and improving social interactions between patients and caregivers, between patients and peers, and to increase relatives' satisfaction with visits (Baumgartner 1997; Clair & Ebberts 1997; G´otell *et al.* 2000; Newman & Ward 1993; Pollack & Namazi 1992).

Clair & Bernstein's (1990b) study of *vibrotactile* stimulation shows increased participation, and their study of *vibroacoustic* therapy (1993) shows that the participants do not choose between different sorts of stimulation. Bolger (1984) gives a medical report about a patient with chronic obstructive pulmonary disease who is unable to follow verbal commands to cough or to take a deep breath. But the patient would repeat words, and repeat singing too. When singing the patient was noted to be taking deep breaths and to cough. "Her clinical status, arterial blood gas levels, and emotional status all improved greatly during this therapy" (Bolger 1984).

Close to 20% of the studies listed at page 28 focus on the stimulative effect of music by implementing activities with dance and movement. No studies directly examine the physiological effect of music with this target group.

Stimulative approach. Music as cognitive and attentional stimulation

Music-stimulation groups positively influence speech ability and fluency of speech (Brotons & Koger 2000), improve active participation and engagement (Brotons & Pickett-Cooper 1994; Christie 1992; Hansson *et al.* 1996; Lauvland *et al.* 1992; Odell-Miller 1996), affective responses (Korb 1997), and reality orientation (Riegler 1980). The degree of active participation increases when a music therapist has instructed staff how to carry out the activity (Mathews *et al.* 2000), or when the music therapist structures the session and gives adequate instructions to participants about the use of the instruments (Clair *et al.* 1995). Individual music-stimulation increases face-name recognition (Carruth 1997) and number of words recalled correctly (Prickett & Moore 1991).

In *Play-along* improvement in recall, mood, and active participation is seen (Lord & Garner 1993). Lord & Garner had 20 participants sit around a big table supplied with instruments to play, while they were listening to big band music. *Therapeutical singing* increases alert responses (Clair 1996) and playing of personal significant songs stimulates images and recollections (Tomaino 2000).

Background music improves autobiographical recall with no difference between familiar and novel music (Foster 1998) and *music listening* improves spatial-temporal skills (Johnson

et al. 1998), reality orientation (Lipe 1991), and active response (Norberg *et al.* 1986). Persons with dementia show ability to learn new song material even though they are not able to learn new verbal material (Prickett & Moore 1991). In a study from 1999 Silber finds no influence of *background music* on MMSE compared to conditions without music (Silber 1999b).

Including the studies of Beatty *et al.* (1988, 1997), Crystal *et al.* (1989), Johnson & Ulatowska (1996), Polk & Kertesz (1993), and Swartz *et al.* (1989, 1992) about a third of the studies listed at page 28 examine the stimulative effect of music on cognition and attention. Most of the studies are from US, but with studies from UK, Sweden and Israel represented.

Stimulative approach. Music to increase social interaction (interpersonal level)

When staff participate in *music-stimulation* (including dance and movement) social interaction between participant and caregiver changes to a deeper level, where "the personnel experienced bonding with the patients, who seemed easier to care for" (G´otell *et al.* 2000). When preschool children participate in *music & movement* activities, increased social interaction is seen with persons suffering from severe dementia; an increased social interaction that is not seen when the children are not there (Newman & Ward 1993).

Sing-along groups have a significant effect on the amount of social behaviour (Olderog-Millard & Smith 1989), and *after* sessions with *music-stimulation* or *music listening* increased social interaction between peers are seen (Pollack& Namazi 1992; Sambandham & Shirm 1995).

Individual therapeutical improvisation, where the music is improvised not *for* but *with* the client, increases active involvement and confirms that persons with the darkening isolation of dementia "are, indeed, alive, and that relatedness with other people is still possible" (Simpson 2000, p. 177). After 20 individual sessions with Jack who suffers from AD, Ansdell states that the music therapy shows "the restoration of some quality in Jack's life: his sustained attention and positive engagement in his playing, his ability to share an activity with another person, and a decrease of the frustration, confusion and delusions that dogged his everyday life" (Ansdell 1995, p. 132). Less than 10% of the studies register the stimulative effect of music on social interaction, three in four of these studies are from Europe.

Communicative approach. Music to increase personal interaction (intrapersonal level)

Music therapy, with a purpose to increase personal interaction in the direction of intrapersonal matters, approaches psychotherapy. None of the studies mentioned here directly label their work as psychotherapeutical, but present or directly work with aspects of communication, personhood, contact, confidence, interrelation, emotional needs, psychosocial needs, and therapeutic change.

Implementing *individual therapeutical improvisation* is an approach where intrapsychic matter might be part of the interpersonal exchange. Eeg (2001) and Munk-Madsen (2001a) work with long term therapy with more that 30 sessions where they integrate improvisation in an individual approach. The long therapeutical courses help to break isolation, decrease anxiety, elicit autobiographical memory and means of expressing own identity. Gudrun Aldridge (2000) states that active 'music-making' (Nordoff & Robbins 1977) promotes interaction, thereby promoting initiatives in communication (Aldridge, G. 2000, p. 161), and states that the music therapy might influence underlying depressions.

Even though creative music therapy (Nordoff & Robbins 1977) deals with "the creation of something which is at once both communicative and expressive" (Simpson 2000, p 177), and integrates an understanding of psychosocial needs defined by Tom Kitwood (1997), Ansdell would not call his work psychotherapeutical because ...

> "Psychotherapy's use of words to explore the past, to ask 'why?' questions of motive and significance is quite different from Creative Music Therapy's use of music to create a musical experience of the present. Its questions are rather 'what?' questions – What is happening now?" (Ansdell 1995, p. 31)

The 'why?' questions in a psychotherapeutically orientated approach deal with the understanding of intrapsychic matter. The 'why?' questions are not asked directly to the participant suffering from dementia, but are questions that influence the work and the thinking of the therapist. Working or exploring the past and the cultural background is here understood as working with integrating *the whole person*, even though the person suffering from dementia is often *dis*-integrated from past, present and future. Working with personal songs or *therapeutical singing* is seen as a way of integrating the past and aspects of identity: "a single song can encapsulate an entire period of one's life, and hearing it can restore the essence of that reality" (Tomaino 1998, p. 21). Therapeutical singing using personal songs with persons with dementia is described and accentuated in the background literature dealing with this client group (Aldridge 2000; Bright 1997; Bunne 1986; Friis 1987; Tomaino 1998) and is integrated as part of the therapeutical approach in a large number of studies and articles:

> Bolger 1984; Braben 1992; Brotons & Pickett-Cooper 1994; Brotons & Pickett-Cooper 1996; Brown *et al.* 2001; Carruth 1997; Christie 1992, 1995; Clair & Bernstein 1990a, 1990b; Clair 1991, 1996; Eeg 2001; Fitzgerald-Cloutier 1993; Gaertner 1999; Gardiner 2000; Groene 1993, 1998; Götell *et al.* 2000; Hanser & Clair 1996; Hansson *et al.* 1996; Hatfield & McClune 2002; Johnson & Ulatowska 1996; Korb 1997; Lauvland *et al.* 1992; Lipe 1995; McCloskey 1990; Munk-Madsen 2001a; Newman & Ward 1993; Olderog-Millard & Smith 1989; Pollack & Namazi 1992; Prickett & Moore 1991; Ridder 2001; Riegler 1980; Rolvsjord 1998; Silber & Hes 1995; Simpson 2000; Smith-Marchese 1994; Tomaino 2000; Wellendorf 1991.

Individual therapeutical singing increases interactions with another human being at an intimate, personal level allowing the participant to express him/herself. For example in a very positive manner as here with the participant Claire: "Many times while Claire and the therapist were singing, Claire would lean her head very close to the therapist, move her head to the beat and smile, then lean her head back and laugh" (Fitzgerald-Cloutier 1993, p. 35). The choice of personal songs might stimulate recognition, and "the more emotionally charged the song is, the more likely a person will respond" (Tomaino 1998, p. 26). In this understanding the songs might serve as means of expressing and containing intense feelings and make it possible to share these feelings with another person (Hatfield & McClune 2002; Ridder 2002b).

The Norwegian music therapist Randi Rolvsjord describes musical interaction with focus on reminiscence as an important way to cope with "stress of ageing, death or physic and psychic failures" (Rolvsjord 1998, p. 4). She states that dementia leads to an increased need for reminiscing, but at the same time reduces the ability to reminisce. By referring to the Swedish culture researcher Johan Fornás she defines 3 levels of identity: subjective, social and cultural identity, and connects these different aspects of identity with the memory-work.

> "The musical interaction engages the old person to act, feel, reminisce, sense, and communicate, and may in this way remind him/her of the most basic aspects of the old person's identity." (Rolvsjord 1998, p. 7. *my translation*)

Gaertner (1999) implies both improvisation and music listening but also contacts her clients, here Monsieur F, by *improvised singing*; "I took his hands and sat quietly beside him. After a little while I imitated his cries, then, by slightly modifying the pitch and the volume, we eventually changed to sighing and singing in the style of Maurice Ohana. With our vocal expression we moaned, we complained, we sighed, we questioned life's injustices, then changed into expressions of hope and partial acceptance. When Monsieur F was spent and peaceful, we returned to *Unité de Vie I* (the unit where Monsieur F lives)" (Gaertner 1999, p. 255).

For persons with dementia some memories and episodes from the past fade away, whereas other memories push themselves forward and overshadow reality. Working with reminiscences from the past and feelings in the present by means of songs is described in the literature as a valuable approach. Only a smaller number of studies, mostly European, explore the communicative function of music focussing on intrapersonal aspects, but it seems to be broadly agreed that the use of familiar and personal songs is meaningful to persons with dementia.

Various approaches

It is possible to divide the literature included here in four head categories pointing at different approaches: evaluative, regulative, stimulative, and communicative. Most of the studies examine regulative and stimulative effects of music therapy using RCT designs or 'within subjects designs', stressing statistical proofs, measuring agitation, ambulation, engagement, social interactions, number of recalled items, etc. A big part of these studies are rooted in behavioural music therapy.

Only a smaller number of studies examine the communicative function of music by describing the interpersonal interaction with focus on intrapsychic aspects. All these studies use case design strategies, are European studies, are of a recent date, and are rooted in humanistic and/or psychotherapeutical orientated approaches.

In the music therapy literature covering *other* client groups, additional approaches might be taken into account. With clients suffering from *dementia* the music therapy work seem to be concentrated mainly on two approaches; regulative or stimulative. Traditionally the classic music therapy models focus on *one* approach, not mixing the approaches, which especially comes to the front when research is formulated and carried out. In eclectic models approaches are mixed according to what works, and the music is thought to have more functions. When this eclectic approach is theoretically founded and the various "ingredients" sorted out and described, it might be called an integrative model. As described later the focus of the music therapeutical work in this research is on the communicative function of the music, but integrated with e.g. a regulative approach. Here the regulation serves as a means to lead the participant to a state where it is possible to enter communication. Instead of dividing the approaches in different directions I see a reason in using results from other directions. Without being aware of regulative and stimulative functions of music, it is difficult to enable situations where interaction at a deeper or more intensive level is possible together with a person suffering from dementia.

The evaluative function is very important to evidence based practice and research, as well as for the clinical work. In the literature most of the evaluative tools deal with the regulative and stimulative function of music. Standardized measures and scales are used to assess behaviour or participation, and few tools deal with the communicative function.

One reason is that a major part of the research in dementia care is influenced by behavioural theory. Another reason is that evaluative tools assessing music and communication in persons suffering a dialogic degenerative disease are not developed. In order to develop such tools that facilitate evaluative procedures of the music therapy process, or establish effects of the music therapy, the phenomenon "communication" in relation to persons with dementia needs to be described at first.

Dividing the literature in categories according to its function is a process where the differences of the studies are stressed. In describing my therapeutical work I use and integrate the different categories, focusing on *stimulative* and *regulative* functions in order to describe the *communicative* functions of the music, and with a long-ranged goal, that this adds more material to develop the *evaluative* function of the music. This creates new categories of mixed approaches that I did not look for in the categorizing process. Instead of focusing the music therapy work on one single approach, I see it as an enrichment to integrate usable techniques and theory from different approaches, although it might conflict with deep-rooted understandings of which approaches belong to which classic music therapy models.

Summary and conclusion

In the "typical" decline of Alzheimer's disease some skills or resources seem to be spared longer, e.g. the prosodic aspects of language, abilities related to procedural memory, and skills related to music. AD is the most common dementia disease, and the "typical" deterioration in AD might be very different from other dementia diseases. Generally persons with dementia suffer a dialogical degenerative disease, and adjustment of the communication seems to be essential in order to fulfil psychosocial needs.

The literature on music and dementia points at an increasing interest in music therapy in dementia care. Here different assessment tools using music and musical interaction are described, a few studies examine the sedative adaptation of music, and several studies describe how different approaches might decrease symptoms of agitation. Music in connection with techniques to stimulate the body, such as dance or movements, or stimulation and motivation to active participation, is described in a considerable part of the literature.

A great number of studies show positive effects on cognition and on social interaction in persons with dementia. Personal interaction with focus on emotional or intrapsychic material is referred to in a smaller number of studies. The use of familiar songs as a way to express feelings and identity and to enable reminiscing processes, is integrated at different levels in a considerable number of studies. This shows that the literature covering music and dementia reflects evaluative, regulative, stimulative, and communicative approaches, and especially focus on stimulative and regulative approaches.

In each of the studies and case descriptions lined up at page 28 music is described as representing a resource to the individual person. The music is used in very different ways and settings with the more than 800 persons with dementia that have participated in music activities or music therapy, with a range of different diagnoses, but mostly AD, and on different stages of the disease. From the literature it is clear that the use of music in dementia care is valuable, is administered mostly in order to regulate behaviour (e.g. agitation) or to stimulate active participation, and may generally be concluded to increase quality of life. A growing interest in the communicative function of music might show the corner of new fields of research.

The main purpose of this research is to examine the communicative possibilities in music therapy, using therapeutical singing in the clinical setting, establishing connections of communication with regulative and stimulative approaches.

Chapter 2

Singing as therapy

> "How does he do anything, I wondered to myself? What happens when he's dressing, goes to the lavatory, has a bath? I followed his wife into the kitchen and asked her how, for instance, he managed to dress himself. "it's just like the eating," she explained. "I put his usual clothes out, in all the usual places, and he dresses without difficulty, singing to himself. He does everything singing to himself. But if he is interrupted and loses the thread, he comes to a complete stop, doesn't know his clothes – or his own body. He sings all the time – eating songs, dressing songs, bathing songs, everything. He can't do anything unless he makes it a song." (Sacks 1985, p. 15)

The use of songs in music therapy

Traditionally the different models of music therapy that have influenced European music therapy are associated with either improvisation (Alvin 1975; Nordoff & Robbins 1977; Priestley 1975) or with music listening in receptive music therapy (Bonny 1975). Songs might have been part of the active music therapy described in the literature, but with the function to signalise start and ending of the therapy, and not described as the main technique in the sessions. It was very inspiring to me to find 3 other researchers in my peer group at the PhD programme in Aalborg who based their research and therapeutical work on songs; Cochavit Elephant singing for girls with Rett syndrome, demonstrating their capacity for intentional and meaningful communication (Elephant 2002); Trygve Aasgaard promoting health in children with cancer in the process of creating and performing songs (Aasgaard 2002); and Felicity Baker examining if singing improves the affective intonation of people with monotone voices, caused by brain injury (research in progress).

In Bruscia's "Case studies in music therapy" (1991) the following authors describe their work with well-known songs in music therapy, either as part of the structure in the session or as a technique to express essential feelings: Wigram, Aigen, Hibben, Henderson, Robbins & Robbins, Dvorkin, Clarkson, Duey, McMaster, Erdonmez-Grocke, Clair, Whittall, Beggs, and Martin. The authors Loveszy, Fischer, Perilli, Boone, and Smith work with song writing.

I find it convincing that almost half of the authors of the case studies in the book mentioned, where "highly qualified music therapists" contribute, include songs in their work or directly take songs as their starting point in the therapy. Other therapists who base their work on singing are Austin (1998) working with improvised singing, and Newham (1999) working with voice movement therapy.

2.1 Singing and dementia

In February 2002 I was invited to hold a seminar on music therapy for staff working with elderly people in Århus county. I used the opportunity to distribute a small questionnaire, and while I was describing the different implementations of music activities (listed in table 1.1, page 30) the present staff members would mark on a five point Lickert scale (ranging from *never* to *several times a week*) indicating if the activity took place at their unit and how often. 69 units were represented (some with several staff members) dispersed on 39 institutions out of 45 in the county. The questionnaire showed that sing-along was the most popular activity, and was implied in all institutions and on all units except for one. In a majority of units sing-along would be implemented several times a week.

There are two possible explanations to this result:

- staff members in Århus like to sing, or
- if staff from Århus county are assumed to be representative of Danish staff, there is a general tendency to use sing-along implementations in elderly care in Denmark.

The elderly generation in Denmark has grown up in a very strong song tradition where people would sing when they met for celebrations, political meetings, and cultural events. This might be a significant reason still to use songs when people come together. The literature review in chapter 1 name a long list of studies or articles where singing is integrated in music activities with persons with dementia (page 34). This supports the idea that songs are broadly used in other countries too, and Olderog-Millard & Smith (1989) write that singing "is described in the literature as one of the most popular activities for the AD patient".

Several studies support the idea of singing as an effective strategy with persons suffering from dementia. Singing is measured to have an effect on behaviour by decreasing agitation (Braben 1992; Brotons & Pickett-Cooper 1996; Brown *et al.* 2001; Fitzgerald-Cloutier 1993; Olderog-Millard & Smith 1989), and is described to have a soothing effect (Braben 1992), a positive influence on social behaviour (Olderog-Millard & Smith 1989), mood, and on attention (Clair 2000; Götell *et al.* 2000).

When dementia progresses the ability to sing decreases (Brotons & Pickett-Cooper 1994; Clair & Bernstein 1990b; Lipe 1995), and studies show that movement or rhythm activities elicit more response than singing (Groene *et al.* 1998; Hanson *et al.* 1996; Brotons & Pickett-Cooper 1994). Singing has a positive influence on verbal communication (Brotons & Koger 2000; Olderog-Millard & Smith 1989; Prickett & Moore 1991) and stimulates memory retrieval (Carruth 1997; Foster 1998; Tomaino 2000).

Even persons suffering from severe dementia may respond to songs (Clair 1996, Fitzgerald-Cloutier 1993; Olderog-Millard 1989; Reisberg 1999) or participate actively by humming or singing (Beatty 1994; Hanson *et al.* 1996; Reisberg 1983, 1999). In their study Prickett & Moore (1991) observe that persons with dementia are able to learn new songs, and to participate though they are severely cognitively impaired:

> "The therapists noted that patients who could not recall their birthday, their home town, or the therapists' names could sing virtually every word to "Amazing Grace" and "Happy birthday" and could recall key words in "It's a small world" (*a song previously unknown to the participants*)." (Prickett 1991 & Moore, p. 107)

Establishing that singing is broadly used in dementia care, and presumably with interesting results, my next step is to sum up reasons for spending (or wasting?) time on this

more or less rhythmic and melodic vocal expressions that we call singing. First of all a bodily influence on singing is described.

2.2 General physiological influence of singing

When a person actively sings the pressure of breath released from the lungs causes the vocal cords to vibrate and make sound. Singing loud, the pressure of the breath travelling up from the lungs through the voice tube is increased by contracting the muscles of the chest and abdomen, and squeezing the lungs empty with forceful pressure (Newham 1999).

In elderly persons the lungs become stiffer, the respiratory muscles become weaker, and the chest wall becomes more rigid. The lungs are never totally emptied of air when we exhale and the amount of residual air that remains in the lungs increases with age. For persons aged 60 more than a third of the lung capacity is filled with residual air (www.ageworks.com). The more capacity used for residual air, the less is left for vital capacity. Residual air in the lungs is not clean and with an increased percentage of CO_2 (Melin 1997). Older adults are less efficient in controlling breathing and may have a greater risk of dying from acute respiratory problems (www.ageworks.com). When laughing we expire with a speed of 65 miles (100 km) an hour, with the result that a larger part of the residual air is pressed out (Melin 1997). This leaves more vital capacity to the lungs and to a greater oxygen uptake. Just as laughing, singing, especially loud singing, stimulate the lung system and increase oxygen intake. This might be important to elderly persons who do not move very much. The supply of oxygen to the brain might increase cognitive functioning, attention and concentration.

To many people choir singing is a positive recreation, and it generally seems to cause positive emotional arousal, relaxation, positive mood, and is experienced as a pleasurable social event (Beck *et al.* 2000). In a study with members of a professional choir Beck *et al.* measured S-IgA concentrations in saliva, and found that levels increased significantly during rehearsals. S-IgA is an antibody that functions as defence against infections, and an increase of these S-IgA levels shows that choir singing strengthens the immune defence. It was additionally found that cortisol concentrations decreased significantly during rehearsals. High cortisol levels are connected with stress. Beck explains that these results are due to the social support that evidently is very much a part of the choir singing experience, and he compares effects of singing with effects of humour.

Panksepp (1995) examines chills induced by music and he suggest that "the a cappella soprano voice, as well as string instruments such as violins and cellos, when rendered with an insistent piercing quality that is often best achieved with little accompaniment, is ideal for generating chills" (ibid., p. 196). He theorizes that this response to music, explained as a central nervous system phenomenon, originates from our mammalian brain mechanisms for social bonding and that we are attuned to certain emotional sounds.

Singing seems to promote health and well-being, which is just as important - or maybe even more – for persons with dementia as for everybody else. If we are generally attuned to certain vocal soprano sounds, this might be important with dementia sufferers that are difficult to contact, and the singing might be used as a natural way of triggering contact.

2.3 Demands

It is demanding being together with other persons. In some way participants in a group are expected to interact, or at least to act. In a working-partnership people are *doing* things together and in this way contributing to the partnership. Being active in a partnership means

having an identity. It is difficult for persons who lose cognitive and functional abilities to have an active position in a partnership. This might lead to loss of identity. It is therefore crucial to implement activities where people in some way are *doing things* with others in a way where too high demands are not excluding the person.

> ,,Singing is an effective activity because it can be adapted to the patient's level of functioning. For example, in a group situation patients can participate by singing, listening, tapping or nodding to the beat, or by playing rhythm instruments. Therefore, one can involve patients who no longer have the ability to verbalize coherently along with patients who still can." (Olderog-Millard & Smith 1989, p. 60)

In a dissertation about lucidity in people with severe dementia Normann (2001) concludes that even small demands, that the patient is unable to handle, may reduce her or him to non-lucidity. If it is possible to create situations where persons might contribute to the partnership or group according to their abilities, it might have positive influence on the feeling of identity and on periods of lucidity.

In order to decrease demands Whithcomb (1994) suggests singing without text, as the use of words is too challenging to some persons with dementia-. By leaving out the text I see that the narrative function of the song is left out. On some occasions the narrative aspect might have emotional importance, even when the listener is not able to join in. On other occasions the focus in the interaction might be on the rhythm or the movements in the song, and leaving out the text does not influence. Consequently leaving out the text in order to minimise demands might remove important qualities to a song. It is necessary to observe and assess in every situation when singing is too demanding and when it is necessary to leave out challenging aspects, as well as considering listening as a way of contributing actively to the group.

2.4 Contextual cues

When we listen to a song, or participate by singing, the text or certain words might function as cues. The tune, as well, or certain harmonic or rhythmic features might serve as cues. Cues are either identification marks, or signals that guide behaviour (Reber 1995, p. 176). They are information in an environment (Roberts & Algase 1988, p. 84); and the ways in which we act are dependent on our understanding the cues, given in the environment. Persons with dementia generally show deficits in encoding contextual information (Aldridge 1996, p. 30). Already at early stages of AD impaired processing of contextual cues influence the ability to remember and to understand information about events (ibid.). "Individuals with Alzheimer's disease continue to encode experiences using a combination of senses" (ibid., p. 31), and this makes it important to focus on elements rich in cues, e.g. songs, in dementia care. Certain songs seems very important to a "cyclic aspect of time" (Rolvsjord 1998, p. 11) as they mark the seasons, the course of the day and even might mark the course of therapy sessions by cuing the beginning and end with certain songs. Apart from singing specific songs related to time and place, songs might be connected to periods of time in the past. Singing or listening to the song might evoke feelings and memories specifically related to a period, where the song had a certain meaning to the person. This has to do with reminiscence and identity. (Cues and songs in the clinical setting are further described at page 101).

2.5 Reminiscence and identity

> "It is always remarkable to watch a person completely removed from the "present" due to a disease such as Alzheimer's.. come to life when a familiar song is played. The person's response may vary from a change in posture to animated movement: from a sound to verbal response. But usually there is a response, an interaction. Many times these seemingly disparate responses can reveal much about the preservation of self and the intact personal stories that may still remain." (Tomaino 2000, p. 195)

Singing familiar songs is noted to enhance reminiscence or autobiographical memory (Reisberg 1983; Tomaino 2000). The reminiscence process is an unconscious episodic recall of familiar past events. When the psychiatrist and geriatrician Robert N. Butler described reminiscence therapy in 1963 he did not see the dwelling in the past as a symptom of degeneration but rather as a wholesome and restorative process. In his dissertation about facilitatory effects of music on recall, Foster characterizes autobiographical retrieval as slow, "allegedly three times as slow as normal long-term memory recall" (Foster 1998). He explains this to be due to the cue elaborations process, but that cues or triggers may gain direct access to event specific knowledge, speeding up the whole retrieval process (Foster 1998, p. 22).

Familiar songs seem to be an import access to reminiscence and thereby supporting a restorative process. Smith-Marchese (1994) sum up the following reasons for capitalizing remaining long-term memory through music referring to Sheridan, 1987:

1. Many earlier associations with a certain song can summon up some of the same feelings;
2. Quick access can be gained to past experiences and events;
3. New thoughts and feelings can be evoked; and
4. Creation and changes of moods can be effected.

Olderog-Millard & Smith (1989) argues for focussing on reminiscing in music therapy, as it is an activity that compensates for deficits by utilizing long-term memories, which are better preserved in persons with AD. Smith-Marchese (1994) equally sees reminiscence as a long-term memory process whereby persons integrate past experiences with current activity in an enjoyable context. Wylie (1990) examines reminiscence with nursing home residents and states that:

> "Several studies have suggested reminiscence may facilitate adaptation to change or stress. It may validate one's life, help maintain self-esteem, give meaning to life by looking at past activities and accomplishments, and provide opportunities to recover strengths or personal resources that were used in the past. So common or important is reminiscence to the elderly that many nursing homes have organized reminiscence groups." (Wylie 1990)

Wylie's study is carried out among nursing home residents but does not mention if some of the residents suffered from dementia. She compared the effects on reminiscence of A: recorded old familiar songs, B: antique objects, C: historical summaries, and D: general questions, and found that the 60 participants talked for a longer time when presented to historical summaries or general questions. The recorded songs revealed less talk and antique objects even less. With persons suffering from dementia the demanding questions and lexical messages might

be replaced with live singing of songs having a specific meaning to the single person. This is not to be compared to the use of pre-recorded songs. Music therapist Ruth Bright describes active singing as a way to connect past and present;

> "Singing together – formally in a choir or informally in a singalong – is one such shared pleasure, and many people have happy memories of occasions throughout the life-span when singing together was enjoyed. Singing a college song, the national anthem, a hymn or Sunday school song, songs shared in courtship, singing at a picnic or cookout (barbecue) – these and many other happenings live on in our memories as occasions in which the event is permanently linked with the singing we shared." (Bright 1997, p. 34)

Working with individuals with chronic illness Magee (1999) suggests the use of familiar songs to facilitate biographical memories with persons "who are unable to physically manipulate instruments or for whom the abstract nature of improvising is less meaningful". She refers to "musical life review" that Ruth Bright described in her handbook from 1986. By connecting persons that are disconnected "of time" (Aldridge 2000, p. 13) to their past, in a present activity, their feeling of identity is supported. Identity deals with "a person's essential, continuous self" and " the internal, subjective concept of oneself as an individual" (Reber 1995). Kitwood (1997) emphasizes identity, in defining it as one of the basic psychosocial needs. He criticises the "old culture" of dementia care to have taken away a person's sources of identity by the "removal of all contact with the past" (Kitwood 1997, p. 84). Kitwood describes identity as follows:

> "To have an identity is to know who one is, in cognition and in feeling. It means having a sense of continuity with the past; and hence a 'narrative', a story to present to others. It also involves creating some kind of consistency across the different roles and contexts of present life." (ibid., p. 83)

Even Ruud in his book "Music therapy: improvisation, communication, and culture" (1998) describes identity as a *feeling* or *awareness* of identity, which refers to a person's consciousness about "being the same", the experience of continuity, and being unique from others (Ruud 1998, p. 35). Ruud collected 60 interviews and autobiographies where students presented music that was significant to their life. This "musical memory work" was analysed with a method of grounded theory and Ruud defined four categories that formed the context of the personal experience; personal space, music and social space, space of time and place, and transpersonal space. In relation to the personal space Ruud describes how songs from early memory might have an important soothing effect later in life:

> "When people talk or write about their first musical memories, we often hear stories about parents or grandparents who sang lullabies or played songs. These songs framed or anchored the person in her early memories of "being held" and supported within a trustworthy relationship. The song often creates strong memories of the person behind the song, thus recalling the person as a symbol of trust and faith in life, or letting the song symbolically represent this feeling. Frequently, the song is recalled during frightening situations later in life, helping the person to overcome a difficult task. The feelings of warmth and harmony brought fourth by the song are often re-enacted through the song's performance." (ibid., p. 39)

In short the social space relates to a sense of being part of a larger social and cultural group, and the space of time and place relates to geographical space. Music experiences

related to transpersonal space might be seen as "peak experiences" where persons are in contact with "something divine, being a part of something larger than life." (ibid., p. 46)

2.6 Communication/intrapsychic themes

Magee (1999) suggests an aspect of using songs – resembling Ruud's description of "being held" – in the personal space; she suggests that songs are like "old friends" who have lived through good and bad times together. Songs will not desert a person like friends and family might have deserted the person. She describes that the personal songs hold a particular meaning that is highly individual and can be used to "communicate something personal about the individual in an explicit or implicit way" (Magee 1999, p. 209). In this way songs might express a deeper "real" self, or they function to mask feelings that are too difficult for the individual to express openly in words.

Expressing a deeper real self connects to the work of McCloskey (1990). He has developed a program directed towards persons with dementia, cognitive impairments, or terminal illness. The program is called *reprise*, and combines music with reminiscence and life review integrating personal material at an intrapsychic level. In the same way as Naomi Feil (1992), who describes validation therapy, he thinks that in a certain phase of life "we need to come to terms with ourselves" (McCloskey 1990, p. 63).

> "Our lives are made up of a myriad of experiences and memories, triumphs and failures. Mysteries and emotions buried so deep within us are often too complicated to face. They become castaway thoughts stowed in the dark confines of our hearts and minds. Rarely during the course of our lives do we take the time to slow down, step back, and review our lives. There comes a point when we need to reconcile with our past and with our present." (ibid., p. 63)

If a person is not capable of accepting life and death as well, Feil (1992) formulates that the person is not ready to let go and be ready for death. She has added a 9^{th} stage to Erikson's eight psychosocial stages where the persons with dementia enter a vegetative stage, if they are not able to come to terms with earlier life. She sees it as a duty to staff to help the person in the vegetative stage to tie up the loose ends in order to justify their lives and to prepare them for death (Feil 1992, p. 204).

Working with persons with dementia I have seen persons who seemed ready to die, and who seemed to have accepted their life, but their heart was still beating and their body was still functioning not letting them "go". And I have seen persons who were not "ready" at all for death, but who died without entering a vegetative stage. This makes me disagree with Feil's view on vegetation as a more or less self-inflicted stage. To me the word vegetation reflects a stage with no hope, – where the person has given up and spiritually has left. I see it as an important part of the music therapy work to see hope, also in persons who seem not to respond. In his book about music therapy in palliative care David Aldridge writes about hope and about singing:

> "Hope involves feelings, thoughts and requires action; in other words, like music, it is dynamic and susceptible to human influence. Hope changes too: patients knowing that the hope of a long life has gone can, however, hope that they will be reconciled to their families or hope that they can tell their feelings to their friends. Discerning these subtle dimensions of hope and offering the means for their expression is a central part of palliative care. Songs have provided an important

> vehicle for such expression and it has been the task of song-writers throughout the ages to express the deepest of human feelings." (Aldridge 1999, p. 20)

Kitwood (1997) notice a change in the way dementia care is carried out now, compared to earlier; "We are learning now that much can be done to maintain identity in the face of cognitive impairment" (Kitwood 1997, p. 84). He suggests two essential things to maintain identity:

> "The first is knowing in some detail about each individual's life history; even if a person cannot hold on to his or her own narrative identity, due to loss of memory, it can still be held by others. The second is empathy, through which it is possible to respond to a person as Thou, in the uniqueness of his or her being." (ibid., p. 84)

In the next chapter I go more into details about the dialogue where we respond to persons as Thou. Prickett & Moore (1991) describe singing as an opportunity for providing an avenue for interpersonal interaction which fluent speech no longer can (Prickett & Moore 1991, p. 109). In this view the songs may function as a "step of a deeper process, or a way of building the therapeutic relationship" (Magee 1999, p. 219). Singing together then does not only stimulate body and brain, but additionally gives possibilities for working psychodynamically. Ruud (1998) noticed in his research on "musical memory work" that some songs represent dark emotions that make us cry and suffer. Grown ups described that they as children wanted to hear certain pennytunes over and over again even if the songs created terror and pain. He describes that these songs became "some sort of training in emotional tolerance, in the ability to contain and sustain emotion" (ibid., p. 40). In Ridder (2002b) I describe Mr G's case. In the therapy sessions he would always, session after session, ask me to sing a certain song that made him burst into tears after having tried to sing the first lines. In the same ways as Ruud's pennytunes, this song made Mr G express, share, and contain deep feelings of loss in a manageable way. In a case study about Will, a "normal" but fighting and aggressive eight year-old boy, Aigen uses songs to contain and sustain emotion.

> "Then, in session eight, Will requested the song "Twist and Shout." Playing this song became a regular part of the following few sessions, and was something that Will returned to later in his therapy. At first, Will just sang the song straight, without much embellishment or spontaneity. He soon began to use the section of the song containing an extended dominant seventh chord to scream at the top of his lungs. Here was an unbridled release, an unrestrained expression of Will's aggression occurring within, and elicited by, the safe musical context." (Aigen 1991, p. 114)

Aigen describes that his clinical music interventions were directed toward using the song structure, "without getting caught up in the accurate performance of this structure as an end in and of itself." Aigen sees it as his goal to tap the expressive potential typically associated with improvised music within the song form (Aigen 1991, p. 115). He uses the song in the therapy to let the boy "express and explore all the extremes of his emotional life" and this seems to let him express, share and contain deep feelings: "It was this exploration of expressive extremes in an appropriate manner in therapy that I felt would decrease Will's need to gain mastery through destructive social interactions." (Aigen 1991, p. 115)

The traditional pennytunes that is mentioned by Ruud above have died out in the modern information society, and we do not have news or gossip brought by a strolling musician. But

at least for the elderly generation many songs have been given to them in other kinds of oral traditions (Bunne 1986). An oral song tradition still exists in small subcultures, and my children often come back from school having learnt a new song, or a new text to an old well known song, from other kids, – songs that are not to be found in songbooks, often with "provocative" or teasing themes. Songs that we have learnt in an oral tradition, like lullabies, and songs that are relating the person to a certain subculture might evoke strong emotional feelings, as a great number of contextual cues and essential feelings are tied to the song.

Also songs learned later in life might represent essential feelings. Grocke describes a case with John who at the age of 54 years suffered a Cerebral Vascular Accident (CVA). He rendered expressive dysphasia, but was well orientated in time and place.

> "On many occasions during the singing and playing of art songs, John became emotionally upset. CVA patients with language impairments have immense difficulty in adequately expressing feelings of frustration and depression. In John's case, the lyrics of the various songs became clear projections of his feelings. One song cycle in particular (Schubert's "Winterreise") was particularly helpful in dealing with issues of blame for the CVA. The song cycle expresses many aspects of human suffering: coldness, rejection and despair. The depth of emotion in these songs often reflected John's own suffering and enabled him to express it." (Grocke/Erdonmez 1991, p. 569)

Magee (1999) does not describe work with dementia clients but other neurological illnesses, such as Multiple Sclerosis. One of her clients expresses himself about the meaning of the songs, where they seem to contain essential feelings. His favourite songs are "Ol' man river", "Some enchanted evening", and "autumn leaves".

> "... they are all sad songs ... they're all about sadness. And sadness in love. And you've got to feel a bit like that to sing them. You've got to feel like that. You've got to ... *be* that way to sing it. Every song that I sing, is sad, I can't help it. I guess there isn't any song I don't find sad. Like, I s'pose, my life makes it sad. (long pause) Yes, I guess all songs get to the bottom of me ... the reason they all feel sad, is my life I s'pose (laughs with awkwardness). Yeah, it's a *lack of love* (emphatically). I couldn't sing a song that wasn't sad. Maybe it's me protesting the lack of love. Well, I know it is. Yeah, that's how when I look back on my life, it is all these songs." (Magee 1999, p. 217)

Singing well-known songs that have a specific personal meaning offers a valid form of emotional expression, and "using songs allows people to find an appropriate social form for the expression of strong emotions" (Aldridge 2001).

What if a person expresses strong emotions in an inappropriate social form before a music therapy session? Christie (1992) states that if a client was agitated the music therapy would no be an effective strategy, and Lipe (1991) breaks off therapy for a couple of months because the patient was severely agitated, but resumes music therapy again after adjustments in medication (ibid., p. 104). Christie works with songs and instrument playing in group sessions, and Lipe work with individual sessions listening to especially big band music. Here I suggest that a strategy using songs with a specific personal meaning (which might be difficult to implement in group sessions and with pre-recorded tapes) might be a way of meeting persons who are agitated and in the course of time allowing them to find appropriate social forms for the expression of emotions underlying states of agitation.

2.7 Intrinsic musicality

Why would singing offer a strategy for expressing emotions? An answer to this question has already been touched on in chapter 1, where it is described that some musical skills might be preserved longer than other skills in persons suffering from AD.

> "While language deterioration is a feature of cognitive deficit, musical abilities appear to be preserved. This may be because the fundamentals of language are musical, and prior to semantic and lexical functions in language development." (Aldridge 1998, p. 18)

Based on research in mother and infant vocalisations, Stephen Malloch describes *communicative musicality*:

> "... the ability to act musically underlies and supports human companionship; ... the elements of communicative musicality are necessary for joint human expressiveness to arise, and lie beneath, to a greater or lesser degree, all human communication ... what we generally call music is one particular drawing-together of the elements of Pulse, Quality, and Narrative - elements that are intrinsic to all human communication. The elements of Communicative Musicality are the tools by which emotion is conveyed and thus companionship formed." (Malloch 1999, p. 7 and 8)

When a music therapist sings a song to a person suffering from dementia, and succeeds in finding a song that has a specific emotional meaning to this person, elements of pulse, quality, and narrative – that Malloch describes as necessary for joint human expressiveness – come to the foreground. These elements are intrinsic and basic, and as it seems to be generally accepted that these musical elements are preserved longer in persons with AD, the use of songs gives ground for communication and for companionship. Not all music therapists would agree to the idea of using pre-composed songs:

> "I improvised a song, hoping that I might encourage Jack (*who suffers from dementia*) to sing himself, something he had never done with me before. He was amused by my singing but did not join in. Would a song he recognised be better, I wondered, and tried 'Ye banks and ye braes'. But it seemed even less effective – the inflexibility of a song in comparison to improvisation failed to catch his attention." (Ansdell 1995, p. 132)

Songs that are structured in a fixed melody and with a fixed text are here seen as inflexible and not able to "touch" the person with dementia. In my view the familiarity and recognition of the "fixed" songs bring safety and structure, bring bonds to the past, and bonds to the other person who is present, singing the song. The flexible elements are the musical elements – pulse, quality, and narrative – that communicate a meaning or a message. This meaning is new every time the song is sung, if it is sung in a dialogue, and with focus on the emotions that are conveyed and the companionship that is formed. In this way I see singing as a possible strategy to communicate, contain and express emotions in music therapy with persons with dementia.

Conclusion

The introductory quotation in this chapter is about Dr P, the man who mistook his wife for a hat (Sacks 1985). He can't do anything "unless he makes it a song". He does not suffer from

dementia, but "only" suffers from one of the symptoms often related to dementia; a special form of visual agnosia. The singing seems to keep him fixed in time and space, and fixed in routines that make it possible for him to carry out chains of acts that are related to cues and objects.

Mr P still teaches music, but he does not recognise his students if they sit still. However he recognises them when they move, by recognising their "body-music". Dr P's neurologist (Oliver Sacks) does not prescribe him any medication, but prescribes him "a life which consists entirely of music" (ibid., p. 17).

In this chapter I have described singing as a popular activity that can be adapted to levels of functioning and with positive effect on oxygen uptake, immune defence, stress, agitation, social behaviour, relaxation, language function, cognition, participation, periods of lucidity, feeling of identity, and reminiscence. Singing is described to provide an avenue for interpersonal interaction, expression of emotions, feeling of being held, ability to contain emotions, meeting needs, and psychodynamic work.

I do not see it as possible to prescribe lives consisting entirely of music, but I suggest to prescribe at least more singing with persons with dementia, as most of the literature points at positive evidence by singing together. Singing is closely related to intrinsic musical communication and in the next chapter I go more into details about communication.

Chapter 3

Communication

In chapter 3 I give an introduction to communication and communication theory in order to introduce terms that this research relies on, and in order to account for ontological issues relating to dialogue. I describe dialogue as an essential term and examine potentials for entering dialogue.

3.1 Communication and dialogue

When persons are together they influence and have an effect on each other. They might be engaged in some communicative exchange, or they might sit turned away from each other. They might be distracted and disturbed by the other person, or they might feel safe and secure. In pragmatic communication theory it is a fundamental belief that it is impossible not to communicate (Watzlawick *et al.* 1967, Hougaard 1996). In the following I outline aspects of communication going on between two persons and illustrate the communication with a social-pragmatic model.

Communication comes from the Latin *communicatio* and means message, or *communicare* that means to share. Interaction and communication are mainly used as synonyms and "all human communication implies interaction and vice versa" (Hougaard 1996). But more specifically communication is an exchange, whereas interaction means reciprocal influence. Pragmatic communication theory that has developed from the Bateson group in Palo-Alto (Bateson *et al.* 1956) is specially inspired by cybernetics that was proposed by Norbert Wiener in 1948. *Kyber'nëtës* means steersman and the discipline is primarily concerned with "control mechanisms and their associated communications systems, particularly those which involve feedback of information to the mechanism about its activities" (Reber 1995, p. 180). The most prominent members of the Bateson group include: Don Jackson, Jay Haley and Paul Watzlawick (Hougaard 1996).

I want to illustrate different aspects of communication by including the Organon model (see figure 3.1 page 50), and here using it as a general model of interpersonal communication and interaction adding a psychotherapeutical understanding as associate professor in psychology, Esben Hougaard (1996) has described the model. The model demonstrates general communication and is based on Karl Bühlers classic psychology of language, 1934, and pragmatic communication theory. Bühler describes the communicative functions or language as a tool, and his understanding is based on Plato's linguistic model, called the Organon model. Organum means tool in Greek, so right back to Plato we see an instrumental approach to language. The model does not only include the two parts: a "sender" and a "receiver", or an

"I" and "You/It", but also includes a third part: "objects and states of affairs". When the sender communicates, the function of the communication is *expression*, and by the receiver the function is *appeal*.

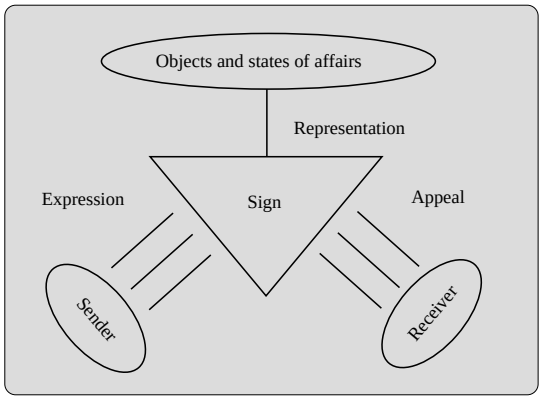


Figure 3.1: First part of the Organon model: Expression – Representation – Appeal

With focus on objects and states of affairs (see figure 3.1) the communication functions as a *representation*. The contents of representation deal with facts and are sometimes even called objective. In contrast, the *expression* is subjective and consists of statements and acts that reflect emotional states. The *appeal* has to do with actions that serve to influence the receiver. The whole communication happens through linguistic messages, para-linguistic expression and nonverbal expression (see figure 3.2). The receiver will understand these messages or expressions logically, psychologically or pragmatically.

If a person gives a communicative signal e.g. by nodding and saying "yes", this "yes" can have 3 different functions. Firstly, it may function as a *statement* relating to the exact semantic meaning of the word. Secondly, it may function as an emotional *communicative expression* that shows if the person is motivated, shy, sad, angry, etc., and thirdly, it may function as an *act* that has an influence on other subjects.

In a face-to-face communication the role of being sender or receiver is never fixed, but constantly changes. The sender becomes the receiver, and vice versa, and a dialogue is characterized by reciprocity between the two roles. The communication is not to be understood as a one-way transportation of messages from sender to receiver, but is here to be understood in a pragmatic way as reciprocal exchange and interaction, where meaning is created in a process between persons. In this understanding meaning is not an object given from sender to receiver. Meaning is created in the interactive process (Holck 2002). We see that participants in a dialogue take turns in the process of creating meaning. In her dissertation from Aalborg University about "Commusical" interplay in music therapy, Holck (2002) elaborates on turn-taking, and refers to Knapp & Halls literature review, 1992, on nonverbal communication in human interaction. In her data analysis Holck distinguishes between turn-yielding, turn-maintaining, turn-requesting, and turn-denying behaviour. "The rules that govern turn-taking are rather complex and involve subtle factors like intonation, contour and pausing as well as the more straightforward invitations from the other person to speak, such as questions and partial lead-ins" (Reber 1995). Synchronicity between participants in the dialogue is important. When the dialogue is characterized by synchronicity the participants experience each other as warm, authentic, and empathic (Holck 2002, referring to Feldstein & Welkowitz 1987). Synchronicity is here understood as the quality of being synchronous.

Aldridge describes two aspects of synchronicity; self-synchrony and interactional synchrony (Aldridge 1996, p. 57). In a pragmatic understanding of communication the interactional synchrony is an important aspect of dialogue. Synchrony has to do with simultaneousness and with a context of time, which again has to do with rhythm. "Synchronization is achieved by a shared interaction in a rhythmic context known to both participants" (ibid., p. 53) and means that "The basic elements of human communication are musical" (ibid., p. 57).

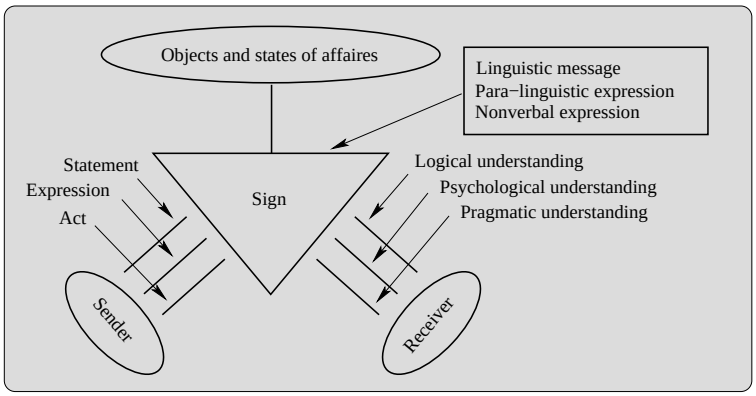


Figure 3.2: Second part of the Organon model. Logical, psychological, and pragmatic understanding

In communication it happens that we do not talk the same "language", – that we do not understand, or we misunderstand what is said or signalised, with the result that the dialogue is broken. If two subjects have a mutual understanding and express this, their communication will be a dialogue. According to the model communication might happen as linguistic messages with a focus on the semantic meaning and reflecting *What* is said. It might happen as para-linguistic expression (e.g., tone of voice, pacing, pausing, emphasis, timing, prosodic contour) reflecting *How* something is said. And at last the communication might happen as nonverbal expressions (e.g., gesture , posture, and facial expression). In the process of understanding, the receiver might understand the messages from a logical, psychological, and pragmatic point of view.

Mostly the psychological and the pragmatic understanding will be combined and we then speak of *the emotional function of communication, the communicative process*, or *social-pragmatic aspect of communication* (Holck 2002, Hougaard 1996). In the social-pragmatic understanding of communication the appeal or the actions that serve to influence the receiver are central. There is less focus on the digital meaning of the words in a conversation than on the analogous meaning of expressions and acts. This does not mean that the meaning found in words is less intense, than the meaning found in expressions and acts, which we e.g. find when we express ourselves in music. The pragmatic understanding adds some further aspects to Buber's philosophy of dialogue, where two fundamentally different kinds of relations are seen; the I-It and I-Thou relations. The I-It relation is the normal everyday relation to things, objects and other persons as objects. Zali Gurevitch, engaged at The Department of Sociology and Anthropology at The Hebrew University of Jerusalem, makes a distinction between talk and dialogue by letting the "talk being the word of I-It" (Gurevitch 1998, p. 29) and "dialogue being the word for I-You"(ibid.). As such the dialogue happens in the I-Thou (or I-You) relation in a meeting, where human beings enter with their innermost and whole being, with "the spark of recognition, laughter, faith, play, love" (ibid.). These are intense interpersonal meetings, but are also spiritual meetings between souls.

> "For Buber, interhuman meetings are only a reflection of the human meeting with God. The essence of the biblical religion consists for Buber of the fact that – regardless of the infinite abyss between them – a dialogue between man and God is possible." (www.buber.de)

In this understanding the dialogue is divine and as such wordless and above the ordinary daily talk. There is a direct connection between the two subjects, and there is not, as in the model above, a third part: the objects and states of affairs. Gurevitch (1998) calls this third part the topic, which means *common place* in Greek, and he sees the topic as being right between talk and dialogue. The word *dialogue* stem from the Greek *dia-logos* where *logos* means word, thought or reason. *Dia* means within, so in this understanding logos/objects and states of affaire is *within*. We can see logos as some kind of topic that two subjects have a shared focus on or understanding of. In a music therapy setting we can imagine the client and the therapist as two subjects, and then logos/"the topic as a third common subject/object" (Gurevitch 1998, p. 31). When I use the word dialogue in this work I use it in a social pragmatic understanding. I see the dialogue as recognition of another person and of a mutual understanding of a topic between two persons. I see this melting together of the three parts, two subjects with a common topic, as an intense experience that happens in glimpses and only may be maintained, when new understandings or meanings and new topics appear. The dialogue constantly changes between turns from one subject to the other, between breaks, silence, acts, expressions, statements, appeals, representations, and understanding. It is not easy to maintain a dialogue. It demands an ability to act, listen, perceive, relate to, and respond.

The term dialogic degenerative disease is described at page 24. The term illustrates that the person loses the ability to enter dialogue. Entering and maintaining dialogue is described as a complicated process above, but even if the person is not able to enter dialogue, it does not mean that the person is not able to express him/herself, or to act, respond, listen, perceive, or even understand. But it means that the whole process of entering dialogue is too complicated and that – if possible – the person needs support and help in the process.

Focussing on dialogue, communication and interacting is a complementary approach to the degenerative disease; dementia. Research on dementia is up to now dominated by pharmacological, diagnostical, and ethiological approaches. It is clear that we need to understand the different dementia diseases in order to render proper care, and hopefully we will find measures against the disease in the future. In the last decade we have seen more research in the direction of person-centred care, and of humanistic and qualitative approaches. Research in communication and dementia, e.g. at a social-pragmatic level, might add to an understanding of communicative processes and lead to better ways of carrying out the daily personal care, increase quality of life, and enabling carers to focus on communicative signals and situations that seems to elicit the most favourable conditions for entering dialogue in order to fulfil e.g. psychosocial needs.

It seems possible to fulfil psychosocial needs if we are aware of our ways of communication and of the way the person with dementia communicates. The consequences will be that caregivers or music therapists - apart from linguistic statements - are able to focus on expressions and acts, and are able to relate to a topic by para-linguistic messages and nonverbal signs. This will give the person suffering from dementia a possibility to express needs, to experience that needs are recognised and understood, and even to enter dialogue and attain mutual understanding, leading to a situation where psychosocial needs might be fulfilled.

If communication and dialogue are essential in dementia care it seems to be crucial to know more about how to elicit conditions where dialogues occur. Do dialogues occur at random

or are there conditions that are more optimal than others in order to elicit dialogue? In the following I examine ideas about arousal and coherence with dialogue.

3.2 Arousal and dialogue

In chapter 1 it was concluded that two extreme states are often seen in persons with dementia; either a state, where the person is apathetic, not taking part in any activities or in social life, or a state where the person is reacting with exuberance, frenzied activity or aggression; a burnt-out state or a state of catastrophic reactions. I need a term to cover these different states and have chosen to use the term arousal. Arousal is generally used to describe very different energetic states or behavioural reactions, but it is possible to use the term with more precision and accuracy, as a more scientific idiom. Burnt-out states or states of catastrophic reactions may be expressions of respectively hypo- and hyper-arousal. In the following I look at the term arousal and lead this further to the key point, that the arousal level is of importance for the environmental awareness that is basic in a dialogue, and that it is possible to regulate the arousal level in the music therapeutical setting.

In Danish and German there is no precise translation for arousal (årvågenhed, reiz), and when the word is used in English it has a very broad meaning. Arousal is connected with theories of attention and here reflects a kind of energetic state of a person. When used in psychosomatic approaches arousal is connected with the construct of drive (Cohen & O'Donnell 1993). In Dictionary of Cognitive Psychology (1995) arousal is described as "the general level of activation in the body and/or mind".

Describing a person as aroused is indeed a very imprecise statement, but gives an image of a person in outer or inner action. On one side arousal describes a physiological state, on the other side it might be a description of a subjective state of excitation (Cohen & O'Donnell 1993). Apart from the general arousal term the description can be more precise by using qualifiers, e.g., cortical arousal, sexual arousal (Reber 1995), emotional arousal (Gade 1998), therapeutic arousal (Butcher 1995), tonic and phasic arousal (Whyte 1992; Cohen & O'Donnell 1993), generalized arousal (Cohen & O'Donnell 1993), Amygdala triggered arousal (LeDoux 1998), energetic -, general - and tension arousal (Wigram & Dileo 1997).

The arousal response is basically a useful reaction. If a person is threatened e.g. by an ugly customer in a murky street endocrine and autonomic neural mechanisms will serve to initiate the most appropriate reaction for survival. Cortical activity enables the brain at full speed to scan all stored experiences relevant in this situation. EEG would show high-frequency asynchronous activity. Attention will be selective and focus only on what is relevant in the environment. Nothing else will be paid attention to. Stress hormones will mobilise power to run faster than ever, or make an extraordinary stunt; a muscular readiness to flee or fight. Sympathetic nervous system is activated and the heart beats faster, bronchi dilate, glucose is mobilised from the liver and more blood will flow to the muscles than to viscera. When our whole system responds to a serious threat like this, we have the best possibilities to act in the most optimal way. In this case a hyper-aroused state is very constructive.

After such energy expenditure our system needs an anabolic phase of restoring the energy. We then seek conditions where we can rest and relax, and the parasympathetic nervous system will be more active than the sympathetic nervous system. Heartbeat will slow down, peristalsis and secretion will be stimulated and in viscera blood flow will increase. Now the arousal term starts getting complicated; even if the person is in a state of low arousal – indicated by physiological factors (as e.g. heartbeat) – cortical or behavioural arousal is not necessarily low too (Cohen & O'Donnell 1993; Theilgaard 1985). Under some conditions, e.g.

during stages of sleep, the sleeping person will generally be seen as a person in a hypo-aroused state with low muscle activity, influenced by the parasympathetic nervous system, and with slow EEG activity. But in the REM sleep brain waves will show a desynchronised pattern and indicate very high cortical activity. A person in the REM stage of sleep will show no muscular activity other than facial movements, as the striated muscles, that move our skeleton during behavioural acts, actively are impeded (Bøgeskov 1999). This sleeping person can be seen as a person in a hypo-aroused state, but showing very high cortical arousal.

Inhibition of muscle activity is also seen when a person is freezing as a response to a warning signal. The person might be in a neutral situation, and the sudden warning signal will paralyse the person during a very short period of time. This motor inhibition occurs to allow the person to prepare for future responding (Cohen & O'Donnell 1993), which could be fight or escape. Thus in this situation the person is highly cortical aroused with high activation of the sympathetic nervous system, but show no behavioural activity in this moment.

Most people will know the effects of stimulants as e.g. caffeine or nicotine. Stimulants activate the sympathetic nervous system and we feel aroused, but stimulants and pharmacological manipulations have also direct central nervous system (CNS) effects, some of which may produce responses other than stimulation (Cohen & O'Donnell 1993). This is relevant if a person with dementia is in pharmacological treatment.

As seen in the above-mentioned examples arousal is a highly complicated system of more or less correlating processes, concerning inhibition and excitation involving cortical areas, as well as autonomic and central nervous system (Theilgaard 1985). Additionally, arousal undergoes slow or rapid fluctuations throughout the day, which is referred to as tonic and phasic arousal. In a musical concept tonic is the keynote, and *tonic arousal* signify a more fundamental arousal level than the phasic arousal. Tonic arousal is influenced by sleep, food intake, and endogenous and endocrine circadian rhythms (Whyte 1992), and in special periods of the day human performance is more optimal than in other periods; we might for example recall number of digits better at noon, but worse in the evening (Whyte 1992, referring to Blake, M. J. F., 1971). The *phasic arousal* shows rapid fluctuations in the short term and occurs in response to environmental or organismic changes, e.g. warning signals, or the arousal responses to a demanding task or physical activity (Whyte 1992; Cohen & O'Donnell 1993). Interestingly, phasic arousal appears to be less significantly impaired by brain damage than tonic arousal (where right hemisphere appears to be dominant), which means that persons suffering from dementia still might be able to respond appropriately to warning signals, e.g. breaking out of a fire (Whyte 1992, p. 942).

Blascovichy & Tomaka (1996) put up two types of arousal constructs that have pervaded psychological theories. In the first construct arousal is seen as a mere *metaphor*, and in the second as a *scientific* term. Arousal as a scientific construct is historically little common and includes all uses and definitions of arousal for which empirical assessment is possible. How do we assess arousal in the clinical setting? The following types of arousal might come into question: cortical arousal, emotional arousal, ANS (*autonomic nervous system*) activated arousal, and behavioural arousal. Means of assessing *cortical arousal* seems complicated in the clinical setting, as it requires special equipment as e.g. electroencephalograph (EEG). Self-report would be possible if the participant after the clinical setting is able to tell about mental experiences. This is also of relevance concerning *emotional arousal*. *ANS activated arousal* needs special equipment as well, but there are possible solutions developed in stress research, measuring e.g. heart rate, skin resistance, and skin temperature all together by wearing a wristwatch during the setting. *Behavioural arousal* can be assessed by different observation strategies using specific assessment profiles.

Arousal is a workable metaphor when we want to describe a general state. When used as a

scientific construct we need to be precise and selective, using parameters possible to assess. As described before, this can lead to descriptions of a state, where one arousal construct is high and the other low, which means that different issues of assessment strategies are demanded in the analysis and interpretation of the clinical setting. The analysis must be an integration of multiple assessment strategies.

From this we can conclude that arousal is not an uncomplicated construct to use empirically. But the construct is useful when describing the optimal situation for entering dialogue where the persons must obtain an open, perceptive attitude towards the environment; a state where he or she is able to relate to objects or subjects in the surrounding reality. A state where environmental attention is shown. Arousal is linked to an understanding of "the threshold for responding" which is relevant in the clinical setting:

> "Arousal is governed by both the intrinsic properties of the biological system and the external environmental factors that modify the threshold for responding. ... Though the construct of arousal lacks theoretical coherence, in a broad sense "arousal" reflects the interaction of the physiological state, behavioural activity, and attentional allocation." (Cohen & O'Donnell 1993, p. 117)

When working in a therapeutically clinical setting, one of the core points is to create a situation with optimal possibilities to enter dialogue with the participant. I have previously described dementia as a "dialogical degenerative disease", and see the ability to enter dialogue as important as David Aldridge does: "When dialogue fails then we have alienation and despair" (Aldridge 2001a). The best possibility for composing a setting, where a fundament for entering a dialogue is feasible, seems to be important to define.

In order to enter a dialogue two persons must be present in the same space of time and must achieve some kind of synchronicity. If only one person is aware of the other one, their communication will not be a dialogue, but two monologues in two directions, not "meeting" each other. In a dialogue the two persons must in some way be aware of each other, and see, hear or feel each other. "To resume dialogue however is to achieve reciprocal recognition ... To achieve plurality, we need two voices" (Aldridge 2001a).

In "normal" life we enter either talks or dialogues the whole day long; we hug our children, nod to the neighbour, shake hands with the new colleague, we converse, chat, discuss, and answer, reply, retort and respond. Humane beings even talk (or enter dialogue?) with their dog and get an answer when it looks and "listens". When our dialogues become monologues we have a serious problem. This happens when we are unable to see, hear or feel other persons, when we are not receptive to what is going on around us, and when we are not able to respond to things happening around us. These are situations where we loose environmental awareness and the ability to respond appropriately. The causes may be neurological diseases, severe depression, mania, psychosis, coma or others. These biological and physiological factors have great influence on tonic arousal, and the arousal level is significant of our receiving and responding to environmental stimuli.

> "Arousal refers to the general state of readiness of an individual to process sensory information and/or organize a response." (Whyte 1992, p. 941)

In the clinical setting this means, that if I as therapist want to create a situation with optimal possibilities to enter dialogue with the participant, I need to provide a situation where the participant gain optimal conditions to process sensory information and to organize a response. In the search of means allowing optimal conditions for dialogue, one step is to look at the relationship between arousal, attention and performance, as:

> "Attention and arousal are critical to optimal human performance." (Whyte 1992, p. 940)

The relationship between arousal and performance is found in the Yerkes-Dodson law (and I return to attention later):

> "Yerkes-Dodson law (1908) described an inverted U-shaped relationship between arousal and performance. The law predicts that performance will be optimal at medium levels of arousal and will fall off at either high or low levels of arousal." (Cohen & O'Donnell 1993, p. 119)

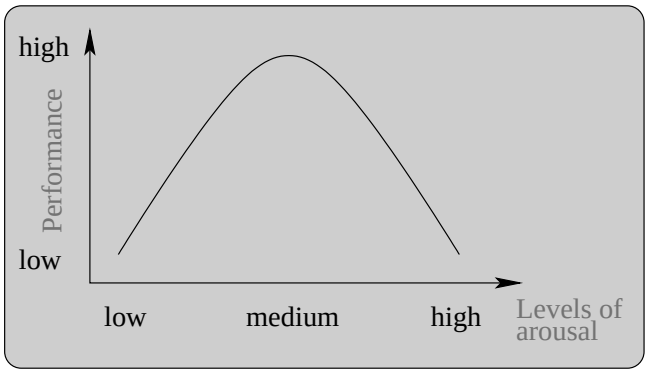


Figure 3.3: Yerkes-Dodson law. Performance is optimal at medium levels of arousal

In the beginning of the last century Robert Yerkes and John Dodson studied dancing mice. The mouse was put in a cage and ...

> "The experimenter then ... gradually narrowed the space in which the animal could move about freely by moving the cardboard toward the electric boxes. ... When thus brought face to face with the entrances to the boxes the mouse soon attempted to enter one of them." (Yerkes & Dodson 1908, p. 462)

One box would be black and "attempts to enter the black box resulted in the receipt of a disagreeable electric shock" (ibid., p. 459). The purpose of the experiment was to discover:

> "... (1) whether the strength of this electric stimulus influences the rapidity with which dancers acquire the habit of avoiding the black passage-way, and if so, (2) what particular strength of stimulus is most favourable to the acquisition of this habit." (ibid., p. 459)

In addition to differences in degree of electrical shock, means of recognising and differentiating the two boxes were changed. From this experiment Yerkes and Dodson concluded that:

> "... an easily acquired habit, that is one which does not demand difficult sense discriminations or complex associations, may readily be formed under strong stimulation, whereas a difficult habit may be acquired readily only under relatively weak stimulation." (ibid., p. 459)

Yerkes and Dodson do not use the word arousal in their article printed in *Journal of Comparative Neurology and Psychology* in 1908, and they do not describe states or conditions that seem to correspond to arousal states. They examine habit formation, and would surely have been astonished to know that their experiments laid ground to a basic psychological law concerning arousal. The physiological state of the mice is not described (as it is not a subject examined in the study). Only in one observation is it mentioned that "the strong stimulus was decidedly disagreeable to the experimenters and the mice reacted to it vigorously". From this it could be assumed that the strong electrical stimulation brings the mice in a state of hyper-arousal, and further that this inhibits performance. So far this part correlates with the Yerkes-Dodson law saying that performance will fall off at high levels of arousal. But the experiment does not integrate a condition of low arousal or hypo-arousal. It describes a situation where the mice get lower electrical shocks when the cave around them is narrowed, leading them towards the boxes where one of them might cause pain. To me this seems to be a stressful situation, but this is not clear from the description of the experiment. If it is a stressful situation, the arousal level of the mouse must be high. If it is a neutral situation, I still have a picture of a mouse moving about being attentive to the environment. At least it can be concluded that the mouse is not in a state of hypo-arousal as e.g. apathy, sleep or coma. At this point Yerkes and Dodson's experiment does not correspond to the later defined Yerkes-Dodson law.

In a newer definition by Barlow & Durand (1995) the Yerkes-Dodson law is even related to affect and mood:

> "There appears to be an inverted U-shaped relation between arousal, on the one hand, and performance, on the other. This relation, often referred to as the Yerkes-Dodson curve, suggests that people with either very high or very low levels of arousal will tend to *experience negative affect* and perform poorly in many situations, whereas individuals with intermediate levels of arousal will tend to *be relatively content* and perform satisfactorily in most situations." (Barlow & Durand 1995, p. 534, my italics)

In the definition from *Dictionary of psychology* (Reber 1995), the inverted U-shape is not described, but instead of that we find a crossover shape (see figure 3.4) relating performance to difficulty of task.

> "Yerkes-Dodson law: The generalization that task difficulty and arousal interact such that on difficult tasks low levels of arousal improve performance relative to high levels, but on easy tasks the reverse is true, with high arousal levels facilitating performance relative to low levels." (Reber 1995, p. 860)

Even LeDoux in his book about *The Emotional Brain* (LeDoux 1998) describes the connection between arousal and performance, but does not directly relate this to the Yerkes-Dodson law; only in the notes he makes a small comment on the law. He states that ...

> "Arousal is important in all mental functions. It contributes significantly to attention, perception, memory, emotion, and problem solving. Without arousal, we fail to notice what is going on – we don't attend to the details. But too much arousal is not good either. If you are overaroused you become tense and anxious and unproductive. You need to have just the right level of activation to perform optimally." (LeDoux 1998, p. 289)

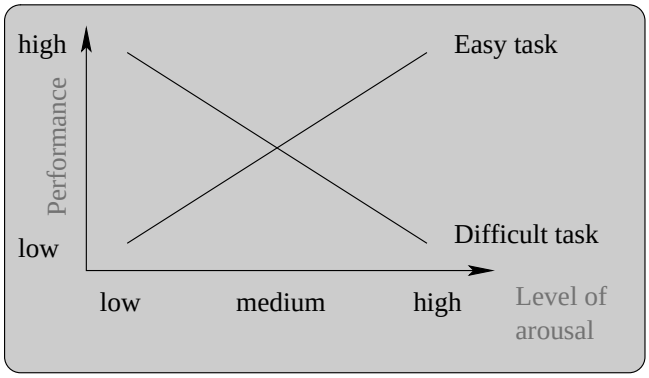


Figure 3.4: Levels of arousal related to performance

Following this passage LeDoux writes a small note saying, "this is generally known as the Yerkes-Dodson law in psychology". The Yerkes-Dodson law seems to be very broadly accepted even though the original fear conditioning experiment was not intended to describe connection between arousal, affect and performance, and does not bring observations of arousal states. Cohen & O'Donnell (1993) describes the problems with Generalized Arousal:

> "The Yerkes-Dodson law does not hold up in all situations. Predictions about arousal effects become much harder to make when several sources of arousal are interacting. The law holds up best when one considers the full range of behavioral energetic states (coma to agitated mania). Within this framework, arousal can be considered a unitary state that can be represented along a single dimension. The behavioral characteristics of arousal are easily identified and accepted by most people. If behavior is placed on a continuum, coma and lethargy fall on one end, and states of rage, mania, or agitation fall at the other." (Cohen & O'Donnell 1993, p. 120)

Cohen & O'Donnell make reservations to the concept of arousal but still thinks "it would be a mistake to reject the concept" (Cohen & O'Donnell 1993, p. 123). Equally, he accepts the Yerkes-Dodson law under some conditions, e.g. when extreme states of arousal occur. The hypo- and hyper-arousal states of lethargy/burnt-out states or agitation/catastrophic reactions are states often described in dementia care. In dementia care the arousal construct, and the relation between arousal and performance or environmental attention, gives a clear model for planning activities, therapy and daily care with focus on arousal stages. The law or model makes it clear, that states of medium arousal are optimal for processing environmental stimuli, and in the following I describe why environmental attention is of relevance for persons suffering from dementia.

> "Disorders of attention are common after a variety of insults to the central nervous system. At present, treatment of these disorders is rarely based on a theoretical understanding of the neuroanatomy, neurophysiology, psychology, or psychopharmacology of attention. ... It is hoped that a deeper understanding of attention research will assist clinicians to develop more theoretically-based clinical perspectives." (Whyte 1992, p. 940)

I have described states of high and low arousal as constructive to our organism. If we are in danger high arousal helps us to focus on the danger and to act quickly and with force.

If we sit for an examination or for an interview to get a new job, our sympathetic nervous system is aroused, and even if we have not slept the whole night, we keep concentration and focus, and do not yawn a single time. Afterwards we regenerate by relaxing, e.g. by doing "nothing", day dreaming, watching television, listening to music, painting, hanging out on a café, or taking a nap. If we have "too many thoughts" in our head, we might balance our system by physical activity. When jogging we allow our body to react on stress hormones, (e.g., epinephrine and norepinephrine) released at high cortical arousal. In stress research two general types of stress are defined: positive stress and negative stress. Positive stress is arousing "appropriately" to a certain task. Negative stress is over-arousing and a missing ability to relax and regenerate in order to get the arousal level down.

> "Emotional reactions are typically accompanied by intense cortical arousal. ... Arousal helps lock you into the emotional state you are in. This can be very useful (you don't want to get distracted when you are in danger), but can also be an annoyance (*once the fear system is turned on, it's hard to turn it off* – this is the nature of anxiety)." (LeDoux 1998, p. 289, my italics)

If a person is locked in a hyper-aroused state, the effects of e.g. the brain's high-frequency asynchronous activity, of the high speed of the sympathetic nervous system, and the release of noradrenaline and other neurochemicals lead to unbalanced homeostasis. When the sympathetic system is highly activated, parasympathetic mechanisms try to counteract the activity, e.g. by releasing steroids from adrenal cortex. In the long run this is a strain on our body and on our immune system. Seen from a physiological point of view, prolonged periods with increased arousal level are of a negative character. When quality of life is taken into consideration, you see a person locked in a state of high arousal. At a certain point physical exhaustion leads the person to a hypo-aroused state, until he/she again shoots to the level of very high arousal. There seems to be no, or only short, periods of a "balanced" arousal level. As this level is of significance for environmental attention, it means that the person changes from one extreme state to another, where in both cases he or she has difficulties in processing and receiving outer stimuli. In high and low states of arousal the person is not able to enter dialogue or to focus on external issues. The circle is vicious, and it is difficult to break it. One solution is medication, but this is often seen to keep the person in a hypo-aroused state. This can be of valuable for peer residents and staff, as the periods of high arousal and the resulting agitation stop, but it locks the person in a state of apathy and emptiness; a state containing little quality of life. - Another solution might be giving the person possibilities to regulate the arousal level.

3.3 Regulating the arousal level

"Normally" we know how to regulate the arousal level in our daily life. Consciously we plan our day or schedules in order to allow breaks and rest. Unconsciously we follow impulses to act when there is a need to act, and to calm down, recess, recharge, reflect, recover, and regenerate when this is the need. In our daily life we might have our own small routines that keep us "balanced". We fiddle with our stamps, garden, drawings, computer, wine collection or what ever. If neurological deficits hinder a conscious intervention to regulate the arousal level, and opportunities to follow natural and more unconscious adjustment impulses are not possible, help from outside might be needed. In dementia care this implies that staff members are able to distinguish between arousal levels and able to actively utilize arousal regulating techniques.

Extreme states of hypo- or hyper-arousal isolate and trap a person in his/her own world. Leading the person to medium arousal levels most optimal to environmental attention might change this condition. In cases of institutionalised residents suffering from severe dementia, safe and regenerating routines must be revived, or new routines constructed, to allow the resident to re-establish smaller and balanced fluctuations of arousal. When the person is attentive and when there is a basis for entering dialogue, stimuli must be

- reasonably simple to avoid overstimulation, which will lead to increased arousal,
- and reasonably challenging to avoid the person to drowse.

Helping the person to avoid extreme levels of hyper- and hypo-arousal or at least to obtain periods of a medium arousal level where dialogue is possible means increased quality of life to the resident. When the person experiences moments of lucidity (Normann 2002) and is attentive to other persons, it is possible to meet psychosocial needs, which Kitwood (1997) has defined as needs for inclusion, occupation, identity, comfort, attachment and love. Meeting these needs is not possible when the person is in either a hyper- or hypo-aroused state.

The underlying purpose of actively involving arousal-regulating techniques is that high or low states of arousal lead to little attentiveness to environmental stimuli. - And additionally new stimuli can have two characters; a) they can either lead to new states of hypo- or hyper-arousal or b) they can be balanced in order to keep the person in a state of medium arousal. In the first case new stimuli might be too complex and overwhelming, leading the person into a spiral that in the end locks the person in a state of hyper-arousal. Or the stimulus does not have the capability to catch attention. Systems located in regions of the brain stem contribute to cortical arousal and release neurotransmitters. Neurotransmitters are messengers making it possible for a neuron to send signals to a receiver neuron.

> "In the presence of novel or otherwise significant stimuli the axon terminals release their neurotransmitters and "arouse" cortical cells, making them especially receptive to incoming signals." (LeDoux 1998, p. 289)

If none of the neurotransmitters (acetylcholine, noradrenaline, dopamine, and serotonin) are active, cells are not receptive to incoming signals. The cause may be neurological damage, influence of medication, or the person being emotionally "locked" in a hypo-aroused state. In the latter condition the person at some level might perceive the stimulus but has a need to refuse it and keep the state of hypo-arousal.

It might be possible to "balance" stimuli, adjusting them to the person's level of arousal, and selecting stimuli that are new in such a way, that they represent a kind of change, but are well-known in the sense that the person can relate to them. New stimuli might add to the chaos surrounding a person with severe memory dysfunction. Contrary to this "balanced" stimuli could be a humming voice. The voice might in the first place be a new stimulus, but after a while it might be recognized by e.g. the sound, the structure of the melody, and related to a feeling of safety. This stimulus catches attention, but as the person can relate to it, it does not arouse him/her further. In return it can be so monotonous that it leads the person back to the hypo-aroused state, if not added by new stimuli, such as changes in rhythm, tempo, timbre, etc. To a resident suffering from dementia it might be important that the person does not wake up in the morning in an unfamiliar room, with noise from a radio, staff talking with many words in loud voices, other noises from trolleys, vacuum cleaner, footsteps, and personal care being done hurriedly, without the person understanding what is going on. So many different auditory, visual, and tactile stimuli at one time might arouse and stress the person. A reduction in stimuli, together with well-known routines and

well-known faces and voices might prevent the person from acting with hyper-arousal. Again this does not mean that special care units with as little stimuli as possible are the solution. Stimuli to a certain degree are needed to lead the person to a state of medium or balanced arousal where dialogues are possible.

3.4 Arousal and attention

Perception deals with those processes that give coherence and unity to sensory input (Reber 1995, p. 549), and "perceiving is as much about acting on the environment as it is about receiving signals from it" (Damasio 1994, p. 225). In order to perceive stimuli we need to notice them or to focus on them, – we need to be attentive. Up to now I have separated *attention* and arousal, but they belong closely together. In the following part I describe aspects of attention. Arousal is a component of the attention system (Whyte 1992), and the whole attention system has to do with selective aspects of perception and our ability to focus. Automatically we focus on features in our environment, on our feelings, thoughts or inner images, and as a consequence of focussing, we leave other features out. This makes it possible for us to do several things at one time by showing little attention or focus on things we can carry out more or less by routine. "Just as arousal can be thought of as an energy source, *selective attention* can be thought of as how and where that energy is allocated" (Whyte 1992). Our ability to focus and – not less important – to leave out or ignore unimportant stimuli is a way of organising energy economically, not spending one's energy on petty things. Unfortunately this economical organising does not work automatically in all situations (e.g. when you are forced to read boring texts some "unimportant" stimuli – such as the smell of cakes, or headlines of yesterday's newspaper – suddenly appear very important), and we also need *strategic control of attention* that is a goal-directed operation of attention to facilitate chosen tasks (Whyte 1992). The whole attention system involves many neural structures in the brain and is not located to a focal brain region. Coren *et al.* (1999) describes four major aspects of attention: 1) Orienting, 2) Filtering, 3) Searching, and 4) Preparing.

Orienting deals with direction of a sensory organ towards the source of stimulation. The next step is *filtering* that is already described as a way of focusing attention on a specific set of stimuli and ignoring all others. This is compared to the cocktail party phenomenon (a term introduced by C. Cherry), where we are able to focus on one voice speaking, not hearing the cacophony of other voices. The *searching* is strongly related to learned experience. We seek information from the sensory field, and what we focus on is influenced by expectations and practice. This means that our focus is not directed on trivialities but on unexpected items. *Preparing* is a helpful function when we look for a word on a page full of words. We do not read all the words, but scan them until the word, the expected stimulus, is found. This kind of attention often involves a symbolic cue (Coren *et al.* 1999, p. 466).

If in a music therapy session we want to give continuing stimuli in order to capture attention, but without over- or under-stimulation, musical sounds, singing, or humming seem ideal. In order not to have the stimulus "filtered out" as just another voice in the cacophony, songs or sounds that are addressed to the person might let the stimulus be heard. A song might be addressed to the listener by using familiar material. We might choose a very monotonous song in order not to over-stimulate, but risking that the song it too trivial. By changes in musical features such as tempo and tonality, or by unexpected "playing" with the song, it might be possible to maintain attention.

The fourth aspect of attention dealt with preparing and the use of symbolic cues. The use of cues is an important part with participants in music therapy where it is difficult to capture

attention. There are long traditions in e.g. creative music therapy to use songs as cues by singing specific hello- or goodbye-songs. The use of cues is further described at page 101.

3.5 Attention and stimulation

In the book *The first relationship: Infant and mother* from 1977 Daniel Stern describes the connection between attention and level of stimulation by quoting Yerkes & Dodson (1908). With low to high level of stimulus on the x-axis and low to high attention on the y-axis he illustrates the relationship with the inverted u-shape that is earlier described.

> "If the level of stimulation is too low, even though he (*the infant*) is aware of its presence, he will barely attend to it, or if he does he will quickly lose interest. If the level of stimulation is too high, he will avoid it by turning away or crying... When the level of stimulation is more moderate, somewhere between the two extremes, his attention will be more easily captured and maintained." (Stern 1977)

In this explanation it is the level of stimulus that is determinant to the capturing and maintaining of attention. By regulating the amount of stimuli the infant's caregiver can control and influence the attention level of the infant. The question is whether it is possible to transfer this to elderly persons suffering from dementia. Whether it is possible to regulate attention level by amount of environmental stimuli?

In the following I distinguish between capturing and maintaining attention. If it is possible to influence attention, the first step is to *capture* attention and in some way get the other person, here the participant in the music therapy, attentive to the stimuli I present. On the surface this is very easy, as simply a very loud sounds or very quick movements will catch the attention. But if I want to *maintain* attention I need stimuli where the person does not turn away afterwards or in other ways leaves out the stimulus. Hence I need moderate stimuli to capture attention, and next, in the whole process of maintaining the attention – according to previous conclusions – I have to lead the person to a moderate arousal level, where the person seems to be most attentive. In this sense attention and arousal are closely interwoven.

When capturing the attention of a person we apparently need moderate stimulation. The following questions arise: what is moderate stimulation? and are we all equally sensitive to stimulation? Stern (1977) makes it clear that children are very differently sensitive to stimulation. Some children are exceptionally sensitive and others have a very high threshold for stimulation. What seems to be moderate stimulation to one child surpasses the threshold for what is tolerable to another child. Hall & Buchwalter (1987) describes that for persons with dementia the stress threshold declines and that these persons therefore are more sensitive to stimuli.

> "As the disease progresses and brain cells are lost, the Alzheimer's victim becomes less able to receive and process stimuli and information. This causes a concomitant progressive decline in the stress threshold, which relies heavily on intact cerebral function ... If the stress level is allowed to continue or increase, dysfunctional or catastrophic behavior results." (Hall & Buchwalter 1987, p. 400)

Hall & Buchwalter suggest that caregivers use anxiety as a barometer to determine how much activity and stimuli the person suffering from dementia can tolerate at any point during his illness (Hall & Buchwalter 1987, p. 403). He describes three main types of behaviour of persons with dementia: baseline (or normative), anxious, and dysfunctional. The anxious behaviour occurs when the person feels stress, but anxiety is seen as a level where it is still

possible to make or maintain contact with the person. When the person shows dysfunctional or catastrophic behaviour, "the patient is unable to communicate effectively with others and is unable to use the environment in a functionally appropriate manner" (Hall & Buchwalter 1987, p. 401). It seems clear that thresholds for stimulation vary from person to person, and from situation to situation, and that only by observing and being familiar with both normative, anxious and dysfunctional behaviour, we might know what "moderate" stimuli are. Fortunately some staff members know this intuitively.

3.6 Physiological parameters

I am interested in the possibilities to document arousal on physiological parameters, such as measuring heart rate. It is clear that it is very difficult to make conclusions on heart rate data, if we only consider perception, as there is a greater relationship of fluctuating heart rate to impulsive motor responses than to perceptual discrimination (Lacey & Lacey 1974, p. 539). This means that when a participant e.g. taps the beat, this has greater influence on heart rate than when the person is listening.

Research shows that *decreases* in heart rate (or momentary bradycardia) occur at simple attention, when a person intends to note and detect external events (Lacey & Lacey 1974, p. 539). The intake of information and a certain degree of readiness and receptivity (Lacey & Lacey 1974; Cohen & O'Donnell 1993) or a "switch to environmental attention" (Aldridge 1996) entail slower heart rate.

Increases in heart rate are a consequence of: simple cognitive work, when trying to concentrate and ignore or reject disturbing external events (motivated inattention), threats of shock or "high activation", memory processing (Lacey & Lacey 1974), and tasks that require problem solving or other more active responses (Cohen & O'Donnell 1993). Researching communication and musical dialogue the music therapist Lutz Neugebauer supports the connection between increases in heart rate and cognitive processing, and decreases in heart rate and listening.

> "As predicted from the literature we observed an increase in heart rate when a musical initiative was about to take place as evidence of cognitive processing. Similarly, when active listening took place, with an increase in environmental attention, then a decrease in heart rate occurred. The cardiovascular system reflects an intention to receive information." (Neugebauer 1999)

In Neugebauer's research heart rate data were correlated with video observations and timescale, in order to be able to describe the context. This is important when using heart rate data. In states of hyper-arousal we see selective attention and activation of sympathetic nervous system (Lacey & Lacey 1974), but if our only data source is heart rate data, a high heart rate level signifies either hyper-arousal or simply motor activity. "Stimulation associated with increased "behavioural arousal" and with "electroencephalographic arousal", may either have no effect on heart rate or may, indeed, be associated with decreases in heart rate" (Lacey & Lacey 1974, p. 559). Here it is obvious that we are not able to make conclusions on arousal only based on heart rate data, but that we need complementary data to support observations of hypo- or hyper-arousal. Additionally we can expect less fluctuation in heart rate with a population of elderly, as a study of subjects aged 71 to 91 shows that "the magnitude of ANS changes was smaller among the elderly" (Levenson 1992, p. 23). What might reveal interesting information as a complementary data source is considering the decreases in heart rate, as the switch to environmental attention is relevant in relation to the

ability to enter dialogue. David Aldridge gives an extended review on cardiovascular change and communication in "Music Therapy Research and Practice in Medicine" (Aldridge 1996, p. 38-44).

Summary and conclusion

In this chapter I have presented a social-pragmatic theory of communication and dialogue, seeing dialogue as a three part exchange with focus on a psychological and pragmatic understanding of linguistic messages, para-linguistic and nonverbal expressions. Subsequently I examine conditions for dialogue, and a coherence between dialogue, arousal, and attention is presented and discussed, e.g. in connection with the often quoted "Yerkes-Dodson law" and with theory of perception and neurology. A moderate arousal level is seen as optimal to environmental attention, which again is essential to the ability to enter dialogue. A physiological approach shows a relation between heart rate and environmental attention, and as a summing up of this chapter I want to conclude with a model, presented by David Aldridge (2000a), concerning regulation of arousal.

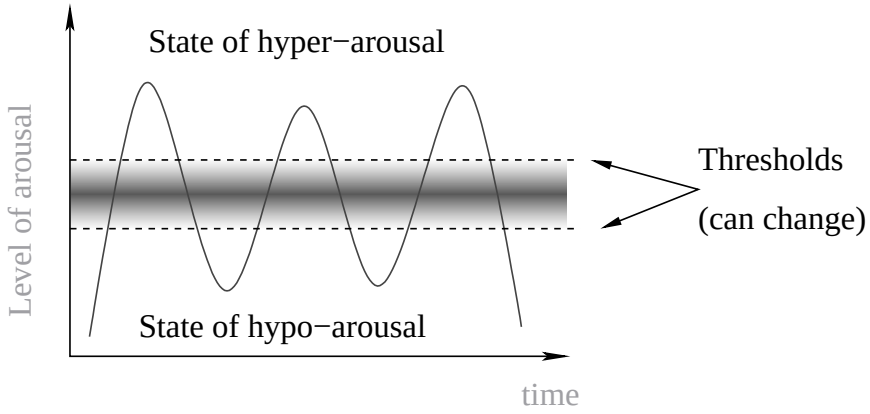


Figure 3.5: Little potential for entering dialogue (after Aldridge 2002a)

In figure 3.5 low to high levels of arousal are shown on the y-axis and time on the x-axis. High arousal might be assessed as: restlessness, quick movements, vigorous gestures, fast heartbeat, and speedy talk. Low arousal might be assessed as very little activity, slow movements, apathy, slow heartbeat, and little verbal and nonverbal communication. The time period might represent the whole day or part of the day. A person showing this curve shoots from levels of hypo-arousal to levels of hyper-arousal. The dotted lines represent thresholds for being hyper- or hypo-aroused where the person in either state is very little attentive to environmental stimuli. Between the two dotted lines the person is attentive to environmental stimuli, showing most attention when arousal level is moderate, somewhere in between the thresholds. A person with a curve similar to this has only very few moments of lucidity where he or she is able to perceive stimuli from the environment.

The example in figure 3.6 illustrates a day or a period of the day, where the person after periods of rest is stimulated to higher levels of arousal – but only to a degree within the thresholds levels. The person does not shoot to levels of hyper-arousal, but is balancing at a moderate arousal level. Thresholds have changed, as the tonic arousal level generally is lower, which influences the thresholds for hypo- and hyper-arousal; the person is not that

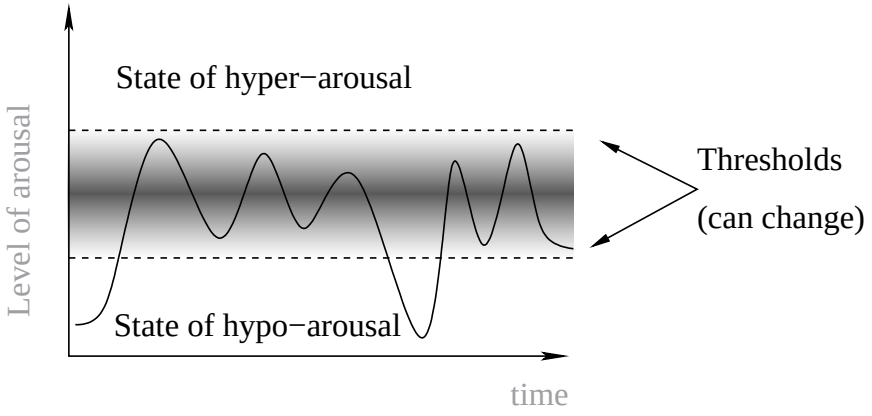


Figure 3.6: Great potential for entering dialogue (after Aldridge 2002a)

easily locked up in extreme arousal states. In periods the person is in states of hypo-arousal, when he or she has a rest or takes a nap, but the person is not kept in states of hypo-arousal, and he or she regains the balanced levels of arousal, where he is most attentive to the environment.

Achieving a balanced arousal level is possible by using moderate stimuli and contextual or symbolic cues. Moderate stimuli balance between e.g. new and familiar, fast and slow, loud and quiet, and trivial and intense.

Chapter 4

Research methodology

4.1 Epistemology and paradigms

The 1990s saw an explosion of interest in qualitative research and its design (Robson 2002, p. xii), and this led to endless debates on qualitative >< quantitative strategies, where they were defined as two different research paradigms. This debate seems to go on in some research milieus, but in the PhD programme in Aalborg (Wigram, Pedersen, & Bonde 2002) it has been replaced by an interest in both strategies with a focus on finding the right tool to answer the research questions, instead of modulating questions so they fit a certain, beforehand-decided method; "... it is far more relevant to establish the focus of the research question first, before deciding on an appropriate research method" (ibid., p. 225).

In her book "Videnskap og kommunikasjon", which I translate to "Science and communication", Professor Nerheim (1995, University of Tromsoe, Norway) discusses paradigms, models, and communicative strategies in health care theory of science. She describes the health care science – based on e.g. medicine, psychiatry, nursing, and physiotherapy – as strongly related to theory of natural science. But she additionally describes that a bio-psycho-social or holistic model of comprehension is increasingly influencing theory of care. The concepts of illness and health are here to be understood in *open systems*. In *closed systems* it is possible to carry out research under strict laboratory conditions. In open systems ...

> "we have to accept that we are dealing with tendencies and probabilities ... People, information and all other aspects of the situation are likely to change in ways that may or may not have anything to do with the focus of our investigation." (Robson 2002, p. 40)

If health care science accepts to define illness and health as aspects in open systems – where the patients interact with their surroundings – and show different strategies of how to cope with health and illness, an understanding of the *meaning* of these aspects is needed. In order to understand meaning "health care science needs hermeneutics (the art of understanding)"(Nerheim 1995, p. 15). The point I want to stress from Nerheim's work is that she sees that hermeneutics go beyond its traditional role as a) a "helping discipline" to other branches of learning; she sees hermeneutic as b) an "independent" methodology, and that it appears as c) "basic science" (ibid., p. 15).

In order to leave the "paradigm wars" (Robson 2002, p. 43) between positivists (quantitative researchers) and constructionists (hermeneutic, qualitative researchers) Robson among other approaches suggests a pragmatic approach. Pragmatism was originally developed by

linguistics with the purpose of studying the relationship between signs, as described in the model of interpersonal communication at page 50. In order not to mix the terms, I combine the linguistic understanding with a psychological understanding and refer to social-pragmatic understandings. In the philosophy of pragmatism concerning research is here understood a ... "philosophical doctrine in which values, meanings and truths of propositions are taken as equivalent to the practical, empirical consequences derivable from them" (Reber 1995, p. 587). Pragmatism is based on work from the American philosophers Charles S. Peirce (1839-1914), William James (1842-1910), and John Dewey (1859-1952). For Peirce pragmatism was "primarily a theory of meaning, with the meaning of any concept that has application in the real world inhering in the relations that link experiential conditions of application with observable results" (The Oxford C.Ph., 2002). Peirce was interested in deductive logic, and formulated *abduction* that is opposed to deduction and induction. Abduction occurs in everyday life, is a way of theoretical reasoning – or simply: guessing – where explanatory hypotheses are formed and accepted.

In pragmatism truth is "what works", which means that both quantitative and qualitative approaches are possible in mixed-method studies. In this view quantitative and qualitative approaches are "degraded" to research instruments at the same footing, and not defined as two diametrically opposite "world views".

When Nerheim distinguishes between helping disciplines, independent methodologies and basic science I find it important to establish that thorough, profound and even radical research includes and discusses perspectives from other works and other disciplines, – naturally only where it is relevant to the research question. Big large-scale outcome studies must basically rely on or refer to research that clearly describes details or categories. Basic science concerning Alzheimer's disease is for example based on foundation research that in implicit or explicit ways is connected to Alois Alzheimer's case description of Johann F; a case description based on data from medical charts and containing elaborate descriptions of neurological findings at autopsy. These observations on a single person are basic to further research. If an understanding of the fieldwork, of nuances, details, and differences, is not included in a large-scale quantitative work, this might twist the "truth" found as a result of the work. I consider quantitative work as weak if it is not based, at least in the theoretical understanding, on qualitative understandings or hermeneutic approaches, that are closely bound to the field (to persons, their specific needs, their responding and acting, clinical approaches, theory of care, etc.), and an understanding of variables that we try to isolate and control in closed systems in RCT studies. I see hermeneutic approaches as basic to quantitative work, and therefore absolutely necessary when new research fields are developed, if research has to "make sense". Qualitative data and subjective approaches can stand on their own as conclusive evidence, when research meets criteria for validity and reliability, and might also enrich the methodology by including quantitative data. In this sense both quantitative and qualitative strategies function as helping disciplines, independent methodologies or basic science.

4.2 Methodological considerations

Persons in an *open system* communicate. If communication in a scientific way is to be examined and understood, it is clear from the model at page 50 that we have to deal with both communicative signs of expression, representation and appeal, and that there are aspects of mutual understanding and intersubjectivity, where a logical understanding is possible with a logic empiric tradition of science, but where a social-pragmatic understanding needs the hermeneutic scientific approach.

> "In open systems, we can well be in a position to explain some event after it has occurred even though we were not able to predict it. In closed systems, explanation and prediction are symmetrical; if we can explain, we can predict, and vice versa. But in open systems, the actual configurations of structures and processes are constantly changing, making definite prediction impossible. This means that while the future cannot be predicted, the past can be explained by establishing the particular configuration which was in existence." (Robson 2002, p. 41)

This reflects an existentialistic understanding where we understand in retrospect, as the Danish philosopher Søren Kierkegaard, 1843, formulates it; "Det er ganske sandt, hvad filosofien siger, at livet må forstås baglæns. Men derover glemmer man den anden sætning: at det må leves forlæns" (In short: Life must be lived forwards, but understood backwards)(Thielst 1994) . The collection of observation data and the process of understanding these in retrospect are methods that we see in hermeneutics and in phenomenology, as well as in research strategies such as case study research, in ethnography and in grounded theory. These research strategies are described as flexible designs by Robson (2002).

There are several very important books covering research issues in the music therapy field (e.g.; Aldridge 1996; Wheeler 1995; Smeijsters 1997; Ansdell & Pavlicevic 2001), but I also include theory of research from social science, where the work of Robson (2002) contributes with a challenging, realistic view of science. Robson is a professor at the Centre for Applied Childhood Studies and Evaluation Studies at Huddersfield University, and his first edition "Real World Research" is very often referred to in social research. The thoroughly revised second edition of "Real World Research" emphasises the terms fixed and flexible designs; The book is clear and systematic, and I find it very useful for music therapy research.

Robson (2002) distinguishes between the terms "fixed" and "flexible" designs. These terms are not substitutes to the terms qualitative and quantitative, but reflect an understanding that integrates or co-ordinates both terms.

Fixed designs

In fixed designs a tight pre-specification of data collection and data processing is needed. This demands thorough preliminary work and has the advantage that the amount of data is reduced to manageable levels right from the beginning. Data is often converted to quantities, which make them optimal for statistic analyses. Traditional fixed design research strategies are experimental or non-experimental strategies with random selection of individuals from known population and with control of variables.

In the *true experimental* design there is a random selection of "subjects" to one or more experimental groups (where they are given a "treatment", e.g. music therapy treatment) and to a control group with "no treatment" (e.g. no music). In RCTs (randomised controlled trials; seen as the gold standard of research) post-tests (and pre-tests) of experimental group(s) and control group are compared. In treatment trials post-tests (and pre-tests) of more experimental groups are compared. Other designs are: factorial designs where more independent variables (e.g. listening to big band music, new age music, or canteen noise) at different levels (where the volume is either turned up or down) are compared, parametric designs with more levels of the independent variables, matched pairs designs, where pairs of participants with the same scoring on dependent variables randomly are allocated to experimental groups (and control group), and repeated measures design, where the same participant is tested under more experimental conditions.

Quasi-experimental designs involve experimental approaches but without allocating subjects randomly in groups.

Single case experimental designs use the single subjects as their own control in a non-intervention period (A, or baseline) compared to an intervention period (B). To this A-B design might be added a post-intervention baseline condition (A-B-A) and even added a second intervention phase (A-B-A-B). In multiple baseline designs dependent variables are measured across settings, across behaviours, or across participants.

In *non-experimental* fixed designs the researcher does not set up treatment conditions, but deals with things as they are, still following the same general approaches to experimental designs. Different variables are observed and tested in order to evaluate them in comparative designs, or to look for relations in correlational (or relational) designs. In longitudinal designs repeated measures are carried out with one or more variables over an extended period of time.

The fixed designs described above are often referred to as quantitative designs, which is logical as they mainly use quantitative data. But in a pragmatic understanding of research it is possible to include qualitative data in the design, if this is of relevance to the research questions. This makes the label *fixed design* seem more suitable.

Flexible designs

Flexible designs are often referred to as qualitative designs, but as it is possible to incorporate quantitative data is seems more suitable to label these designs flexible designs. Flexible designs evolve during data collection, which moves the thorough and systematic burden of work to *after* the data collection in the process of data reduction. The data might have various forms; often transcribed words from interviews or observations, that become manageable when focus is put on certain phenomena or when data is sorted in codes or categories. Rather than relying on previously defined tools and instruments as in fixed designs, flexible designs involve the 'researcher-as-instrument' (Robson 2002, p. 167). The researcher is not defined as being "objective" and might function as a practitioner with tacit knowledge about the researched context and material.

Case studies, ethnographic studies, and grounded theory studies are, as mentioned before, examples of traditional flexible design strategies (Robson 2002, p. 88). In the following the main features of these three flexible research designs are described, but first of all with some of their key features described in table 4.2, which Robson (2002, p. 165) has abridged from Cresswell (1998, p. 65):

Case study approach

> "Case reports/case studies ... this is the most common type of evidence found in music therapy, and provides us with much of our clinical evidence." (Wigram *et al.* 2002, p. 261)

In general in clinical music therapy research cases are broadly used as evidence. The book "Case studies in music therapy" edited by Kenneth Bruscia is a good example of this. 42 music therapists describe their clinical work over a period of time by presenting a "case". The Norwegian music therapist, Trygve Aasgaard, in his research on song creation by children with cancer, portrays both songs and children as cases, and he gives an extensive view on cases, case studies, and case study traditions. He states that there "is actually no universal agreement of what a case is or how a case becomes an integral part of a research strategy" (Aasgaard 2002, p. 56), and he outlines different definitions of cases referring to Stake 1995, Merriam 1988, and Ragin 1992.

Comparing research traditions in qualitative research

	Grounded theory	*Ethnography*	*Case study*
Focus	Developing a theory grounded in data from the field	Describing and interpreting a cultural and social group	Developing an in-depth analysis of a single case or multiple cases
Discipline	Sociology	Cultural anthropology, sociology	Political science, sociology, evaluation, urban studies, many other social sciences
Data collection	Typically interviews with 20-30 individuals to 'saturate' categories and detail a theory	Primarily observation and interviews during extended time in the field	Multiple sources - documents, archival records, interviews, observations, physical artefacts
Data analysis	Open coding, axial coding, selective coding, conditional matrix	Description, analysis, interpretation	Description, themes, assertions
Narrative form	Theory of theoretical model	Description of the cultural behaviour of the group	In-depth study of a 'case' or 'cases'

Table 4.2: Three research traditions in qualitative research (Robson 2002, Abridged from Creswell 1998, p. 65)

In music therapy in gerontology case studies and single subject designs are used as the most common type of evidence. Out of the 75 studies, exploring issues of music and dementia, mentioned in chapter one, about a third of the studies (32%) use a descriptive case approach. A majority (almost 60%) of the studies use a fixed design of which 74% uses a fixed single subject design.

60% of the descriptive case approaches use documented case studies, integrating data based on neurological tests, music transcriptions, or "objective" clinical assessment (Ridder 2002a). These studies are: Aldridge, G. 2000; Baumgartner 1997; Beatty *et al.* 1988, 1994; Bolger 1984; Brust 1980; Clair & Bernstein 1990a; Clair 1991; Crystal 1989; Eeg 2001; Fitzgerald-Cloutier 1993; Munk-Madsen 2001a; Polk & Kertesz 1993; and Tomaino 2000.

The remaining 40% of the descriptive case approaches use anecdotal case reports. There is a wide range from anecdotal case reports, over documented case studies to extensive case study research. The case study approach is often discredited, as the same yardstick is applied to a general view on case approaches. I find it very important to distinguish between these different approaches.

I see the narrative or anecdotal case description or *case report* as a: a) "helping discipline" (Nerheim 1995). It is a valuable method in order to elaborate on a clinical description, exemplify a fixed design, or describe theoretical principles by illustrating the music therapy work, or by functioning as clarifying examples, but it is not an independent scientific method.

The *case study* is an b) "independent" methodology. As a "study" it follows certain rules of documentation ensuring validity (e.g. audio/video data material, triangulation, or member checking), and it develops "detailed, intensive knowledge about a single 'case', or of a small number of related 'cases' (Robson 2002, p. 89)".

The *case study research* counts as c) "basic science" and is seen as ...

> "A well-established research strategy where the focus is on a case (which is interpreted very widely to include the study of an individual person, a group, a setting, an organization, etc.) in its own right, and taking its context into account. Typically it involves multiple methods of data collection. Can include quantitative data, though qualitative data are almost invariably collected." (ibid., p. 178)

Based on Aldridge (2002), criteria that define a case study research might be formulated as follows: A case study research transmits a clear focus and a clear study overview, describes the theoretical framework, background issues, relation to other works or fields, the profile of the case and its context, and ethical consideration. It explicates data collection methods and procedures, describes the different components of the data analysis (data reduction, data display, drawing of conclusions, and verification), and formulates meta-reflections, policy, and practice implications (e.g. generalization, and indications for further research).

These criteria correspond with the definitions on research in general that Bruscia (1998) puts forward in the book "Defining music therapy":

> "Research is a systematic, self-monitored inquiry which leads to a discovery or new insight, which when documented and disseminated contributes to or modifies existing knowledge or practice ...
>
> To be systematic, the researcher must have a focus or question, and formulate an organized and appropriate method of studying it.
>
> To be self-monitored, the researcher must continually observe and manage all factors which affect the ethical and scholarly integrity of the inquiry.

> To be an inquiry, the researcher must not only gather and organize information, but also reflect upon it to gain new insights. As such, research always goes beyond mere data collection to include both reflection and discovery ...
>
> To make a contribution to knowledge or practice, research findings must be documented and disseminated in some way, otherwise it is merely personal knowledge which has not been communicated ... " (Bruscia 1998, p. 239)

Robson describes in short a scientific attitude to research: it must be carried out *systematically, sceptically* and *ethically*:

Systematically means giving serious thought to what is done, and how and why it is done; in particular, the researcher must be explicit about the nature of the observations that are made, the circumstances in which they are made and the role the researcher takes in making them.

Sceptically means that the researcher is subjecting his/her ideas to possible disconfirmation, and also subjecting his/her observations and conclusions to scrutiny.

Ethically means that the researcher follows a code of conduct for the research, which ensures that the interests and concerns of those taking part in, or possibly being affected by, the research are safeguarded. (Robson 2002, p. 18)

The point of differentiating categories of case approaches is to make it clear that case study research is a valuable research methodology that is not to be confused with case reports. The boundaries between case studies and case study research are vague, which makes the editor of NJMT (Nordic Journal of Music Therapy), Brynjulf Stige, call for general criteria for the evaluation of qualitative research articles.

> " Qualitative research is about exploring particularity and diversity, and there is a plethora of qualitative research approaches around with rather different answers to basic ontological, epistemological, and methodological questions. This diversity creates some problems though in the process of evaluating articles... " (Stige 2002, p. 65)

In that sense it is clear that case study research and qualitative research in general are relatively new fields, still needing ongoing discussions on guidelines and evaluation.

With a background in experimental psychology Yin (1994) has made an important approach to research in open systems in his book *Case study research. Design and methods*. He describes single-case designs as well as multiple-case designs, where he stresses that the use of multiple-case designs "should follow a replication, not a sampling, logic" (Yin 1994, p. 51). With a sampling logic to all types of research, many important topics could not be empirically investigated (ibid., p. 48), with the replication logic it is possible to treat each individual case study as a whole study, and then to consider conclusions across cases.

As a method for analysing case study evidence he suggests the technique of *pattern-matching*.

> "For case study analysis, one of the most desirable strategies is to use a pattern-matching logic. Such a logic ... compares an empirically based pattern with a predicted one (or with several alternative predictions). If the patterns coincide, the results can help a case study strengthen its *internal validity.*" (Yin 1994, p. 106)

Simpler patterns with a minimal variety of either dependent or independent variables can be the focus for pattern-matching, as well as non-equivalent dependent variables or rival explanations (see Yin 1994, p. 106-110). In pattern-matching Yin states that the fundamental comparison between the predicted and the actual pattern may involve no quantitative or statistical criteria, but this implies that future case study research develop more precise techniques when the pattern-matching is used for conclusion drawing (ibid., p. 110). These ideas makes the case study research a strategy important for research fields where the purpose is to develop clinical applicability and not entirely to focus on outcome arguments. Until such improvements in the precision of pattern-matching occur Yin advise investigators to be cautioned not to postulate very subtle patterns. "One wants to do case studies in which the outcomes are likely to lead to gross matches or mismatches and in which even an "eyeballing" technique is sufficiently convincing to draw a conclusion." (ibid., p. 110)

Ethnography

In ethnography "the description of cultures becomes the primary goal" (Hammersley & Atkinson 1983, p. 8). Ethnography is also labelled cultural anthropology, and the classical prototype of an ethnographer is a person spending years of his life with an exotic native tribe, making in-depth descriptions of its cultural and religious practices and beliefs. The ethnographer does not only describe a case, but the whole 'open system' that a special group of persons belong to, and the "rules" or "laws" that implicit and explicit regulate their interactions. Adapted to social science the meaning of culture, that is the object of research in ethnography, is extended to an idea that people construct the social world. Ethnographic research is non-experimental as the social world, or the constructs of it, is in its 'natural' state.

> "Ethnography exploits the capacity that any social actor possesses for learning new cultures, and the objectivity to which this process gives rise. Even when he or she is researching a familiar group or setting, the participant observer is required to treat it as 'anthropologically strange' in an effort to make explicit the assumptions he or she takes for granted as a culture member. In this way the culture is turned into an object available for study." (Hammersley & Atkinson 1983, p. 8)

The researcher gains insight by ongoing observation as a participant observer and thus being part of the culture. This insider's perspective carries important data to the research. In this way the perspectives to ethnography are hermeneutic and existential-phenomenological, as the researcher seeks meaning and understanding of studied phenomena in descriptive and interpretive accounts. In Organizational Ethnography described by John Van Maanen "the patterns of interest are typically the various forms in which people manage to do things together in observable and repeated ways"(Van Maanen 2002/1979, p. 102).

Hammersley & Atkinson stress that they do not see ethnography as an 'alternative paradigm' to experimental, documentary, or survey research. "Rather it is simply one method with characteristic advantages and disadvantages, albeit one whose virtues have been seriously underestimated by many social researchers owing to the influence of positivism" (ibid., p. 23).

Brynjulf Stige argues that clinical research in music therapy "needs to be *informed* by ethnography" (Stige 2001, p. 135. Original italics), and that so far "music therapy researchers have not been concerned about ethnographic aspects of clinical research to the degree that might have been expected" (ibid., p. 135), – but for a few exceptions, where Stige refers

to Even Ruud's and David Aldridge's work, and where Aasgaard's (2002) recent work now can be added. Ethnographic research demands *reflexivity* from the researcher, which means that...

> "The researcher acknowledges that she is not separated from the field she studies, she is herself positioned in it and must therefore reflect upon this position, which includes self-inquiry and examination of the assumptions guiding the research process." (Stige 2002, p. 67)

Hammersley & Atkinson (1983) describe that neither positivism nor naturalism provides an adequate framework for social research. Both neglect its fundamental reflexivity, the fact that we are part of the social world we study (ibid., p. 25).

Ethnographic research involves multiple types of data collection, often collected over a prolonged period of time, including observations and interview. "...ethnography's use of multiple data sources is a great advantage here. This avoids the risks that stem from reliance on a single kind of data: the possibility that one's findings are method-dependent" (Hammersley & Atkinson 1983, p. 24). In the data collection and in the analyses it is common to focus on behaviour or events that occur frequently making it possible to develop understanding of their significance (Robson 2002, p. 188), but there are not principles for data collection and data analysis methods.

Grounded theory

The term grounded theory is first defined in Barney Glaser and Anselm Strauss's book "The discovery of grounded theory" from 1967. Grounded theory (GT) deals with systematic generation of data, and is an inductive methodology, where general principles are inferred from specific cases. In an interview with Barney Glaser by Andy Lowe on www.groundedtheory.com Glaser defines GT as a general methodology for both quantitative and qualitative data. The principles of GT are generating or discovering theory and deriving categories from events. The theory "is 'grounded' in data obtained during the study, particularly in the actions, interactions, and processes of the people involved" (Robson 2002). Apart from being a strategy for research, GT provides explicit procedures for the analyses of qualitative data. The software tool ATLAS.ti is developed on principles from GT and facilitates the methodical work with coding systems, which is described in chapter 7. The analyses in chapter 7 are based on a selection of video data material that expert assessors have analysed. These data are then processed using systematic procedures of generating conceptual categories.

Grounded theory is closely related to hermeneutic theory; 'the art and science of interpretation'. Originally hermeneutics was concerned with text interpretations, e.g. theologians' interpretation of the Bible (Schleiermacher 1768-1834, Dilthey 1833-1911), and philosophical meaning found in the written word (Heidegger 1889-1976, Gadamer 1900-2002, Ricoeur 1913-, Habermas 1929-), but is now more widely applied to communication and interaction. The hermeneutic circle explains the inherent circularity of all understanding and is a continual reciprocity between whole and parts. Denzin (2002) connects the hermeneutic circle and interpretive research referring to Dilthey and Heidegger: "Interpretive research enters the hermeneutic circle by placing the researcher and the subject in the center of the research process".

Common to case study approaches, ethnography, and grounded theory applied in social science is the hermeneutic philosophy where "we are concerned with the significance of human understandings and their interpretation" (Aldridge & Aldridge 1996, p. 226). The case study

work is in its nature subjective, and we must discover the premises for subjectivity (ibid., p. 226) and establish trustworthiness or the "truthfulness of a piece of work" (ibid., p. 225). This is described in the next part.

Understanding and validity in flexible design research

In "The qualitative researcher's companion" printed in 2002, with Huberman & Miles as editors, a series of "undiscovered classics" are collected, written by, among others, Hammersley, Van Maanen, Sadler, Lincoln & Guba, and Denzin. The articles are from the mid-1970s up to the mid-1990s and deal with theory, methodology, interpretation, and reflection in qualitative research. Joseph A. Maxwell's article "Understanding and validity in qualitative research" from 1992 is here reprinted. Maxwell states that validity issues in qualitative research have been slow in developing, and refers to the various definitions of validity that have been suggested by a number of qualitative researchers. In adopting a realist approach to validity, Maxwell stresses "that *understanding* is a more fundamental concept for qualitative research than validity" (Maxwell 2002/1992, p. 39). But he sticks to the term validity, instead of e.g. trustworthiness or credibility, seeing validity as referring primarily to accounts, not to data or methods, and validity as relative because understanding is relative.

Maxwell presents a model of types of validity that he believes are relevant to, and often implicit in, qualitative research: descriptive validity, interpretative validity, theoretical validity, generalizability, and evaluative validity. In their book "Naturalistic Inquiry" (1985) Yvonna Lincoln and Egon Guba avoid the term validity and use the terms: credibility, transferability, dependability, and confirmability. They suggest five major techniques in defining trustworthiness criteria (Lincoln & Guba 1985, p. 301): validity, activities increasing the probability that credible findings will be produced (prolonged engagement, persistent observation and triangulation), peer debriefing, negative case analysis, referential adequacy, and member checks. These strategies are clarified at page 86 where they are related directly to the research methodology.

In chapter 4 have I up to now described general ideas of flexible methods and why I prefer using the labels fixed and flexible instead of quantitative and qualitative research. I define why I have applied a pragmatic approach to research carried out in an open system, and give a description of characteristics of fixed and flexible designs, especially focusing on case study approaches, ethnography, and grounded theory. At last issues concerning validity are mentioned and after this general introduction, I now want to go on to the concrete issues, relating to the research that I have carried out, first by repeating the background issues for the research, then by describing method, data analysis, ethical considerations, and validity.

4.3 Background issues for the research

Persons with dementia suffer a dialogic degenerative disease. It becomes difficult for them to express basic needs or simple requests, and it is difficult for them to feel recognized and understood. This can lead to isolation, resulting in serious secondary symptoms of dementia. Using songs in a music therapeutical setting can enable ways of communication adjusted to the person. The songs in the setting have several functions; a) they function as cues to signalise e.g. start and ending of the session, b) as ways of regulating arousal level, if the person e.g. is in stages of either hyper- or hypo-arousal, c) and as ways of enabling communication and dialogue. The research investigates if persons suffering from dementia in advanced stages are capable of giving communicative responses and entering dialogue.

Purpose

The purpose of the study is to propose a non-pharmacological approach intending a higher quality of life and fulfilment of psychosocial needs in persons suffering from dementia in advanced stages. In dementia care focus has been on aetiology, diagnosis, and optimal physical nursing, and remarkable steps have been taken in order to improve care. During the last decade dementia seems to be reconsidered, and a humanistic, person-centred approach has gained a footing, adding new values and qualities to dementia care. Clinical music therapy and music therapy research is a growing and valuable field that needs more attention, as it seems to add vital qualities of life to persons suffering from dementia. In Denmark there is a growing interest in this field revealed in an increasing demand for literature, papers, and talks, and politically in economic support and establishment of positions. As a consequence of this interest there is a need for documentation and research showing the value of a music therapeutical approach in dementia care.

4.4 Hypotheses

Based on my clinical experience as a music therapist working with persons with dementia I have the following expectations to the music therapy work that can be formulated in the following hypotheses:

I) Singing has a positive influence on persons with dementia and this influence can be defined by communicative characteristics.

II) Persons with dementia in an advanced stage communicate musically and responsively and this musical communication can be recognised by a system of communicative signs.

III) Music therapy has an influence on aspects in residential daily life for the person with dementia.

Theoretical approaches

The theoretical approach to this study is based on humanistic psychology, a social-pragmatic understanding of communication, and a person-centred angle to dementia care. My ontological position towards dementia is viewing the PERSON with dementia (not the person with DEMENTIA)(Kitwood 1997), and not viewing the person as a demented patient, which literally means a suffering victim 'out of (*de-*) mind' (*-mens*). I find it important to see persons with dementia as unique individuals with a past, a present, and a future, persons with feelings and psychosocial needs.

My music therapeutical background is: training in AOM (analytically oriented music therapy) (Wigram, Pedersen, & Bonde 2002) at Aalborg University, with theory based on psychodynamic possess, communication theories, developmental psychology, and theories concerning personhood and personality. My clinical music therapy approach is integrative in the sense that I see music and songs having various functions, and analytically orientated in the sense that I see the relation between participant and therapist as an essential factor in the music therapy.

Approach to research

My approach to research is based on the pragmatic view that research methods simply are tools; tools that I may carry in the same "suitcase" instead of keeping them apart and dividing them in contrasting paradigms. To me research deals with asking a question and answering this question with common sense. Ideally research is a discipline dealing with making things as simple, clear, and reliable as possible, instead of making research a complicated and alienating discipline, that is only paid attention to in a closed research milieu. Keeping things simple and rational sounds easy, but actually it is an extremely difficult task, I have realised. I try to answer my research questions in a flexible design by integrating quantitative data in a qualitative method, and in that sense carrying these "tools" in the same suitcase, knowing that this strategy is not always agreed upon, e.g. by Henk Smeijsters who does not advocate combining qualitative and quantitative research in the same project, and discusses this issue in his book "Multiple Perspectives" (1997, p. 192).

4.5 Method

In short the method used in this research is a flexible mixed-method design using physiological data to validate observational data in a case study research design, approached both ethnographically and by means of grounded theory using ATLAS.ti as qualitative research software for the analysis and administration of transcribed data.

I hope to ensure the scientific method by carrying out the research *systematically*, *sceptically* and *ethically*.

Participants involved in the study

Inclusion criteria for participants:

- diagnosis of primary degenerative dementia and vascular dementia
- level of dementia: severe dementia, stage 6-7 (GDS or FAST)
- no source of cognitive impairment or communication impairment other than dementia
- no history of psychiatric illness or drug/alcohol dementia
- no individual music therapy in last $2\frac{1}{2}$ years
- exhibition of agitation as defined by Cohen-Mansfield & Billig (1986)
- written consent of participant's relatives/representative.

About 12 persons living in a gerontopsychological care unit fitted the inclusion criteria, and the 6 persons showing most signs of agitation were included in the study. It was NOT considered if persons seemed to be suitable to music therapy, and their musical background did not influence inclusion. Before starting in music therapy MMSE and CMAI was carried out on each participant by gerontopsychiatric nurse in order to give a profile of cognitive function and level of agitation.

Participants included were two males with Alzheimer's disease, three women with vascular dementia (of this, one with frontal symptoms) and one woman with Pick's disease. Age range: 73-84 years. MMSE score was between 0-5, and on CMAI all participants showed signs of physical aggressive and physical non-aggressive agitated behaviour (see table in appendix G

page 338). Level of dementia was assessed to be level 6-7 (of 7) on the FAST scale. Persons on level 6 *generally* require assistance in dressing, eating, bathing, etc., have poor reality orientation, but have some residual memory left. They suffer urinary and fecal incontinence. They are mobile and are able to do simple practical activities in daily life. According to Reisberg, stage 6 corresponds to the developmental age of 2-5 year old children in his theory on retrogenesis (Reisberg *et al.* 1999). At stage 7 the person requires constant assistance in all actitivies of daily life and has no knowledge of any recent events (Reisberg *et al.* 1983).

Data collection

Data were collected at the residential home and knowledge centre; Caritas, Unit II, Graham Bells vej 2, Skejby, 8200 Århus N. Leading staff, staff on day duty and evening duty were informed at meetings about the project and supported its taking place. Data were collected in the following periods

Person A and B: May 8^{th} – June 6^{th} 2000

Person C and D: July 31^{th} – September 8^{th} 2000

Person E and F: October 16^{th} – November 24^{th} 2000

Procedure	**W**eek 1	**W**eek 2	**W**eek 3	**W**eek 4	**W**eek 5	**W**eek 6
Music therapy sessions		5	5	5	5	
Video recordings		During music therapy	During music therapy	During music therapy	During music therapy	
Heart rate measurements	30 min. per day x 5 days	30 min. per day x 5 days	30 min. per day x 5 days	30 min. per day x 5 days	30 min. per day x 5 days	30 min. per day x 5 days
Questionnaires	Twice daily, x 7 days	Twice daily, x 7 days	Twice daily, x 7 days	Twice daily, x 7 days	Twice daily, x 7 days	Twice daily, x 7 days

Table 4.3: Overview of the procedure for data collection, lasting 6 weeks for each participant.

Data

Primary data are: video recordings of 20 music therapy sessions with 6 persons with severe dementia, five-second-interval heart beat measurements measured 30 times in 30 minutes with the 6 persons, questionnaires completed by staff twice a day during 6 weeks, music therapist's log with informal subjective observations written down shortly after sessions, and medical charts, health records, and background information about each participant. Secondary data are: video data transcripts, HR (heart rate) data in session-graphs, HR pre/post data, reduction of video data to 9 minutes for external assessors, and transcripts of external assessors' observations.

In an overview matrix Marshall & Rossman (1995, p. 41) match purpose of qualitative study and research questions with a strategy, which I here will refer to in my understanding of the terms. The purposes of this study are exploratory, explanatory and descriptive.

- Exploratory as the research seeks to study what is happening in the music therapy session, where two persons are part of an interaction, and to reveal themes, patterns or categories looking for meaning structures of communication and interaction.

- Explanatory as it tries to explain what happens when persons with dementia are exposed to familiar songs.
- Descriptive, as it seeks to document the phenomenon of singing interaction. It describes characteristic events and responses.

Music therapy

The individual music therapy sessions were held during mornings from Monday to Friday at about 10 – 10.30 for the first participant and 10.50 – 11.20 for the next one. Next chapter contains a detailed description of the music therapy setting.

Video recordings

Video recordings were done with a Sony TRV 110 digital video camcorder with helical scanning system, PCK audio stereo system, approx. 800,000 pixels, minimum illumination: 3 lux.

Studio MP10 computer software was used to capture video material for computer processing.

Heart rate measurements

Heart rate (HR) measurements were carried out on weekdays using Polar accurex plus HR monitors designed for sports (www.polar.fi). The Polar transmitters measure ECG signals from the chest. The participants in the study were wearing a coded transmitter that staff put on during morning care 2-3 hours before the music therapy. In order to ensure that contact between skin and electrodes is as good as possible a small blob of conductive electrode gel is used on the transmitter. It might disturb the signal if the transmitter is too loose, the skin very dry, too little gel, the amount of body fat very big, the chest very hairy, etc. The signals picked up by the transmitter are sent to a wristwatch receiver. The receiver has to be close to the transmitter with a maximum distance of 1 metre. As two participants in the study would wear a transmitter at the same time, it was necessary to use coded transmitters that only picked up the signal from the target transmitter. HR monitors are not designed to detect arrhythmia or irregular rhythms and will interpret them as noise or interference. The computer in the wrist receiver will make error corrections, so that arrhythmia beats are not included in the averaged bpm (beats per minutes). In the computer an average is registered every 5 seconds. As well as equipment for measuring HR there is computer interface and software for Windows, which makes the data easy to work with.

Staff members were instructed in fixing the transmitter on the chest of the participants and a precise instruction with illustrations was put on a visible spot near the participant's bathroom. It was important that staff adjusted the strip so that the transmitter would sit properly without being too tight. The transmitter is designed for being used during exercise and does not disturb free movements. All heart rate data were transferred to spreadsheet (Excel) where it was possible to combine the HR curves with other data.

Questionnaires

Questionnaires were completed by contact staff twice a day during the whole period, also during weekends. See example of questionnaire in appendix G, page 338. The questionnaires consisted of questions about number of staff in the group (8 "neighbour"-residents belong to one group), and number of contact staff or inexperienced staff. A few questions concerning

daily routines were asked, e.g.; When did the person wake up? And; Did he/she participate in activities and had he any visits? 20 questions dealt with observations of mood, socializing, well being, and agitation on a five point Likert scale ranging from "not at all" to "all the time", and one additional possibility to answer "don't know". Lastly, two questions dealt with changes in health or medication, and space was left to write down comments, if anything extraordinary happened with the person or at the unit during the duty.

4.6 Analysis and use of data

Table 4.4 is an overview on primary data (raw data) and secondary data (processed data) and how it was used in the study.

Primary data: Table 4.4 shows that the data collection is based on video recordings, heart rate measurements, questionnaires, music therapist's log, medical charts and theoretical data.

Secondary data: The data are processed in various ways. First of all, all video data were transcribed. The music therapist looked through the whole session on video on the same day that the session took part, and noted the indication of time on the screen at different events. These events were e.g. the participant verbalizing, singing, moving, looking away, looking at the therapist, and the music therapist starting and ending songs. The extensive amount of video data was reduced to a video summary of about 15 minutes for each participant. The summary was intended to be an illustration of each case describing the process and peak events. Hence it was of importance as secondary data, but was needed as well in relation to relatives. I needed consents from relatives in order to use video clips for teaching purposes and at congresses. Relatives were invited to see the video summary with me and the nurse in charge before they signed consent once again, but this time only regarding the use of the video material. In this sense the video summaries had both internal and external functions.

Criteria for reducing video material to 2,5% of the time was to select clips that I estimated would be needed later for illustrating the case; clips that represent the case from the beginning to the end, that described headlines in the process, that contained "typical" behaviour of the participant, but also "peak" events. I wanted each small film to give an impression of the structure of the setting, and of the different phases during the course from session one to the last session.

Other secondary data were the semi-structured observations, done by external assessors. The collection of these data that are based on primary data is described in chapter 7.

The primary HR data were processed in spreadsheets and combined with other data sources. Among these data the session-graphs were important secondary data used for further analyses.

The almost 500 questionnaires were set up in spreadsheets in different ways making it possible to look for patterns in the later analyses. But the main purpose with the questionnaires was to use them for validation of observations, and not to carry out direct analyses on the data.

All the background information on the participants that consisted of data from medical charts, health records, and tests done by contact staff were reduced. Criteria for reducing this data were that relevant material for writing a profile of each participant was included.

The amount of theoretical data in the literature was enormous and needed to be cut down strictly to issues relevant to the focus of the research. The following keywords give the direction of the theoretical data: music therapy, use of songs, singing, dementia, symptoms,

psychosocial needs, medical issues, clinical issues, research methods, communication theory, dialogue, arousal, attention, response.

Primary data	Secondary data	Analysis	Use of data
Video recordings of 6 x 20 clinical music therapy sessions ($\sim$ 60 hours)	Transcription of verbal, nonverbal, and musical responses.	Analysis of music therapy process of each participant Definition of response categories.	Case descriptions, chap. 7 Qualitative description documented with quantitative physiological measures (bpm). Use of event coding (sequence records, time-scales, check-lists)
	Meeting with relatives in order to obtain written consent for use of video material. Comments given by relatives are written down immediately after meeting.		
	Selection of video clips. Short episodes representing . . . • the way Pp responds to music; typical patterns and peak events • sessions from beginning to end • an idea of the structure. (6 x 15 min.)		
	Selection of video clips for external assessors: short clips representing. . . • each of the 6 participants • sessions from beginning to end • an idea of the structure • different ways of responding to the music therapy (8 clips lasting 8:54 minutes)	Qualitative content analysis (ATLAS.ti) of transcripts. Categories of *response* and *quality of response*.	Event descriptions chap. 8. Focus on *response* and *quality of response*. Clear descriptions ensure possibility of replicating chain of evidence. Coding-tool + examples from chap. 6 basis for integrated case description in chapter 8
	Semistructured observations done by external assessors. Transcriptions of written observations, comments, interpretations and answers.		

Table 4.4: Overview of data and data processing

Primary data	Secondary data	Analysis	Use of data
Heart rate measurements • during 6 x 20 music therapy sessions • during 6 x 5 periods one week *before* sessions • during 6 x 5 periods one week *after* sessions ($\sim$ 90 hours)	Heart beat curves into spreadsheets (Excel), combined with observations from transcription. Gives an overview of length of session, number and length of songs, pulse and basic response.	Heart rate data used in multiple contexts: regulation categories, different bar charts, pre-events, event coding, different patterns, etc	Case description, chap. 6 In description of clinical method and regulation of arousal, heart beat measurements serve as supplementary data / triangulation
	Juxtaposition of pre/post heart beat measurements (graphs).	Within-case analysis	Triangulation
Questionnaires concerning changes in daily routines, health, and agitation. 6 x 6 weeks x 2 ($\sim$ 500 questionnaires)	Juxtaposition of answers in spreadsheets (Excel) and graphs.	Supplementary data	Triangulation
	Juxtaposition of pre/post observations of agitation (bar chart).	Supplementary data	Triangulation
Mt's log. Informal observations written down after each session		Background knowledge	Background information for case descriptions
Medical charts /health records /background information.	Selection of *relevant* information of story of life, diagnosis, symptoms, medication, stage of dementia, CMAI, MMSE, FAST, etc.	Profile of each participant	Background information for case descriptions. Matching theoretical terms (dialogic degenerative disease, psychosocial needs...)
Other data	For systematic literature search: studies concerning music and dementia published between 1980-2001 in scientific journals, specific music therapy journals, etc. Coding of relevant information, data display in tables.	Linking to results, findings, themes in the literature	Elaboration, clarification, deepening, insights. Internal validity

Table 4.4: Overview of data and data processing

Analysis

The analyses in this research are done at different levels, with different methods, and from very different perspectives, which is characteristic of flexible design research. Three chapters, chapter 6, 7, and 8 are built on each other. Chapter 6 is methodologically a case study research, chapter 7 an analysis originating in principles from grounded theory, and chapter 8 an analysis integrating a combination of both strategies.

Chapter 6 In the case descriptions in chapter 6 secondary data is processed and analysed by use of event coding. Event is "an occurrence, a phenomenon, a slice of reality, indeed

anything that happens that has a beginning and an end and can be specified in terms of change" (Reber 1995, p. 264). It was not beforehand decided which events that were coded, and events that seemed to have a specific relevance in each of the cases would be registered. One resident now and then "sobbed" when he heard a song, another resident would nod in beat with the tune. These were events that were observed and later processed in sequence records, time-scales or checklists depending on which technique made most sense. A "session-graph" (see figure 6.11 at page 120) was made for each session in the process of analysing data. Session-graphs correlate both timescale, observations of selected responses, events (e.g. joining the singing, sobbing, sleeping, sitting down), states (e.g. beginning and ending of songs), and physiological HR data.

Chapter 7 Analyses of selected video material using open coding, axial coding, and organizing of codes in categories, by means of computer software (ATLAS.ti) are described in chapter 7. The deriving of categories in the computer software is based on principles from grounded theory. An additional method part concerning this particular chapter is included here. Categories concerning *response* and *quality of response* are systematised in a matrix and used as a coding-tool in chapter 8.

Chapter 8 In chapter 8 selected examples from chapter 6 are analysed with the coding-tool that was generated in chapter 7. The examples from chapter 6 were chosen partly due to physiological data and were illustrated with session-graphs. The coding-tool is used in order to reveal information about the way in which the six persons suffering from dementia in advanced stages respond and show various layers of communication.

Analysis of the song material Analogous to the communication model at page 51 more layers of the music can be understood and analysed. In this research I do not focus on the "semantic" aspects of the songs, but mainly focus on the nonverbal expression that is communicated with the songs and how the participants respond to this. This means a focus on social-pragmatic understandings rather than on the "logical" meaning of harmonic, melodic, and rhythmic patterns of the music. I find this issue very important as well, but have to limit the volume of this work, and have directed and maintained my focus towards participants' responses. The social-pragmatic understanding reflects a focus on the music's influence on the other person, and the emotional expression underlying this influence – rather than a "semantic" musical understanding.

Interpretation levels

In his book "Music therapy research and practice in medicine" David Aldridge (1996) describes a hierarchy of interpretation levels. He compares analytical situations to music therapy interpretations, and to constitutive and regulative rules based on the musicologist Nattiez's model. The first level of interpretations is related to the experience of an event, the second of revelation and description of the event, and the third of interpretation and discourse (Aldridge 1996, p. 165). In this research I basically use two sets of material; the physiological data and the observational coding of events at the second level. They are brought together at the third level as an interpretation of what happens. Video data material supports the description of events. Video data do not tell the "truth", but makes it possible to review events over and over again – still only "distant" and from one perspective. The descriptions are additionally supported by physiological data. HR data tell an even smaller part of the

"truth" than video observations, as they tell nothing about the event if not joined with other observations. On interpretation level three I make use of expert assessment of chosen events as part of the research methodology. Altogether the use of differing sets of data on which I base my interpretations is hoped to give the study internal validity or credibility. I intend to make a clear chain of evidence and to use triangulation possibilities as a kind of verification.

4.7 Ethical considerations

The research is approved by the register inspection (Datatilsynet) with reference to Danish laws about name indexes, personal information, and protection of privacy. The project is also approved by the Ethical Committee of Århus County with the following remarks:

- Before each session it is to be ensured that the participant still wants to take part in the music therapy.
- The committee draws attention to the difficulty in establishing a proper control group in the project. In order to increase the scientific standard of the project the committee recommend that periods of control are extended to include 'being together', music and cross-over observation.

– At least the project is approved, in spite of not being seen to reach the expectation of the positivistic standard view of science or the 'gold standard' of quantitative research. In concert with my supervisor I keep my method flexible and qualitative, as this is what fits the purpose of my study in the best way, and what seems to be needed in a new research field like music therapy focussing on clinical application issues.

As regards to ensuring that participants wanted to take part in the music therapy it was often not possible verbally to inform these 6 persons suffering from severe dementia about my intentions, when I asked them to come with me to "music therapy". In accordance with leading staff and family members it was agreed to let participants have a chance to decide if they wanted to participate after having entered the room, where more contextual cues would inform them about what was going on. Participants were free to leave when they wanted. For more on this issue; see case description on Mrs E.

Ethical headlines

Video recordings

- Video clips are meant for intern analyses and will not be shown in public
- Video recordings will only take place in the music therapy room during music therapy
- Video recordings will be done by the researcher
- All video data will be deleted after 5 years
- Video clips will not be linked to personal or private information
- Video clips might be used for PhD-defence, teaching purposes or at congresses if relatives sign consent, but not until they have seen the concerned clips
- Video data material will be kept securely by the researcher

Heart rate measurements

- Data will not be linked to personal or private information
- HR measurements will not imply inconvenience or physical limitations preventing the participant from moving around
- HR measurements will be carried out in 6 weeks for 5 days a week in 30 minutes

Questionnaires

- Questionnaire deals with daily routines, information about activities, assessment of behaviour and state of health
- Questionnaires are to be filled out twice a day by contact staff who know the resident well
- Questionnaires are to be used for internal analyses
- The material will be kept anonymous and will not be linked to personal or private information

Consents

- Participants will only take part in the project if relatives sign consent
- Relatives receive written and oral information about the project
- Relatives will be informed that they are free to withdraw consent at any moment
- Relatives will be informed that their decision on consent has no influence on how their relative with dementia will be treated

4.8 Validity

As described on page 76 the following strategies dealing with *threats to validity* will be examined and connected with the research methodology: prolonged engagement, persistent observation, triangulation, peer debriefing, negative case analysis, referential adequacy, and member checks.

Prolonged engagement

With participants suffering from dementia prolonged engagement in the sense of intensity seemed very important, as especially "learning the culture" and "building trust" (Lincoln & Guba 1985, p. 301) both needed time, but additionally needed an intensive period of data collection. With daily sessions with the participants there was a greater possibility that they would remember from time to time. With a prolonged period of engagement with weekly sessions during 20 weeks, instead of daily sessions, it would have been more troublesome to build up structure and stability (see page 101), and the participants suffering from degenerative diseases might have developed greater functional deterioration in 20 weeks than in 6 weeks. With some of the participants patterns did not stabilize even after 4 weeks of music therapy, and retrospectively it is clear that some of the participants might have needed

longer periods. As the research was done in close co-operation with staff it was necessary to fix periods for data collection beforehand. It was avoided to carry through research and music therapy sessions during holiday periods, where contact staff and experienced staff were on holiday. These staff members were needed to put on HR transmitters as part of the daily routine, and to fill out questionnaires. In holiday periods a bigger part of inexperienced staff members do the work, not having the same exhaustive knowledge of participants and of routines.

Persistent observation

I understand persistent observation as the ability to find a focus and to keep the red thread. The amount of data in flexible designs easily becomes overwhelming with the danger that researchers get lost on the enormous research data mountain. In the observations in this study I have kept a focus on participants' responses, although a huge number of other issues also can be processed from the data. The pitfalls of persistent observation are qualities of obstination or stubbornness where decisive details are missed in the research.

Triangulation

Triangulation techniques involve two or more data sources, methods, investigators, and theories. The meaning of the term can be described as follows:

> "The term 'triangulation' derives from a loose analogy with navigation and surveying. For someone wanting to locate their position on a map, a single landmark can only provide the information that they are situated somewhere along a line in a particular direction from that landmark. With two landmarks, however, their exact position can be pinpointed by taking bearings on both landmarks; they are at the point where the two lines cross." (Hammersley & Atkinson 1983, p. 198)

Robson describes triangulation as an approach to combine qualitative and quantitative methods by "checking the results of a qualitative method with those of a quantitative method (or vice versa)" (Robson 2002, p. 372). Referring to Denzin, 1988, Robson (ibid., p. 174) lists four types of triangulation:

- data triangulation
- observer triangulation
- methodological triangulation
- theory triangulation

Data triangulation is the use of more than one method of data collection. In this research I have used e.g. video recordings, HR data, questionnaires, and music therapist's log as primary data. *Observer triangulation* is the use of more than one observer in the study. I have selected a reduced amount of video data, which external expert assessors analysed using a semi-structured technique. *Methodological triangulation* is the combining of quantitative and qualitative approaches which I have used by adding HR data measured before, during, and after music therapy. *Theory triangulation* involves using multiple theories or perspectives, which I have sought to imply by relating the different levels of interpretation (see page 84) and by relating to a broad range of literature. I have sought to relate to literature "which conflicts with the emergent theory" as well as "literature discussing similar findings", which

Eisenhardt suggests in her article on "Building theories from case study research" (Eisenhardt 2002, p. 5).

Peer debriefing and expert debriefing

Debriefing research issues with a group of peers has important valuable functions; first of all of support and understanding as "Naturalistic inquiry is a lonely business" (Lincoln & Guba 1985, p. 308). In this understanding the peer group consist of other researchers or of colleagues with an in-depth understanding of topics related to the research, but without being directly involved in the research. The debriefing sessions give the researcher an opportunity for "clearing the mind of emotions and feelings that may be clouding good judgment or preventing emergence of sensible next steps" (ibid., p. 308). Apart from being a point of support when needed, the peer debriefers must also take the stance doing their "best to play the devil's advocate" (ibid., p. 308). This is important to credibility and trustworthiness as it gives important perspectives to the research that must be considered, and might expose researcher bias. With a peer group that have an understanding of the topics it is possible to test working hypotheses, to develop and elaborate ideas for the next steps in the process, and to be inspired by persons that are steps forward in the process.

Besides peer debriefing I want to add "expert debriefing". Peers are equals or colleagues, where experts are highly experienced researchers that have gone through the heavy process of doing research and on a meta-level are able to see through the research process. This needs an in-depth understanding of, on the one hand; a whole field of research, from knowing basic literature, newest literature, methodologies, and techniques, and on the other side; very basic knowledge of the "working field", which in the field of music therapy means inside knowledge of everyday reality for the working clinician. In the PhD programme of Aalborg University where I was enrolled, two annual courses for PhD students took place. Here debriefing sessions with both peer and expert debriefers were an important part of the schedule. The expert debriefers were the supervisors attached to the programme, but also music therapy researchers from other music therapy programmes. Apart from giving lectures the guest-researchers would take part in the PhD students' presentations of their work. Finally, there were the individual supervisions during the whole research process with one expert debriefer, who would ensure that the research in process was guided in the right direction.

Negative case analysis

> "In replication logic, cases which confirm emergent relationships enhance confidence in the validity of the relationships. Cases which disconfirm the relationships often can provide an opportunity to refine and extend the theory." (Eisenhardt 2002, p. 21)

Using negative case analysis means searching "for instances which will disconfirm your theory" (Robson 2002, p. 175). Different kinds of data might cover 'case', it might be "an aspect, facet, phenomenon or whatever" (ibid., p. 490). I see the technique of negative case analysis in a broad way, e.g. by internally in a case description to look for patterns of non-success or non-effect, instead of focussing on patterns of "success". This means that I include observations of events where the participant does not want to come to music therapy, or define categories where overstimulation occur, instead of entirely focussing on events where the participant shows no signs of overstimulation. With data material from more cases it is possible to make cross-case analyses where contrasting observations are weight considered with the purpose to refine and extend the theory.

Referential adequacy

Use of data such as photographs, videotapes, audiotapes, or other data that provide background meaning to support analysis can be used to enhance credibility. Such 'raw' data makes it possible on later stages in the process to test findings and interpretations. Lincoln and Guba (1985) also suggest earmarking part of the data to be archived, and then recalled later when tentative findings have been reached. Glaser and Strauss use the term 'chain of evidence' which has the same function of being able to "go back" and check, or making the reason for interpretations clear for external critics. Robson (2002) refers to 'audit trail', where the researcher keeps a full record of activities during the research process. This includes raw data, research journal and details of coding. Smeijsters suggests that an independent researcher attempts to replicate the researcher's process of reasoning based on the data, and as such replicating the chain of evidence (Smeijsters 1997, p. 165). In order to enhance credibility I see it as a possibility to communicate the research in a way where the whole process of reasoning is described in parts from step to step including clarifying examples.

Member checking

Member checking is valuable for validity, when the researcher returns to interviewee to check transcripts and interpretations. It is not possible to return to participants suffering from severe dementia to ask them for their opinion on the interpretations. Instead of that it is possible to check descriptions and interpretations by relatives and by contact staff. Concerning the analyses of external assessors they have checked the transcripts and the analyses.

Summary

In chapter 4 I have described my background ideas of doing research in general, of my ideas of research related to this specific research project, and of the concrete methodology and research strategies that are applied. I have described the use of a flexible research design, and enlarged on the case study research tradition that is the main focus of this work, approached with ideas from ethnography as well as from grounded theory. I have then given an overview of the data collection and of the process of data analysing, as well as my attempts to ensure the validity of the work. The next step – before I go on to the actual case studies – is describing the clinical context and approach.

Chapter 5

Clinical context and approach

Up to now I have focussed on persons suffering from a dialogic degenerative disease (chapter 1) and the obvious reasons for using songs in a music therapeutical approach (chapter 2). I have then described aspects of communication and dialogue, the relationship between arousal and environmental attention (chapter 3), and outlined theoretical and practical methodological research issues (chapter 4). In this chapter I want to give a description of the clinical setting and the music therapeutical approach, as the clinical application is fundamental to the research findings.

The use of songs serves as an important tool or dimension in the therapy as the *musical being together* allows the music therapist to work with – and at a social-pragmatic level understand – persons with dialogic degenerative diseases. The way I use the songs is closely interwoven with my personal implicit understandings of therapy: "Music therapy is a transpersonal happening and what happens cannot be separated from the person of the therapist" (Aldridge 1996, p. 104). In this chapter I intend to elucidate my way of working clinically. Before describing the clinical setting I shortly describe the environment of the participants, in order to give an understanding of the subculture that they are part of.

5.1 Description of the care unit

The data collection for the research took place at the nursing home Caritas where I had worked since 1995 as a part time music therapist. The nursing home is one of the biggest in Århus' county with 110 residents and was built in 1975 outside town, but only 25 years later a fully integrated part of the town with new university hospital, built-up area with family houses, industrial sites, and big shopping centres. The nursing home was named Caritas, a word not normally used in Danish, to illustrate the purpose of care. Politically there was a wish to give elderly people who previously had to stay in psychiatric hospitals a home where they could stay permanently, instead of constant or repeated hospitalisations, and since 1988 no person with dementia in the county had a permanent address at a psychiatric hospital. The nursing home consists of 4 units for 100 persons and sheltered housing for 10 persons. Two of the units are specially designed in environmental consideration for people with dementia. I was employed at a unit with 24 residents. The unit is in a separate building, and is built in one level with access to a closed garden in the middle, surrounded by 4 wings (See figure 5.1).

Three wings have small private apartments for one resident, with bathroom, living room/bed room, and entrance/kitchenette. The fourth wing consists of music therapy room,

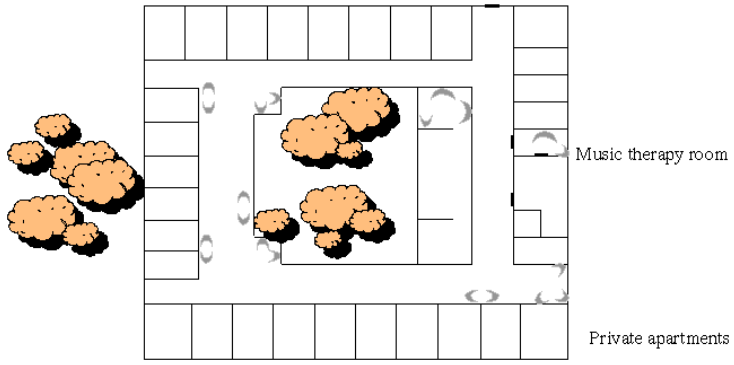


Figure 5.1: Map of the care unit. Scale and dimensions (e.g. on chairs and sofas) are not accurate.

kitchen, dining room, occupational therapy, big lounge, office etc.

In each corner of the corridors there is a recess. Two of the recesses are extended towards the garden and are furnished with tables and chairs. The corridors are light, face the garden, and have windows from floor to ceiling, and residents are free to walk about or to find a place to sit. From the main entrance is access to a corridor/winter garden leading to another unit, or access to a bigger garden with greenhouse, chicken run, and fountains. According to political laws entrance doors are not locked.

The 24 residents are divided into 3 groups of 8 neighbouring residents. The groups have breakfast and dinner together sitting in the recesses. 6-8 residents who may profit from social contact and manage to eat on their own have breakfast and dinner in a group with the occupational therapist. At the time the research was carried out a mean number of 2,5 staff members had day duty in one group. This means that a mean number of 7,5 persons worked at the whole unit, not including occupational therapists, physiotherapist, music therapist, and cleaning and kitchen personnel. In the evening the residents are not divided in groups, and a mean number of 4,7 staff members were working at the unit at the time research was carried out. Since then increased political focus on dementia care has implied that the number of working hours for activity personnel has been increased.

A majority of the residents at the unit have symptoms of dementia, and the others have psychiatric diagnoses. All the residents are referred to the unit from the whole county of Århus, due to their special needs or to considerable challenges to caregivers because of BPSD. Once a week there is psychiatric supervision from a consultant gerontopsychiatrist. Avoiding medication or keeping it at a minimum level is clearly intended. 4 of the participants in the study receive antipsychotic medication being the only 4 persons at the unit with symptoms of dementia receiving antipsychotics.

The music therapy room is placed very centrally at the unit. It is a small cosy living room, having old-fashioned furniture, sofa, armchairs, paintings with golden frames, potted plants and flowers, and having a wall cupboard with music centre, another cupboard with glass doors with a range of music instruments, music books, CDs, and songbooks. During music therapy the door to the corridor is locked from inside in order to avoid disturbances from other residents, and outside a sign on the door says: “Music therapy. Please do not disturb.” The video camera is placed in the corner at the window to avoid backlighting, and behind an armchair to prevent the tripod from tipping over, when the resident is walking about.

5.2 Description of the clinical setting

In my clinical work the individual music therapy sessions were just one approach in the all-round job as a music therapist that included various activities; e.g. music & movement, folk dancing, music stimulation, and sing-alongs in small closed groups or where as many residents at the unit as possible participated, as well as staff and relatives. Some activities would be carried out in the resident's room, in the common room, in the music therapy room, in the garden, or in a recess in the corridors.

I used four steps in the individual work, which I also found relevant in group music therapy and in group activities. In the process of working through the theoretical background for this PhD-research, I have kept the basic understanding of these four steps and of building up a session, but now I have a much broader understanding and terminology of the approach. During the research each session was built up according to these four steps, but when I describe them now in this chapter, I adjust them to the theoretical knowledge I have gained during the research process. Before describing the four, called: 1) Attention, 2) Arousal, 3) Dialogue and 4) Conclusion, I shall describe the purposes of the sessions and the structure of the songs.

Main purposes

Participants suffering from severe dementia *generally* express certain symptoms and needs that influence a main approach to individual music therapy. Based on these symptoms and needs, I will list the purposes for my clinical music therapy work as follows:

Create the framework for a safe setting. To a person with progressive difficulties in perceiving stimuli, the environment easily appears chaotic and difficult to understand. The setting will be arranged in familiar surroundings, in a pleasant atmosphere, and with demands adjusted to the person.

Focus on remaining abilities and resources, and finding means of eliciting these, e.g. by prompting or guiding. When progressively losing cognitive and motor functioning the person might experience countless deficits during the day. By focussing on remaining abilities self-esteem and self-confidence might be strengthened.

Trace and choose personal meaningful songs. With progressively retrograde and anterograde amnesia the person is "trapped" in a gap between a sometimes chaotic and incomprehensible present and his/her own reality. Certain songs might carry a special meaning or reminiscences of periods in earlier life that are significant to the present feeling of identity.

Offer contact, accept, and understanding. With progressive difficulties in carrying out activities in daily living a great number of persons suffering from moderately severe dementia will be admitted to special care units. This means a loss of daily surroundings and routines, in addition to loss of earlier social identity or status. Progressive inappropriate social conduct might confuse communication with other persons and lead to isolation. Feelings of anxiety, insufficiency, inadequacy, depression and loss will be validated via the music and the interaction.

Enable communication and dialogue. With progressive symptoms of aphasia and a dialogic degenerative disease, focus will be on para-linguistic and nonverbal communication, allowing the person to express him/herself on his/her own terms and in his/her tempo.

> By creating a situation (using arousal regulating techniques) where the person is able to enter dialogue it might be possible to meet and validate psychosocial needs.

In short the main purpose of the music therapy is to meet the person in dialogues, which integrate the whole preliminary work in the music therapy sessions described in the series of purposes.

Structure and role of the therapist

In order to *create the framework for a safe setting* a clear structure of songs is used. It is important not to understand structure as fixed bars imprisoning the creativity that may live in the therapy, but as the bars on a music sheet that fix the music in time. The use of a structure might here be helpful to fix the participant in time and give the person an understanding of the progression of our togetherness. The structure is to be understood as a helpful tool and not as a rigid time schedule that directs the interaction. The structure covers the sequence of songs in the setting, as well as the use of cues and stability.

I believe that if I leave the initiative to the Participant, I do not live up to my responsibility for the quality of the session. Being trained in analytically oriented music therapy in the eighties (Priestley 1994,1995; Nygaard Pedersen & Scheiby 1981), and working with person-centred care (Rogers 1951, Kitwood 1997), and a non-directive approach (Rogers 1951), I have a wish to be open and free from structure, not forcing or pushing the participant. I like the persons with severe dementia to take the initiative, and want to give support by joining them in their activities. By joining persons who are confused in a confused activity, I might show acceptance, but in that case I do not offer them opportunities to break the patterns of their behaviour, to have a rest or even to have interaction at a meaningful level. Some music therapy traditions, e.g. analytically oriented music therapy, do not attach importance to the work with regulation techniques and aspects of structure, as this is less important with the traditional psychiatric (but cognitively high functioning) client group. Other traditions, e.g. behavioural music therapy, focus on regulation and structure elements, as this is very relevant to client groups of e.g. pre-mature babies or autistic children, but these traditions have less or no focus on psychological or communicative aspects.

In the music therapeutical approach to persons with dementia I find that the structure of the setting is, if not a prerequisite for, then at least an important tool, in order to establish conditions optimal for entering dialogue and working with aspects of interaction and communication.

5.3 Description of the songs

In the book "Music therapy in dementia care" David Aldridge titles chapter 1; "Overture: It's Not What You Do But the Way that You Do It" (Aldridge 2000). Inspired by this I here want to stress that the focus of this research is not *what I sing* but rather *the way that I sing it*. A list of the songs that I sing with the participants are included in appendix B, page 307.

While there is likely to be relevance and importance in the therapist's choice of songs, song choice, per se, was not identified in the research questions as an area of investigation in this study. In addition, a systematic analysis of characteristics of the song text material, and the style and structure of the tunes will also be an area of study worthy of future investigation, and this issue is addressed in the discussion section when the clinical effects and future clinical application of song singing is considered. However the general style of presentation, and some

of the main, generic characteristics of the songs is described here, due to the undoubted influence these aspects have had on the clients.

In the individual music therapy setting I sing a cappella. In music therapy sessions with a woman diagnosed with probable AD, Fitzgerald-Cloutier states that "Not using any accompaniment seemed to maintain the resident's attention and to keep her more focused on the music" (Fitzgerald-Cloutier 1993). At the music therapy world congress in Washington 1999 Fitzgerald-Cloutier argues that

> "simple, straightforward cues allow persons with probable AD to interact and function most successfully. The theory behind this is that as a person experiences greater cognitive deficits, his or her ability to respond to complex and abstract cues in the environment decreases as well ... The voice of the therapist provides a single auditory cue for participants to follow, thereby simplifying the task of responding to the musical environment. Eliminating confusing physical barriers may provide additional structure, allowing a greater natural response to the activity." (Fitzgerald-Cloutier 1999)

The song repertoire that I generally use cover songs from the so-called "Danish song treasures". I sing songs connected to the seasons, morning- and evening songs, lullabies, old and new folk songs, pennytunes, hymns, psalms, children's songs, sailors' songs/shanties, national or local songs, songs related to historical events, folklore, cheerful songs, nostalgic songs, love songs, songs from revues, oldies, ballads, and even a few English songs, that are known to the generation of Danes over 65 years.

In the following I describe some general features of the songs I have used, inspired by the SMMA (the Structural Model for Musical Analysis). Grocke originally developed this musical assessment tool for analysing elements or effects of *pre-recorded music* when researching the occurrence of 'pivotal moments' in Guided Imagery and Music (Grocke 1999, p. 227), but I apply the structure and most of the terms of the SMMA here, to give an impression of general features of the *pre-composed songs* I have used.

Style and Form: A big part of the songs are from the 18th century or beginning of the 19th century. Some of the hymns and psalms are older, and the folk songs that originate from an oral tradition are rewritten (often by Svend Grundtvig) in the 18th century, but are much older. The form is almost entirely verses that are repeated with the same tune but different text, – often with a refrain or chorus where the text is repeated. In the children's songs one line with nonsense-rhymes (tinge-linge-later, sim-sa-la-bim, kritte-vitte-vit-bum-bum, etc) might be repeated after the verse or in between the strophes. Generally the more "serious" songs – with a song text that have a religious, moral or historical message – seem not to have a refrain, and the nostalgic or popular songs to have refrains where text and melody are repeated, often with some catchy qualities.

Time and rhythmic features: The songs are 2/4 or 4/4, some 6/8 and 3/4, with no complexity and variability in meter, which gives the songs a clear and recognizable rhythmic form. The songs tend to have a clear, but not stressed or marked, rhythmic ground or pulse. The rhythmic motives seem to play a less important role in the songs, except for the songs related to folk dances, traditional stamp-dances, and some of the traditional children's songs. The rhythmic motives are repeated, and no poly-rhythmic, unpredictable variations or syncopations occur, except in some of the songs from revues and newer jazz-inspired popular songs.

Melodic and tonal features: All the oldest songs and hymns have consonant and tonal harmonies in diatonic key structures. The sense of harmony seems present in the melodic contours, and the implied harmonies are predictable and stay within classical frames. The intervals are tonal and exclude tritones, seconds (major or minor), sevenths (major or minor), and unexpected jumps in the melody. The modulations within the melody are predictable and tend to follow tonic – dominant – subdominant style of modulation. The phrases are predictable with symmetrical lengths. Only in the songs from revues and newer lullabies chromaticism and modulation to non-parallel keys are present.

These elements from the SMMA are used here to describe general features of the songs. The other elements I shall use to describe my singing style. In a peer debriefing session in Aalborg, where Professor Tony Wigram, too, was present, the peer group helped me to define some general characteristics about my way of singing, although I use my voice in different ways depending on whether the song is used with the purpose to stimulate or sedate – or to communicate.

Texture, timbre and quality of voice: According to my peer group I sing in a pure, relaxed way with a smooth tone. I sing in a register close to the normal speaking voice, with some air on the voice and without nasality.

Tempo: The tempo of the song is very much related to the context and the purpose of the song. If my purpose is to stimulate the person I sing allegro or allegretto with a clearly marked beat. If my purpose is to make it possible for the participant to relax there might be a lack of emphasis and strong accentuation, in a way that is essentially stable but meaningful, and in a legato tempo.

Embellishments, ornamentation and articulation: I use very little embellishments and ornamentation, and compared to an opera singer I use no rubato, thrills, accelerandos, and appoggiaturas. My articulation is more similar to a normal speaking voice in an "ordinary" conversation.

Volume and intensity: The volume, too, is adjusted to that used in a "normal" conversation. It might *increase* in cases of "playing games" or of having the purpose to stimulate the participant, and *decrease* when I want the song to have a relaxing effect, or when our "conversation" reflects intimacy in the dialogue. Compared to an opera aria there is little intensity in my singing style. Intensity in the voice might be demanding and intrusive on some occasions, and stimulating and elevating on other occasions. The lack of intensity in the quality of voice might reflect the personalities of the participants who come from a time and a culture where the songs are sung without excessive or even enhanced emotional characteristics. It is a fact that we live in a North European culture where emotional expressions and outbursts are normally curbed.

Mood: Some songs are clearly "neutral" and "superficial", related to neutral subjects such as the season, a person or an event. But the same songs may to some persons be emotionally and symbolically loaded, expressing a certain mood combined with certain symbolic representations or memories. In my singing style I might try to match the mood I emphatically experience in the participant. In this way I try to express, share or reflect feelings that the participant seems to show. This can be explained by counter-transference (see Hannibal 2001; Austin 1998), by affect attunement (Stern 1985), by containment, holding or validation, where

I in this work refer to the three last terms, and to Kitwood's introduction of the terms in dementia care (Kitwood 1997). There are also situations where I would not clinically match the mood of the participant, if I perceive that the person is hyper-aroused. In that case I try to regulate the arousal level. This is described later.

Performance: From the above descriptions of singing style it is clear that performance can be assessed as lacking stylistic display and artistic merit. The singing style is to a much higher degree related to aspects of interrelational communication and to a sensitive articulation of feelings and emotions.

Meaning of the song text: In additional to the musical elements of the songs and the way they are performed, the song text might carry important aspects to the experience of the song. There are song texts that are directly related to certain events, such as World War two, that seem to have a specific meaning to many persons of the same generation as the participants later described. The song text might also carry a symbolic meaning to the individual person who has heard it at special events (Christmas Eve, burials, at a special period of life, etc.). In the same way as fairytales, song texts might forward impressions of conflicts, transitional stages, fundamental feelings, or archetypical symbols, essential to human life. Some of the traditional folk songs tell of suffering, of losing the loved one, of longing, loving, enjoying, reminiscing. The sailor's songs tell of leaving, homesickness, or of the thrilling life sailing from seaport to seaport. The hymns tell of belief, faith, love, comfort, hope. The winter songs describe death, desolation, wastes, coldness, loneliness, or clear beauty of the frosty nights, and the winter evening in front of the fireplace with mother at the spinning wheel. There are songs that tell about the fresh green forest, of the frail light green spring leaves, of the wild flowers in the fields, and the smell of hyacinths. There are songs describing the rising sun and the birds singing at daybreak, of angels of light that bring the morning brilliance, of children who wake up to a new day, and of breakfast with bread, cheese and coffee. The songs seem to name a richness of dimensions in daily life, to give new perspectives to trivialities, or to put in words sublime moments. The poetry add essential proportions to the musical elements of the songs, and even with persons suffering from severe aphasia the poetic and narrative elements of the songs might fascinate and enchant in the way it transforms banalities, simplify the complex and incomprehensible, or present symbols that give meaning to lived experiences.

Structure of songs

I do not regard the song in itself as "the treatment" in music therapy, but rather see the way in which the participant and music therapist are together as the healing element. But in order to *be together* and interact, and to share the meanings represented in the songs, I also use the songs as tools to build up a structure and to regulate arousal level. In the following I describe how the songs are used with different purposes in the music therapy.

Although this research originates in the "naturalistic" clinical work I changed the usual structure slightly, e.g. by including two unknown songs from another culture, and by using specific structure songs that were presented to all participants, where I normally might use different songs with different participants. This gave a possibility to analyse data from songs across cases. The overall structure applied in the music therapy sessions can be illustrated as follows:

The music therapy session starts and ends with structure-songs, and in the middle of the session there is an enclave of structure-songs as well. After the initial structure-song follows the regulation-part of the session, and after the structure-songs in the middle follows

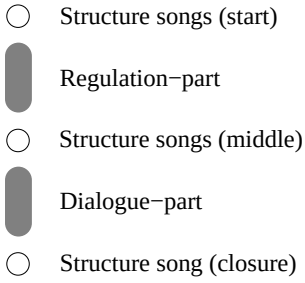


Figure 5.2: Structure of songs in the music therapy

the dialogue-part of the session. These parts have a relative length. I now describe the structure-songs, the regulation-part, and the dialogue-part:

Structure-songs

The structure-songs function as cues to indicate the course of the session. With the six participants I sing the same structure-songs in all sessions in order to have comparable data material in case it would be useful to carry out cross case analyses.

The *start* structure-song is a short greeting song, where I shake hands with the participant, sing his/her name, and sing that we are going to sing together (see appendix A page 304). After this song I sing a certain song or genre each time. Here the choice of song differs; with some residents I sing a morning song or a hymn, or I sing different season songs.

The structure-songs in the *middle* are:

- two short African songs
    1. rhythmic song (pentatonic, allegro) from the Haya-tribe in North Western Tanzania.
    2. melodic tune (adagio) with calling phrases from West Africa.
- "Roselil" (see page 304), an old folksong with the moral that *he laughs best who laughs last*. Most elderly people will be familiar with the song and are able to join in the very easy refrain.
- "Brother Jacob" (see page 305), translated from the French song Frére Jacques, is equally known by everybody. The slow tempo, simple melody and the repetition of each line make it easy to join in.

The *last* song is an old children's song ("Jeg ved en lærkerede", see page 306) on a melodious tune by the Danish composer Carl Nielsen. Many persons in Denmark will know the text (by H. Bergstedt) of the 5 verses by heart.

Songs in the regulation-part

When I first formulated the structure of the session before carrying out the clinical part of the research, I did not differentiate between regulation- and dialogue-part of the session. In these two parts I would sing long-familiar songs, but even though I did not make any differentiation, I would choose songs differently in the first part (with a choice on more neutral, but still well

known songs) than in the second part (with a choice on more personal songs addressed directly to the participant, focussing on emotional aspects in the song). With integration of theories of arousal regulation described in chapter 3 I now call the first part of the session the regulation-part. This does certainly not mean that dialogue will not occur in this part, but it means that a general focus will be on regulating techniques. With some participants I focus mainly on this part of the session. With other participants the regulation-part is less important if the persons are already in a more or less balanced state of arousal.

In the regulation part the main function of the songs is to regulate arousal level, not because I want to change the behaviour of the person, but because I want to lead him or her to a stage where he/she is most attentive to environmental stimuli. Most studies about music and dementia are concerned with the regulative effects of music, and the fact that music has stimulating as well as sedating effects is established (see chapter 1, page 35).

The songs in the regulation-part are long-familiar songs; songs that the participant seems to recognise and like. They are well-known songs, but also more or less "neutral" songs that do not have a strong emotional relation to the person. When possible I always have a talk with relatives about music preferences and which relevance and influence music had in former life for the participant. I do not like to declare certain songs as *the* favourite songs, as I am aware that in some periods we might prefer a certain song, but after some time the song might lose it's allure. No songs work and have effect in all situations, as e.g. drugs might have, even if they are favourite songs.

The songs used in the regulation-part are catalogued in appendix B, page 307. There are no pre-fabricated lists of which songs to use, and it is necessary to consider the participant' responses every time a song is sung, not taking fra granted that it has a specific and expectable effect. With one woman (Mrs E) hymns would very often calm her down. With another woman (Mrs D) hymns and religious undertones would provoke her, if sung in the regulation-part, but if sung later she often reacted by being deeply touched in a positive manner.

Arousal regulating techniques

Seen from an overall perspective it is possible to regulate arousal in two ways: a) indirectly by the structure, and b) directly by regulating techniques.

a) Working *indirectly* with regulation via the structure of the session the person is offered a framework with a time perspective and is offered recognizable cues. This might make it possible for the participant to relate to a process with a beginning and an ending. Supposing that the person is surrounded by "chaos" or by "a vacuum of nothing" a change to relate to a process is significant. Cues that e.g. signalise beginning and end are important parts of the structure and will be described later.

b) *Direct regulating techniques* are the use of stimuli, and musical and communicative parameters. Stimulating and sedating effects of the music are obtained by musical parameters, such as tempo, rhythm, timbre, volume, pitch, phrasing, dynamic, and timing. By communicative parameters such as proximity, distance, gentle touch, quick movements, rhythmic rocking or "dancing", the music therapist uses his/her presence to stimulate or calm down the person.

Altogether these techniques are inherent in our communicative musicality described by Malloch (1999) and Trevarthen (1999a), and in some situations it has highly regulative effect to match the participant's musical behaviour (the way he/she sings, moves, breathes), in other situations to mismatch this behaviour. There is so much tacit knowledge hidden in the way a

mother puts a baby to sleep, starting in good time with small routines and rituals, preparing the child for sleep. When the child is in bed she uses a soft voice, smooth movements, and reduces outer stimuli (e.g. light and noise). In an intuitive way she matches, mismatches, and uses synchronicity, reciprocity and communicative musicality. The music therapist must be able to use the same intuition and tacit knowledge in an explicit way, and even if there are general guidelines of implying regulating techniques, the music therapist has to consider the context of the interaction every time.

Songs in the dialogue-part

After the structure-songs in the middle part of the session the dialogue-part follows. The songs chosen here are personal songs, meant to touch or reach the participant on a personal level, and I try to trace songs that seem to represent significant events in the participant's life.

> "Music is not "universal" with this population. Yes, certain melodies will soothe and others stimulate but to truly reach someone with dementia, on a personal level, his or her musical preferences must be taken into account. Favourite songs or pieces of music tend to receive more attention over one's lifetime and become ingrained in our memory. Over time, particular songs may come to represent significant events in one's life." (Tomaino 2000, p. 196)

Some songs seem to go in at one ear and out at the other not catching our attention, but other songs seem almost actively to get a grasp on us, touching us deeply. An explanation might be that these songs that almost make our ears turn like cats' ears and make us focus all our attention on the tunes, have a resonance effect on us. Some of the emotional undertones in the song make the same emotional undertones sound and ring in us. Something in the song makes us react; it seems to come from outside, but obviously it makes us re-sonate or re-sound. The song makes us react emotionally because at some level we recognise and identify ourselves with layers in it. Sometimes songs can even be so insistent that we need to turn off the music, if we have a possibility to do so. That music or songs are able to make us re-sonorous (sonare is the Latin word for 'to sound') is important to persons suffering from dialogic degenerative diseases. We can use the songs as techniques to bypass functional deficits, and in that way use complementary means of getting contact. This means that in the dialogue-part the regulating function of the music is toned down, and the interactive or communicative function is accentuated, with the use of psychotherapeutic techniques such as holding and validation (see page 26). In holding and validation the music functions as a "container" for the emotions. Denise Grocke (1999) describes this container function of music and refers, among other music therapists who have used this term, to Jos de Backer, 1993, and Helen Bonny (1975).

Some participants might feel it intrusive to begin the session with songs that go straight to their feelings, if they have not yet had time to recognize the room, the music therapist, and the setting. With a safe and stable framework of the session which might have to be built up every time, the dialogue appears natural and not forced.

Songs to elicit dialogue

In a dialogue the participant and I share a mutual understanding and in order to be able to share a "topic" we need a "common place" for our interaction (see page 52). The songs offer such a "common place" where both of us are able to resound at an emotional level. It is not

possible to prescribe songs that "work". Long-familiar songs that represent significant events in the person's life seem to elicit situations where dialogue occur, according to research done by e.g. by Tomaino (2000), Götell *et al.* (2000), Fitzgerald-Cloutier (1993), and Clair (2000).

Songs and cues

I now return to an important aspect of building up a structure in the setting. To persons with difficulties in perceiving environmental information, it is usually not enough to give verbal information to let the person *understand*. Structure is important in order to make the environment legible. The structure consists of cues and stability:

> "Components of environmental legibility are environmental cues and stability." (Roberts & Algase 1988, p. 84)

To let the person know that now it is time for music therapy, I must give the message at levels other than verbal, and use para-linguistic and nonverbal expressions and acts. I must give my message and try to catch the person's attention by using cues and by establishing stability. *Cues* are signs or hints of the structure, information in an environment (Roberts & Algase 1988), or identification marks (Reber 1995). Cues may be related to context or physical components (space, time) and to contents or social components (emotions, relational aspects).

> "Physical components provide orientation and predictability regarding the physical space; social components provide information pertinent to defining oneself and one's role in relation to others in a setting ... An environment rich in social cues is one in which persons interact with one another directly and personally." (Roberts & Algase 1988, p. 88)

Stability is important to the structure and means constancy and familiarity of cues over time (Roberts & Algase 1988, p. 84). Stability increases the ability to foresee events, which might give a feeling of security.

> "Although physical and social cues in an environment provide data about the present, it is the stability of an environment that supports a person's ability to predict what will occur given such data. Consequently, assessment of the environment must extend beyond cues themselves to the constancy and regularity of cues." (Roberts & Algase 1988, p. 88)

As an example, the use of a specific greeting song in the music therapy is a cue related to the physical component of time (indicating the beginning of the session), to social components (e.g. by shaking hands, having eye contact, smiling, singing together). Using the same room every time is a cue related to space (the soft and comfortable sofa to sit on, the pictures on the wall, the smell and the sounds in the room). The specific song at the end of the session and some of the small rituals when saying goodbye, are cues that indicate continuity of the activity, and continuity of the relation. This and the repetition of the same songs in the same order during all the sessions entail stability.

In Denmark birthdays are celebrated with a wealth of rituals to all senses, such as special cakes, hot chocolate, presents, flowers, flags, certain songs, and persons all dressed up. To the person with dementia all these rituals function as cues that let him or her know what exactly is going on. Even persons suffering from severe dementia are seen to act very appropriately

at their birthday celebrations as they *understand* and know what is going on, and at some levels are able to *predict* the next things to happen.

Cues might be regarded as memory traces or engrams in the brain; like a kind of icon of an experience or event "speeding up the whole retrieval process" (Foster 1998). If we have forgotten where we have put our keys a well-known strategy is going through the whole context when we entered the house, in our memory or literally by doing it, in order to get a cue, that all of a sudden makes it clear to us where the keys are. If a memory trace is doubled up with more and more traces, which is done by involving more senses and by repetition, the retrieval process becomes quicker and more vivid (Gade 1998). In this sense we are dealing with a certain "programming" or impressing in order to learn new cues. Persons with moderately severe dementia seem capable of creating new memory traces and learn the meaning of new cues, e.g. when they are able to recognise a new apartment as theirs. When building up a structure for a music therapy course, starting when the participant already suffers from severe dementia, an environment rich in physical and social cues addressed to different senses helps the participant to recognise and feel familiar with the setting. Cues containing irrelevant information might confuse the person and might make it difficult to maintain attention, as well as too many cues might be overwhelming (see Fitzgerald-Cloutier 1999). In the beginning of a music therapy course it is therefore important first to introduce the structure or part of the structure in shorter sessions 2-5 times a week. When the structure-part of the session is stable and legible, the regulation-part of the session is introduced or paid more attention to, and at last focus will be on the dialogue-part of the music therapy.

Cues that involve different senses are more likely to reach the person with dementia having episodic memory deficits (deficits in sensory systems, attention, encoding, consolidation, and retrieval) and here "elements of music can serve as retrieval cues" (Tomaino 2000) involving auditory sense. Additionally some songs seem to be able to move us emotionally. The emotional component makes the cues work even better at recalling information or retrieving autobiographical memory (Schulkind *et al.* 1999; Foster 1998). Functioning as both physical and social cues and indicating physical and social stability, music and songs seem to be a profitable approach to building up a structure.

5.4 Clinical music therapy method

In chapter 5 I have up to now described the structure of the music therapy sessions with the use of songs that serve different functions: structure-songs that generally work as cues and stability factors, songs in the regulation-part that regulate arousal level, and songs in the dialogue-part that address the person emotionally, inviting to dialogues. The way the sessions are built up is based on an understanding of 4 steps from start to end (in the single session and during the whole course), guiding the process. These four steps of the process reflect an understanding of dementia, attention, arousal and dialogue that is presented in the former chapters on theory, and reflect an understanding of *how* the songs in the music therapy are sung.

The first step is catching the attention of the participant. - The second step is regulating arousal level in order to be able to achieve the third step: entering dialogue. Finally the fourth step is concluding the session. In the following I describe each of the four steps: Attention, Arousal, Dialogue, Conclusion

Step 1: Attention

When starting a music therapy session with a person with severe cognitive and perception deficits, the first step is to make the person attentive to "the common place", where we have a possibility to "meet". In the music therapy the participant is offered structure and non-demanding ways of interaction, and has no way of relating to this offer if not made attentive to it. With deliberate use of meaningful cues that refer to context and content of the session, as well as meaningful stability that construct constancy and familiarity, a recognisable structure is built up. Structure-songs work both as physical and social cues. Some participants might need several sessions, before some idea of the music therapy or the event is constituted. This is achieved when the participant on entering the room and being presented to the different cues (the beginning song, the text of the song, the melody, the sofa, the music therapist, etc.) shows recognition of the event. To have an idea of the event or to *understand*, influences the regulation at the next step.

Step 2: Arousal

When the participant in some way is attentive to the event/the music therapy, the next step is to regulate arousal level to a moderate level, where it might be possible to maintain attention. At a moderate arousal level the person is most attentive to environmental information and therefore more open to dialogue. The structure, and attention to a stable structure in itself, moderates arousal indirectly. Further, direct *arousal regulating techniques* might be used in the songs in the regulation-part. In order to *decrease* arousal level a soothing voice, slow tempo, smooth, rocking movements, a certain distance, and a non-demanding attitude might have an effect. But no keys exist with a manual listing the "right" regulating techniques. Some persons would calm down with lullabies where others become agitated. Some calm down with a hug where others would feel uneasy or edgy with the close contact. Each person has his or her own key how to calm down. In order to *increase* arousal level with persons who are hypo-aroused there might exist general guidelines suggesting a vivid tempo, piercing voice, quick movements, touch, emotionality etc., but again there are no general instructions except that the stimulus must be addressed and adjusted to the person. This makes the arousal regulation a balancing act of keeping the person at a moderate level avoiding the two extreme states or hyper- or hypo-arousal.

When I use the arousal construct to describe clinical aspects it is a metaphor describing a general state. When I use the construct as a scientific term I need precise assessments of e.g. behaviour, verbal and nonverbal response, musical response, physiological parameters, or "objective" observation.

Step 3: Dialogue

With some participants it might cause no problems to capture and maintain attention, with others several sessions or the whole therapy course deal with bringing the persons to moderate arousal levels. At this level persons perceive most information, and conditions for interacting and entering dialogue are at their optimum. With a focus on para-linguistic and nonverbal communication songs with a personal meaning are sung to or with the participant. Depending on how much effort is spent on building a structure and regulating arousal, focus is on songs in the dialogue-part of the session. Songs might be selected according to the iso-principle (Altshuler 1948; Saperston 1996; Baumgartner 1997), matching the mood of the participant with the songs. According to the iso-principle the therapist later alters the mood of the songs to entrain the participant in a desired direction (Rider 1997). But just by matching the mood

and hereby validating the feeling, the participant often shows a change without the therapist initiating the change. In order to enhance communication and dialogue the music therapist use therapeutical techniques, such as holding, containing, validation, and empathy (see page 26).

Step 4: Conclusion

The conclusion prepares the participant for the end of the session and indicates a "so long" or "see you again". A feeling of stability and confidence is maintained, if sufficient cues signify the separation, instead of leaving the participant with the impression that the therapist suddenly vanishes into the blue. By having a structure of the session marking a beginning and an end, a clear time perspective is established, which enables the participant to expect another session and to trust it to be held.

The conclusion of the session has an integrative aspect. The Latin word *integrare* means to make whole/entire or to renew. The person in therapy must be connected to the person outside therapy, being the same person. If the participant has been emotionally engaged in the session the therapist must ensure that he or she is ready to leave the therapy room. Otherwise the participant might be left in a vacuum unable to initiate a new activity or to find the next "basis" in the daily life, so in collaboration with contact staff the therapist must guide the participant to a following basis. Some participants might profit from social contact after the music therapy session and like to go to the lounge, others might prefer the silence in their apartment. Some might benefit from fresh air going for a walk alone or with staff; others seem to prefer a cup of tea, a smoke and an illustrated paper. By guiding the participant to the next basis there is a bigger chance of maintaining positive effects from the therapy such as a more balanced arousal level, increased environmental attention, tranquillity, and self-reliance.

Apart from signalling closure of session, the last song (a structure-song) signals what is contained in the term of "drawing a conclusion". In academic work conclusions summarize and reflect at a metalevel. This sometimes makes the last song conclusive and makes it heighten the spirits, giving the session the finishing touch.

In the ideal music therapy course with persons with dementia, there are no last session. Not until the person has died. A person with dementia in the very last stage seems to benefit from singing at his bedside (Bright 1997, Clair 2000, Violets 2000, McCloskey 1990),

> "...singing affords something familiar at a time when the unknown is eminent, and when reminiscence is important to reach closure at the end of life." (Clair 2000, p. 92)

Summary and conclusion

In this chapter I have tried to give an impression of the clinical setting that underlie the research. I have described the surroundings and context for the sessions, and subsequently gone into the music therapy room and described the clinical setting, the purpose of the work, and fundamental ideas about building up sessions with persons with dementia, and the way I use the songs in therapy. The table below (table 5.1) is a summary of the ideas and terms presented in the chapter, based on four steps or levels to illustrate the process in the music therapy. The ideal structure of a music therapy session enables the therapist to reach the client in a dialogue, and then complete the session in a manner that leads to the next session. The first (or many) sessions may be at a level of catching the attention and building up a structure. Then follow sessions with attempts of regulating the arousal level to a balanced

level, where the person is attentive to the environment. At the level of dialogue the client is aware of the therapist, and involves himself in communication.

Level	Components	Aspects	Method
Focus Attention Orienting, filtering, searching, preparing,	**Structure: Stability and Cues** **Cues:** Contextual (space, time). Social (interaction, emotions) **Stability:** constancy, familiarity	Constitutional	**Structuring** Structure-songs
Regulate arousal level towards environmental attention	**Musical elements:** timbre, tempo, volume, pitch, timing ... **Social elements:** proximity, expression, attitude ...	Regulative	**Regulating** Songs in regulation-part
Dialogue Social-pragmatic understanding	**Content:** communication, interaction **Music** with personal meaning Empathy, accept, containing, holding, validation	Dialogical	**Interacting** Songs in dialogue-part
Conclusion	**Cues:** Music (that signals closure and stability). Structure. Time-perspective. Guiding to subsequent basis. Confidence, separation	Integrative	**Separating** Structure-songs

Table 5.1: Summary of ideas and terms presented in chapter 5

Chapter 6

6 case studies

An important part of this case study research is the case studies of the 6 participants. In this chapter I will present each of the separate case studies starting with giving a profile of each person describing different aspects that gives a picture of the person. I here use the same headlines across the 6 cases. Next I evaluate the music therapy process focussing on compliance, carry-over effect, regulation, and communicative signals.

Compliance is a term connected with psychoanalysis and positive transference. Freud, 1925, described that the success of an analysis has to do with collaboration and compliance, and Hinshelwood (2002) describes that Cognitive Behavioural Therapy (CBT) depends on compliance to treatment. In medical care "good" patients show compliance when they take medication as prescribed. In evidence-based practice compliance can be an object for measurement indicating the success of a psychoanalytic or CBT treatment compared to other types of treatment, if the patient show compliance and attends sessions regularly. Compliance can be defined as "the overt behavior of one person that conform to the wishes or the behaviors of others" (Reber 1995, p. 143). This overt behaviour can be observed, e.g. if the participant stays in the music therapy room, sits down, or participates. In this work compliance is not seen as the goal of therapy with a wish to change the participant to appear "easy to manage". Compliance is here regarded as a measure of motivation towards elements in the music therapy. I think it is a relevant issue to consider if a person with dementia is positive towards the setting and collaborates in some way, especially of ethical reasons when we cannot ask the persons verbally if they are willing to participate.

The *carry-over effect* tells if the music therapy treatment has an effect that lasts longer than the setting. It is clear that participants suffering from dementia in advanced stages not might remember anything about the therapy when it is over. To me, as a clinician, it is important to know if the work I do has some influence on the person in his/her daily life, – if the music therapy brings some kind of change. It might be obvious that the person has very positive experiences *in* the sessions, which then raises the question whether these positive moments "go with the person" after the session is over, or if they are isolated incidents that only occur in the music therapy.

As described in the previous chapters there is theoretical evidence pointing at the fact that persons with a moderate arousal level are more attentive to their environment and better process stimuli. I suggest this as important to the music therapy and to the possibility that participant and therapist enter dialogue. I therefore look at aspects of *regulation* in the music therapy.

At last, I look at *communicative signals*, as these signals might tell me relevant issues

about the music therapy process. I am not able to e.g. make traditional interviews with the participants in order to describe their engagement in the process, and I therefore use observations of communicative signals and combine these with physiological parameters in order to describe and to interpret.

I will not end this chapter with a joint conclusion on the six cases. I conclude each case separately treating the cases here as separate cases. However, in chapter 9 I will conclude across cases.

6.1 Mr B

Profile

Appearance

Mr B, the accordion player, is in the middle of his seventies. He is a tall, slim man with heavy, dark grey hair, where the fringe is brushed back. He has a broad nose and a kind and friendly lined face with a slightly melancholic expression. His gait is slow and stooping, and there is something obliging and troll like about him. Mostly his facial expression is "empty" and a little sad, but now and then his face lightens up in a warm smile and you see a charming and somewhat shy man.

Manner

Typically you will see Mr B slowly shuffling around at the unit, very often with one or both trouser legs rolled up over the knees showing his white legs. He walks around quietly without contacting other residents, shifting around vases, bric-a-brac, newspapers, lamps, tables and chairs. This behaviour seems to be very disturbing to some residents if he gets too close to them, or moves away things standing close to them, and they will not hesitate to grumble and tell him off. On the surface this does not seem to bother him at all. A woman peer resident seems to like Mr B and comes to take his hand and have a walk with him, and they are often seen walking hand in hand from recess to recess at the unit. He seems to be shifting between the two activities; either walking about "being busy" or sitting apathetic in a chair. It is difficult to engage him in social activities as he will either fall asleep or walk away.

Story of life

Mr B was born in a smaller town in Denmark in the twenties in a family of four. He has been married for more than 50 years and has raised 4 children. He worked as a truck driver most of the years and the first symptoms of dementia started when he had retired and was in his sixties. With the progressing symptoms he stayed at home with his wife as long as possible but then moved to a local old peoples' home and lived there for 3 years. It became more and more challenging and problematic for staff to carry out personal care. Mr B would push staff away or hit, when they tried to help him dressing, bathing, etc. He was then moved to a special care unit and had lived there for 1 year and 5 months when he started in music therapy.

Diagnose

Mr B's diagnose reads: "dementia with Alzheimer's disease without specification".

Medication/aids

No antidepressants/antipsychotics
Treatment for urinary tract infection in week 1

Stage of dementia

FAST: 7 (in 7)
MMSE: 0 (in 30)

Network

Mr B's wife visits regularly, a couple of times a week.

Condition

Mostly Mr B eats with a good appetite and sleeps well at night. He sometimes has pains caused by groin hernia and a previous hipbone fracture.

Music

Mr B played the accordion. His wife brought his old sheets of music where we got a clear impression of which songs he had played a lot, as some sheets clearly looked more used, and many of the songs were covered with small notes. According to his wife he liked Swedish ballads, e.g. by Evert Taube, songs from revues, "oldies", and folk music. He stopped singing in sing-alongs when he lived in the first old peoples' home and replaced the singing with whistling. At the time he moved in at the unit he had stopped participating by whistling.

ADL & different symptoms

Mr B gets help in all personal care. Increasing **apraxia** makes it difficult to Mr B to eat on his own. He needs prompting to start eating, and staff helps him cutting his food so he can use a spoon and a plate with a high rim fitted on. He is not able to play his accordion, and does not know what to do with a songbook. Sometimes he tries to stroke my cheek, but his movements are "clumsy" and heavy-handed.

On the whole Mr B does not use active verbal language and has symptoms of severe anomic **aphasia** not being able to retrieve words, but has some phonological and syntactic aspects of language preserved. On some occasions he would say a whole relevant phrase; e.g. the first morning staff put on the heart rate monitor at his chest – with cold electrode gel on it – he said "ugh, it's cold".

Having stopped using his language Mr B has not stopped using his hands. Hands are in constant activity. He picks at his trouser legs, fumbles with his cardigan, and takes apart or fiddles with things. **Agnosia** sometimes makes him pick at my trouser leg instead of his own, not finding it is *my* leg, or sitting down on somebody's lap not realising the chair is already occupied. In the music therapy setting he sometimes reaches out for something, but I do not know if he reaches out for the cupboard 2 meters away or for something that I just do not see.

Mr B seems to live in his own world, or – said in other words – seems to be little orientated in time and space. He does not seem to recognise me – even after 20 daily music therapy sessions – and most of the time he seems not to be aware that I am sitting next to him. I have seen his face lightening up into a warm smile when his wife comes walking towards him, and seen his gestures as if he tries to give her a hug. Apart from this recognition his **amnesia** seems to be extensive.

CMAI	agitation
phys. agg	(x)
∼ non-agg	x
verb. agg	-
∼ non-agg	-

Table 6.1: CMAI - Mr B

BPSD

According to Cohen-Mansfield Agitation Inventory (CMAI) Mr B only shows physical aggressive behaviour in personal care situations (less than one time a day). He shows physical non-aggressive behaviour 3-6 times in 24 hours, typically by pacing/ambulating or by inappropriate handling/moving about furniture and things. He does not show verbally agitated behaviour.

No other behavioural or psychological symptoms of dementia are mentioned in his medical charts.

Evaluation of the music therapy process

Mr B is very difficult to involve in activities at the unit, as he mostly will get up after a while and walk away, not being able to concentrate on what is going on. All in all it is questionable if he has benefits from the music therapy; if he will "understand" what is going on and "participate". In order to describe and evaluate the music therapy I will use the physiological data – the heart rate measurements – and analyse these data with video data material, video observation, music therapist's log and questionnaires completed by staff, matching patterns in the data. The headlines for the analyses are *compliance* (e.g., will Mr B remain seated or stay in the music therapy room?), *regulation* (e.g., does heart rate data in combination with other data show regulative effects?), and *communicative signals* (e.g., which responses does Mr B show in the sessions, and are there any patterns revealing over time which might describe the process of the therapy course?). In chapter 8 and 9 the case description continues in parts, with a close up on levels of communication and dialogue.

Compliance

If Mr B and I are going to build up a positive relationship the cornerstone is his motivation and his willingness to participate. I do not ask him to come to the music therapy room; I simply invite him and guide him into the room. Mr B is free to walk out, as the door is easy to unlock. The door is locked from inside to avoid disturbances from other residents. Normally Mr B will not remain seated in activities, so it has a meaning simply to assess a) if he remains seated, b) if he walks around or c) if he leaves the room. Figure 6.1 clearly shows that Mr B is seated most of the time during music therapy. This indicates that something about the setting (the small room, no other residents, peace, the music, the music therapist, the comfortable sofa, and/or other variables) is appealing to Mr B. Mr B does not unlock the door a single time to leave the room, but now and then walks about in the room.

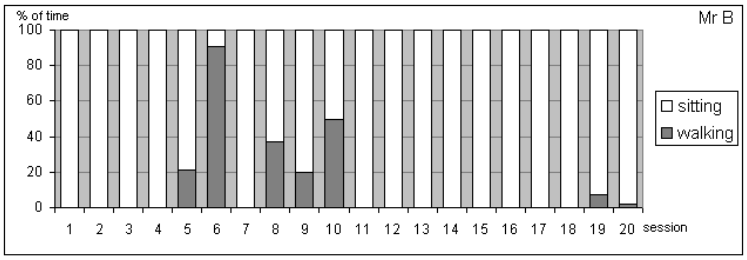


Figure 6.1: Percentage of time Mr B is sitting down or walking about during sessions

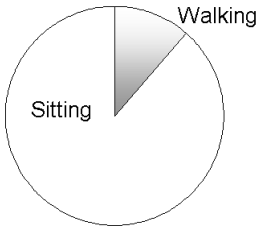


Figure 6.2: Percentage of time Mr B is sitting or walking during all sessions

Walking about

In figure 6.1 is seen that Mr B walks about in session 5, 6, 8, 9, 10, 19 and 20. Figure 6.2 shows that Mr B all together walks about 11,4% of the time during music therapy. In all sessions where he walks, except session 6 and 10, he sits down after a while. This is important! If the picture would have looked opposite: 'he starts sitting, but then rises and starts walking about', it would indicate that nothing is "built up" during the music therapy and that he does not relax. Although Mr B might be agitated in the beginning and not able to find rest, it seems that during the session he calms down.

Then there are the two exceptions: session 6 and 10. Here Mr B walks about during all session. On these two occasions the music therapy does not seem to reach him. Just a single glimpse on the columns in figure 6.3 shows that the average heart rate is much higher on two occasions: in first and last session in week three; session 6 and session 10.

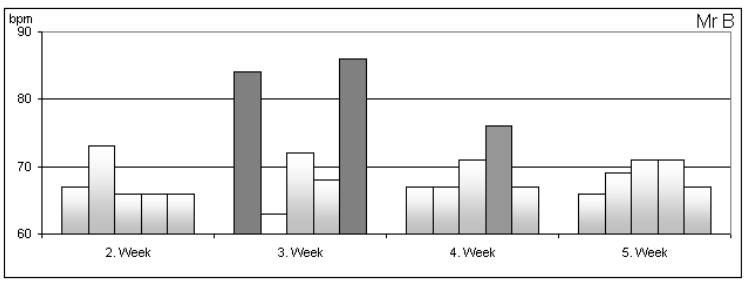


Figure 6.3: Mean heart rate (Mr B) during 20 sessions

Table 6.2 shows the spreading of mean heart rate. Based on their distribution four categories are defined showing most sessions with a mean heart rate between 66 and 73 bpm.

One session (session 14) shows a *high* mean level, and two sessions (6 and 10) shows a *very high* level. Only in session 7 in week 3 a *low* mean heart rate level is seen.

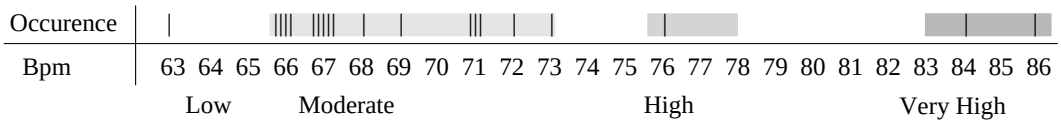


Table 6.2: Distribution of sessions according to mean HR in bpm

Context

Being active and walking about is physical activity that implies a relatively higher heart rate. The increased activity can have different causes: a) Mr B feels much at ease and enjoys moving about, b) he feels pain and needs moving, or c) he is aroused and cannot calm down. Consulting the questionnaires tells me that on Monday in week 3 only 2 staff members were to take care of Mr B's group of 8 people. This context, and the fact that he did not sleep until one hour later than normal in the evening, could hint at Mr B being aroused, not able to sit down and relax. But on Friday in week 3 nothing extraordinary is noted in my log or by staff, except that there are 4 staff members (one person *more* than usual) in Mr B's group. So looking on these data does not offer an explanation. But there seems to be another pattern or context, which is relevant. In session 5, 6, 8, 9, and 10 Mr B is sitting at the breakfast table when I come to guide him to the music therapy room. He has been sitting there eating breakfast, quite some time ago, and I then directly guide him to sit down in the music therapy room. On the previous days he had been walking around at the unit when I met him and we went together to have music therapy. I notice this in my log after the 10^{th} session. In this session I only sing 7 songs before I end the session. I then write in the log that next time I see him sitting at the breakfast table I will pull out his chair, giving him the possibility to walk about the unit before we start therapy. This has an important effect on the walking about as seen above in figure 6.1 page 112! He now remains seated from beginning to end in all sessions – except in session 19 and 20. Before session 19 and 20 I similarly pull out Mr B's chair making it possible for him to stand up and walk before we start the therapy. I have done this before all other sessions, except session 13 where I met him already walking about. Before session 19 and 20 he does not rise and walk. So I guide him directly from the table to the music therapy room. In session 19 he only gets up to walk a single time, and in session 20 he already come to sit down during the first song and remains seated the rest of the session.

This tells me, that when I carry out music therapy with a person like Mr B, not able to inform me about his needs, it is important to have a possibility to see or get information about the context he is in before we start the session. If Mr B needs to stretch his legs, it might be difficult to catch his attention for the music. It is interesting that in the last two sessions I am able to catch Mr B's attention after he has only walked for a very short time. One explanation could be that he felt more pain in his legs during the 3^{rd} week. Another explanation, that it is easier to catch his attention now because at some level he is aware of the different cues indicating what is going, and that the music therapy as such has a regulating effect on him. The regulative effect of the music therapy depends on the context *before* the therapy as well as the structure *in* the therapy and will be deepened later.

Summary

Even if Mr B does not cognitively agree on participating in music therapy, he shows compliance by not directly opposing the therapy (e.g., by leaving the room) and by remaining seated, what he usually does not do in other "activities". Showing compliance by *actively* participating, where communicative signs reveal this participation, is examined in the next parts.

Mr B is not able to show compliance, when his need to stretch his legs here and now is stronger than participating in music therapy in the long run. Assessing participants' needs and being informed about the context they are in before the therapy seems to be essential for degree of compliance.

Regulation over time

The music therapy might – or might not – have an impact on Mr B causing him to either calm down or wake up in order to be able to respond to the music and to the interaction with the music therapist. That something outside Mr B has an influence on him directing him to a level of optimal environmental attention can be described as the regulative effect. If the music therapy has regulating effects it might be readable in more data. The first thing I want to look at here is if there is a difference in Mr B's physical activity in a very general way; simply by comparing the heart rate data *before* and *after* the month with music therapy, in week 1 and week 6. If there are different patterns between heart rate data pre and post "treatment" it could be a hint of a carry-over effect.

Carry-over effect

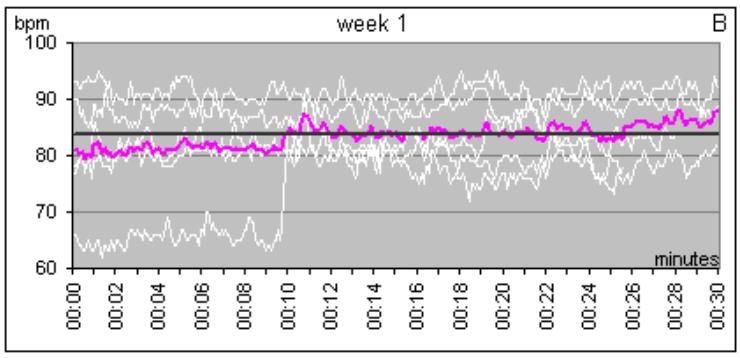


Figure 6.4: 5 HR curves in week 1 + the mean curve + the total mean HR level

Figure 6.4 shows each of the five heart rate curves (the white curves) measured as baseline at the same time of the day where music therapy later would take place. The dark curve is an average curve of the five curves, and the straight line in the middle represents the arithmetic mean. A heart rate curve shows big fluctuations depending on type of activity a person is involved in. A mean number is highly influenced on "extreme" situations, e.g. on how often a person has been sleeping or how often he has moved furniture around like here in Mr B's case. We cannot generalize from these numbers, but we can state that there is a remarkable drop in Mr B's activity in week 6.

Figure 6.5 shows Mr B's heart rate each day of the week *after* having had music therapy for one month. Each day he remains seated – except on the 2^{nd} day, where he after 22

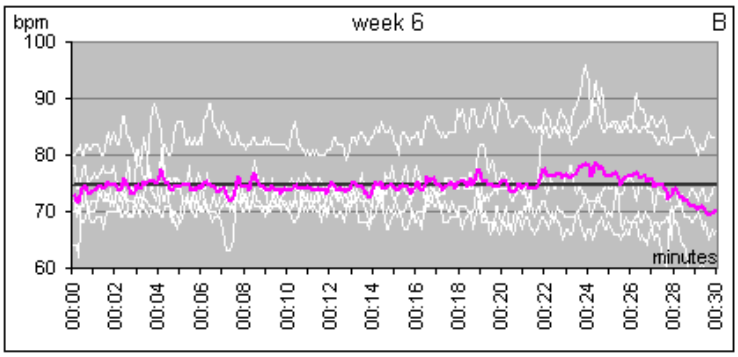


Figure 6.5: 5 HR curves in week 6 + the mean curve + the total mean HR level

minutes gets up and walks about, and the 3^{rd} day where he walks during the whole period. The difference between sitting or walking about is easy to see on the white curves. As above, the dark curve represents the average of all 5 white curves, and the straight line is the mean bpm value for all heart rate measures.

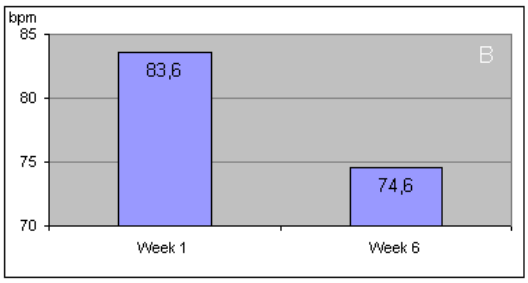


Figure 6.6: Mean HR (Mr B) in week 1 and week 6

When week 1 and week 6 are compared there is a clear decrease in mean heart rate. Figure 6.6 shows the mean HR for the two weeks and from week 1 to week 6 there is a drop in mean HR of 9 bpm. Many variables can lead to such a drop, among others: weather, health, staff burden, or activity level at the unit. Nothing in the questionnaires completed by staff indicate changes in health, routines or similar causes, and there are no big changes in number of staff on day or evening duty.

IF the music therapy has a regulative effect on Mr B as suggested before, the fact that he generally shows less physical activity and a relatively moderate heart rate level in the week *after* music therapy can support this observation and might indicate a carry-over effect of the therapy. That there might be a carry over effect is simply a suggestion as there are many variables that cannot be controlled which impedes generalization. But if the same effect will be found in a bigger number of cases a meta-analysis of multiple cases is relevant.

Regulation in the music therapy setting

Still using the heart rate data I now want to examine how the heart rate changes in the first part of the session. I want to see if Mr B seems to sit down and rest when the session begins, or

if his heart rate increases, indicating that he is being stimulated (or maybe overstimulated?) in the setting.

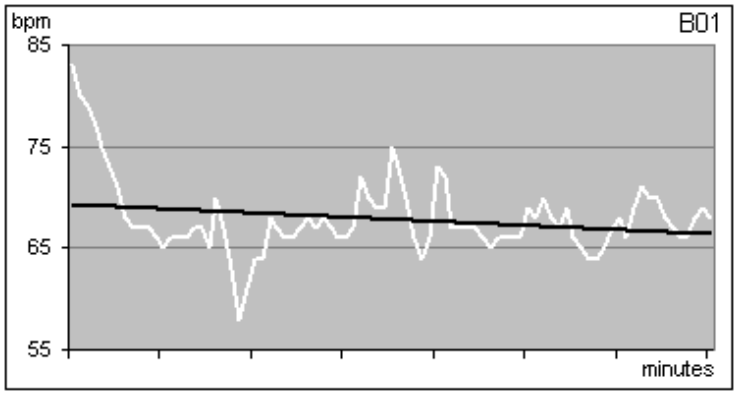


Figure 6.7: HR and tendency line during first 7 min. of sess. 1 (Mr B)

The white curve in figure 6.7 shows Mr B's heart rate in the first 7 minutes of the session. 7 minutes is about a fourth of the whole session and should be time enough to show some tendencies but still representing the start period. This curve shows a clear drop in bpm when Mr B sits down. The black line is a tendency line showing a drop from 69,5 bpm to 66,5 bpm. This is a decrease of 3 bpm from the beginning of the session to 7 minutes later. Similar decreases or increases measured in the first 7 minutes of the 20 sessions are plotted in the next figure.

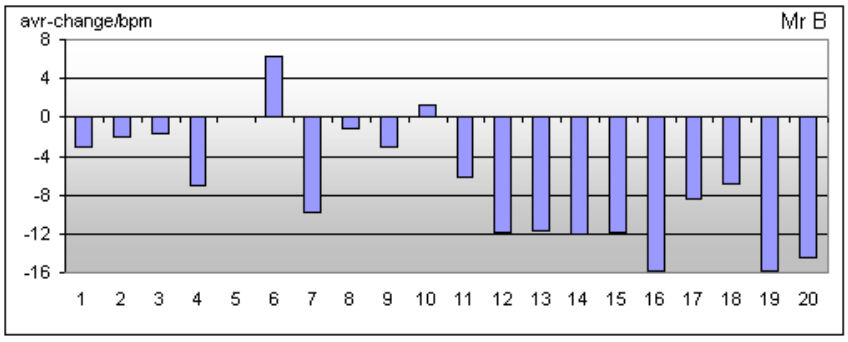


Figure 6.8: Decrease or increase of bpm during first 7 minutes of sessions 1–20

Figure 6.8 shows the 20 sessions on the x-axis and the average increase or decrease in heartbeats per minute on the y-axis. We have already seen that in session 1 the tendency line decreases with 3 bpm. It only happens in two music therapy sessions that the heart rate is increasing during the first part of the session. This happens in session 6 and 10. On the figures shown earlier (figure 6.1, page 112 and figure 6.3, page 112) these two sessions have already clearly differed from the others.

Regulation categories

The heart rate has an increasing tendency in the first part of the session in session 6 and 10, and I find it important to know if this tendency remains in the rest of the session. If it continues increasing, it could be a sign of overstimulation, and of the music therapy doing more harm than good in such cases. In order to assess for overstimulation I compare the decrease/increase in the first 7 minutes with the mean HR in bpm for the whole session. This gives me the four categories shown in table 6.3.

di	Dec-Inc	**Decrease** (in first 7 min.)	-	**Increase** (compared to mean HR)
dd	Dec-Dec	**Decrease** (in first 7 min.)	-	**Decrease** (compared to mean HR)
id	Inc-Dec	**Increase** (in first 7 min.)	-	**Decrease** (compared to mean HR)
ii	Inc-Inc	**Increase** (in first 7 min.)	-	**Increase** (compared to mean HR)

Table 6.3: 4 different regulation categories

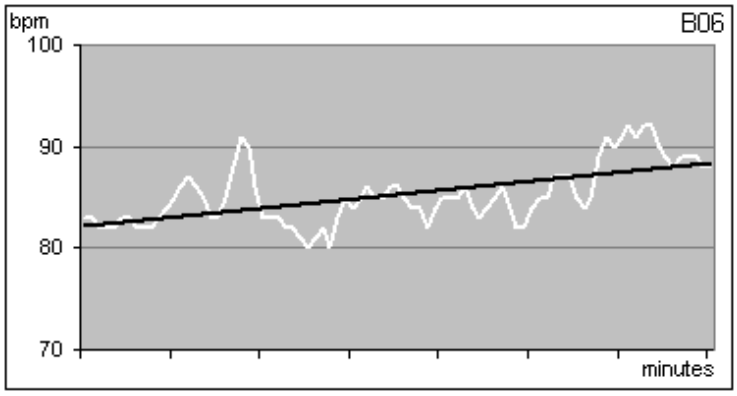


Figure 6.9: HR (Mr B) during first 7 minutes of session 6 with tendency line

Giving an example I will use the curve from session 6 shown in figure 6.9. Here the tendency line shows an increase from 82,0 to 88,3 bpm. This is an increase of 6,3 bpm. The average bpm of the whole session is 84. There is a decrease from the last value at the tendency line (88,3) to the average bpm (84). This means first an increase and later a decrease, which is coded inc-dec: Increase – Decrease. In the tables these categories are shortened to: di, **dd**, *id*, ***ii***
When I code all 20 sessions like this it shows the following:

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Category	di	**dd**	**dd**	di		*id*	di	**dd**	**dd**	*id*	**dd**	di	di	di	di	di	di	di	di	di

Table 6.4: Regulation category in each of the sessions

Category inc-inc indicates an increase in the beginning of the session, and as the mean of the whole session more over is at a higher level, it means that the heart rate generally continues increasing. Sessions in this category should be considered seriously, as the Increase - Increase could mean that the participant is being over-stimulated. On two occasions Mr

B's heart rate is increasing in the beginning of the session, but the sessions are in **category inc-dec**, which means that the heart rate is decreasing later on. So even if the person is very active or even agitated in the beginning of the session, there is a tendency for the heart rate to drop again. Generally this is a good sign. Naturally there are limits to increases, and at a certain point the heart rate will start decreasing again. To make the comparisons simple I here use bpm means.

In 5 sessions **category dec-dec** is seen: Decrease followed by decrease. If heart rate at the beginning is already dropping, an additional decrease could mean that the person is being understimulated. If the heart rate level is relatively high at the beginning it could indicate that a person being hyper-aroused is going from one extreme (hyper-arousal) to the other (hypo-arousal). In order to examine that it is necessary to have more data giving information of the context, but the categories can be used as clear hints of some processes going on in the music therapy.

In Mr B's case the sessions with category dec-dec (Decrease – Decrease) have in common that the average bpm are between 66 and 73 bpm. And they have in common that the decreases are moderate; between 1,7 and 6,1 bpm. In session 8 as well as 9 Mr B is walking about the first 10 minutes and then sits down, and in session 2, 3 and 11 Mr B is having 1 to 3 smaller naps in the middle period of the music therapy, but then wakes up again after a few minutes. Nevertheless the naps imply clear decreases in bpm.

In all five category dec-dec sessions Mr B is responding in the middle or last period of the session, which indicates that he is not being under-aroused, but that he is tired and needs a small rest/nap before conditions for environmental attention are optimal.

As seen in table 6.4 12 in 20 sessions have the pattern: Decrease - Increase, **category dec-inc**. In the 9 last sessions this seems to be the rule. The decrease in bpm varies from 7 to 16 in these last sessions, and it seems to be a fact that Mr B generally calms down faster, often having a small nap in the middle period. As this big decrease is in the category labelled dec-inc it means that the heart rate level is increasing again. In figure 6.3 page 112 it is clear that the mean HR in these 9 last sessions is at moderate levels between 66 and 71 bpm (except session 14 at 76 bpm, – a session that never the less was described as "a quite normal, calm session, no special comments" in music therapist's log).

That Mr B very quickly calms down, but then shows an increase in bpm again, could be interpreted as a more stable phase in the music therapy course, where the music therapeutical context has regulative effects on Mr B. As can be seen in figure 6.4 on the baseline measurements Mr B seems either to be physically active, pacing, having a relatively high heart rate or to rest apathetic in a chair with a relatively low heart rate. The very big decrease in the beginning of sessions seems to be necessary to Mr B. That his heart rate then later on moves to a moderate level could be indicating that activity level/arousal level is balancing at a level optimal for environmental attention.

Summary

Different ways of handling the heart rate data and the comparison with different sources of observations shows that both the context the person is in before the music therapy starts and the structure of the session itself is essential if the therapy as such is going to make it possible for the person to "adjust" his awareness level to a level most optimal for environmental attention. This ability to adjust (the regulation effect) is crucial for persons shooting from levels of hyper- to hypo-activity. If the person during the process balances at generally more moderate levels of activity or arousal this could be an important carry over effect of the therapy and might be possible to assess. With reservations to other variables causing the

change, Mr B shows a pronounced drop in heart rate levels post therapy compared to pre therapy.

In the music therapy session regulation effects generally seem to be more characteristic and stable in the last half of the 20 sessions, indicating that building up a structure and getting to know and understand the cues signalising music therapy is essential to Mr B, a person suffering from severe symptoms of dementia.

Communicative Signals

Secondary data in form of heart beat measurements and transcripts of video data material were combined in graphs after end of the music therapy course. These session-graphs were later very helpful as visual overview of each session. A few important communicative signals were selected and based on the transcripts plotted in the graphs. One signal was "sobbing" as this emotional expression was crucial in the therapy course. Another signal was "verbalizations". Mr B did not use verbal language or sounds very often so it was marked in the graphs when he did. I now want to give examples of 3 sessions and will choose one from each regulation category: dec-inc, dec-dec, and inc-dec (inc-inc did not occur).

Example one

First example is session 6 where there is a steep increase of bpm in the first 7 minutes of the session starting with the hello-song. The regulation category is category inc-dec, and figure 6.1 at page 112 shows that Mr B is walking 91% of the time in this session. Average heart rate is relatively high and the session lasts about 22 minutes. See the session-graph figure 6.10 page 120, and for details about the session-graphs, see the explanation at page 121.

The eight grey, oblong fields represent the songs in the session, starting with the short hello-song just before 10 o'clock. The x-axis shows time and the y-axis shows bpm. In that way I can see the length of the session, number of songs, breaks between the songs, if the songs are long or short, fluctuation of heart rate in connection with this, and at last a small number of essential communicative signs; the target signs. As an example how the communicative signs can be assessed this session is very significant, as none of the target signs occur! Mr B walks most of the time, and therefore in this session the three times he sits down is marked. Song 1, 7, and 8 are marked with a G, R and L in order to recognize the greeting song; "Goddag", the song "Roselil", and the ending song; "Lærkereden". The structure of the session and the way songs are chosen is described at page 97.

Example two

Next example is from session 11, and here some target signs will occur. Session 11 is in regulation category dec-dec (Decrease – Decrease). The heart rate average is moderate and Mr B is sitting down during the whole session. See figure 6.11 page 120.

This session lasts almost 35 minutes. 12 songs are sung, and 4 times Mr B falls asleep for short periods, the first time at 10:28. Shortly after 10:23 he verbalizes for the first time, and shortly after 10:41 he sobs for the first time out of three.

In both session 6 and session 11 Mr B is sitting at the breakfast table (having finished his breakfast a long time ago) when I come to guide him to the music therapy room, but in session 11 I pull out his chair making it easy for him to stand up himself if he wants. However,

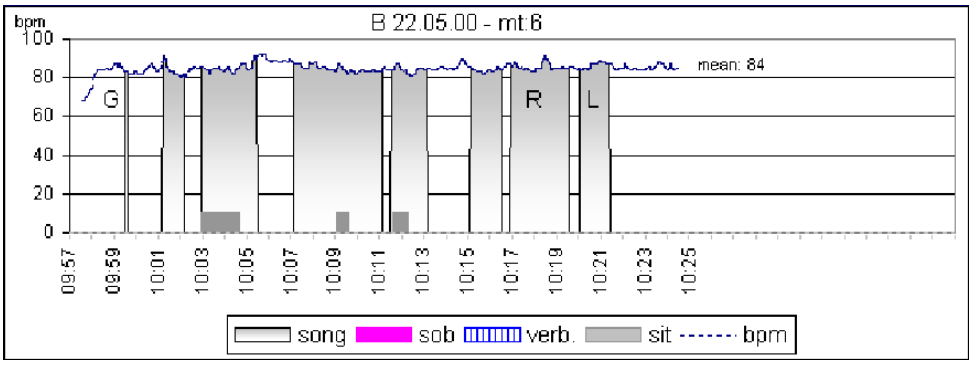


Figure 6.10: *Example 1.* Session-graph, Mr B – session 6.

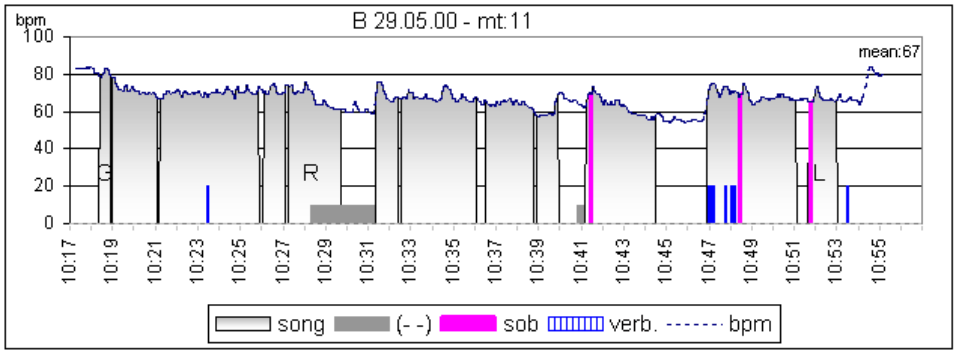


Figure 6.11: *Example 2.* Session-graph, Mr B – session 11

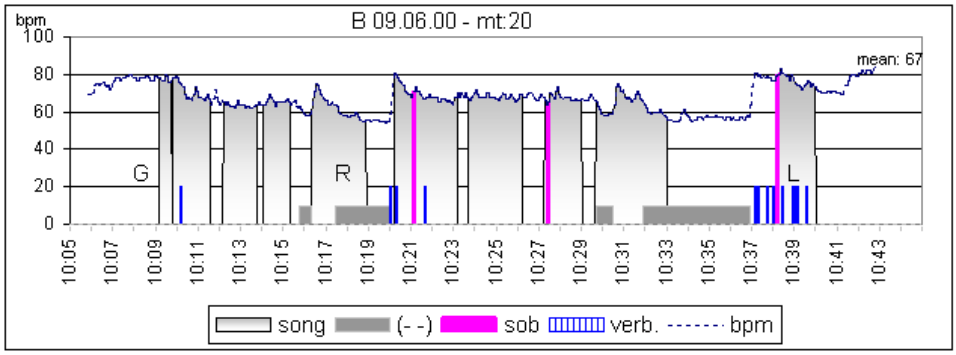


Figure 6.12: *Example 3.* Session-graph, Mr B – session 20

Explanation of the session-graphs

The session-graphs generally gives information about time, bpm, beginning and ending of songs, and target signs. The session-graphs are adjusted to each participant in a case study and therefore they vary and include different observations.

Vertical axis: Heart rate in bpm (beats per minute) measured in 5-second intervals.

Horizontal axis: Time entered in 2-minute intervals, but based on a 1-second scale.

B09.06.00 - mt:20: Mr B, date when session was held, and session number

Abbreviations used in the graphs:

G:	Greeting song (Goddag)
R:	Structure song (Roselil) from the middle part (see page 97)
L:	Ending song (Lærkereden)
mean:67:	Aricmic average of the HR
song:	The grey oblong fields represent the songs that the music therapist sings. Based on video recordings it is observed when Mt starts and ends a song. In example three, fig. 6.12, 10 songs are sung
singing:	When the participant joins in the song
sob:	One participant reacts to the songs by sobbing
verb.:	Verbalize
(- -):	Eyes closed (perhaps sleeping)
sit:	The participant is sitting down
x:	The participant is contacting Mt, e.g. by stroking Mt's hand or cheek, by leaning towards Mt.
dancing:	Participant (pp) is moving rhythmically to the music, mostly sitting (sofa-dancing)
quoting:	Pp quotes the song text
beat:	Pp marks the beat of the song
door:	Pp stands in front of the door
B:	One pp uses the same two words (beginning with B) in all verbalizations

he remains seated and I then leave him for a short while. Soon after I see him walking about, and I let him stretch his legs for about a quarter of an hour before I guide him to the music therapy room. In this session he remains seated all the time. In session 6 we walk directly to the music therapy room from the table he has been sitting at, and in that session he walks about most of the time. The whole part of the structure dealing with "dialogue" (see page 100) is missing in session 6. I carry through the basic structure of the session, either sitting down singing or walking hand in hand with Mr B when I sing. In session 11 the whole structure is carried through and Mr B responds by verbalizing or sobbing in the last part of the session.

It is natural that Mr B's heart rate will drop when he sits down after he has been walking about. But the average heart rate for the whole session is still lower than the lowest level on the tendency line in the first 7 minutes of the session. His heart rate gets very low during his small naps. I do not wake him up, but let him rest. Then when he opens his eyes, I have a song ready for him and he reacts emotionally to the last 3 songs by sobbing. When I start singing the second last song "Lille Sommerfugl" (Little Butterfly), he says "tak" ("thanks") and in the very end of the session when I say "thanks for today" his response time is very delayed – but after 17 seconds his "thanks" comes very clearly and distinct ("Thanks for today" is often said in Danish instead of saying goodbye).

Mr B's vocalizations are mostly spoken out in the air – not directed at me. In session 11 his other verbalizations are: "yeees", "look this there, there ... over there", "well well, come" or sounds/words that I simply do not understand.

Example three

Additionally I will show an example of the most frequent category of sessions; category dec-inc: Decrease – Increase. Average heart rate is moderate, and Mr B is sitting down during the whole session except for the first minute. The session lasts 31 minutes, see figure 6.12 page 120.

In session 20 only 10 songs are sung. Normally there would be a few more songs. 3 sobs are marked, and especially before and during the last song Mr B verbalizes. It should be mentioned that Mr B is doing much more than just sobbing or verbalizing. He is picking and fumbling most of the time, touching his trouser leg, touching my leg, taking a songbook, rubbing his hands, moving or snapping his fingers, etc. This graph is to create an overview, and as such the amount of data is reduced. This means that only target signs are marked.

Session 11 and session 20 looks much alike and seem to have many patterns in common: three smaller naps followed by a longer nap, sobbing 3 times, the shape of the heart rate curve, etc. One exception is that this time Mr B does not have a walk before the therapy. We start directly AND Mr B does not get up again to walk about. He sits down at the end of the first song and remains seated.

It is interesting in these 3 examples, and as a pattern all through the whole course, that most of the target signs occur in middle and last parts of the sessions. In session 6 where the heart rate is relatively high, the session short, and the last individual songs not sung, no target signs are registered. Mr B seems to be more responsive when the heart rate is at moderate levels.

He seems to need his small naps to remain on this level, and what is important; he does not continue sleeping or dozing, dropping into a stage of no activity, but rebalances at a moderate heart rate level; a level with some relevant activity/responses. I will clarify this by elaborating on Mr B's sobs.

Target sign: sobbing

I have only mentioned Mr B's *sobbing* shortly, but as Mr B never sings, and it is very difficult to e.g. determine when his snapping with the fingers is in beat, I think this emotional expression can tell something about Mr B's reaction to the music. In the following I compare the data I have on the sobs.

Mr B's sobbing is a soundless change in the breathing simultaneously with a sad facial expression. The sobs are very clear to recognize sitting beside Mr B, but easy to overlook on the video material, therefore I marked each sob to the video camera with a sign with the index finger. Table 6.5 shows number of sobs in the 20 sessions.

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Sobs	1	1	2	12	4	0	5	0	5	0	3	1	2	2	6	1	2	2	0	3

Table 6.5: Number of sobs in each session

The sobs can be divided in three groups, and compared with the heart rate data there seems to be the following relationship: (See table 6.6)

Number of sobs	**Bpm**	**Sessions**
0	71 - 86	6, 8, 10, 19
1-2	66 - 76	1, 2, 3, 12, 13, 16, 17, 18 and 14
3-12	63 - 68	4, 5, 7, 9, 11, 15, 20

Table 6.6: Relationship between number of sobs, bpm, and number of session

Displayed on a line showing heart rate data from 63-86 bpm the following picture is given (figure 6.13):

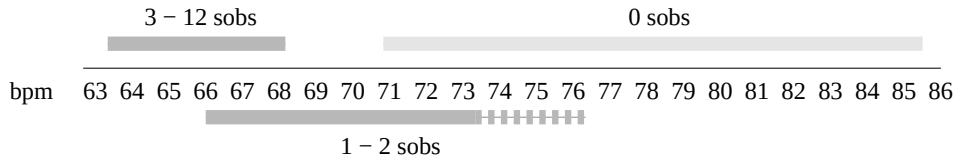


Figure 6.13: Sobs connected with mean HR of the session. Session 14 deviate as bpm is relatively high. This makes a jump in bpm marked with the dotted line

Altogether 52 sobs occur, and all of them occur during singing, which makes it clear that it is a response to the songs. There seems to be a clear connection between low heart rate and emotional response in the music therapy setting. Interestingly half (25) of the sobs occur just at the beginning of the songs, which might indicate that the sobs are elicited when Mr B recognizes the song. None of the sobs occur at the very end of the song.

Often when a song is recognized it happens when the refrain starts. If the sobs are connected to recognizing it would mean that the sob is elicited later during singing when the refrain is the trigger.

In the questionnaires staff were asked to tick off if Mr B was crying. Crying is not an adequate term for sobbing, so this could be the reason why it was not ticked off a single time during the whole course of therapy. Another explanation could be that in fact he does not sob – only in connection with music. But the day after our very last session staff noted Mr B was crying 2-3 times. This happened at a celebration at a well-provided lunch at the unit (with Danish smørrebrød) when the music therapist was playing the accordion.

In the music therapy we have seen that the sobs are expressed in connection with songs, often right at the beginning of the song. It would be interesting to see if there is a connection between structure of session and sobs; if sobs occur in special parts of the session. Using the structure categories described at page 97 it appears that no sobs occur when the greeting song is sung, 12 sobs occur in the structure part, 3 in the middle part, 35 in the dialogue part and 2 during singing of the last song. 35 sobs in the dialogue part is a big number but it is clear that the number is depending on how long time this part lasts. If the dialogue part is the longest part of the session natural spreading will cause highest number of sobs to be here. Table 6.7 shows, a) length of all sessions from start of the first song to end of the last song, and b) length of the dialogue-part, starting from the first song after the song "Roselil" ending with the last song but one.

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Sess./min		26.5	23	27	38	22	36	27	35	16	34	27.5	30	25.5	25	31	24	28	27.5	31
Di. / min		7.5	9	4	20	0	17.5	8	12.5	0	19.5	12.5	16	13	11	17.5	13	18	17	13

Table 6.7: Length of sessions and length of dialogue-part

From this we can calculate that the dialogue-part generally takes up 43% of the time during the sessions *including* the sometimes longer naps in this part (see session 20, figure 6.12) where no sobs occur. The distribution is seen on the pie chart, figure 6.14.

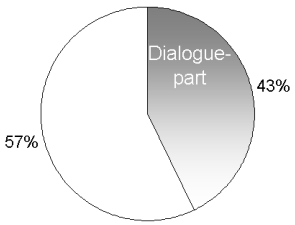


Figure 6.14: Dialogue-part occupies 43% of the session

With a natural spreading 43% of the sobs should be in this part of the session, but with 35 sobs in 52 the percentage (67%) is much higher as shown in Figure 6.15.

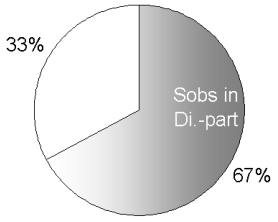


Figure 6.15: Amount of sobs occurring during the dialogue-part occupies 67% of the session

In table 6.5 we see an extraordinary high number of sobs in session 4. Nothing in my papers can "explain" why Mr B seemed to be so easily affected that day, but surely this session distorts the percentage above a lot, as 7 in 12 sobs happen in the regulation-part of the session. If percentage is calculated excluding session 4, as much as 75% of the sobs occur in the dialogue-part.

The fact that a bigger number of sobs occur in the dialogue-part shows that on some occasions Mr B is responsive already in the first part of the session, but that he generally is most responsive in the dialogue-part. This indicates that building up a structure increases Mr B's possibilities of meaningful interaction.

Summary

I have shown examples of how a session can graphically be displayed combining time scale data, heart rate data and overall information of the session such as number and length of songs, and few target communicative signs. By exploring the target behaviour of sobbing it is clear that this emotional expression occurs more often in connection with personal songs in the dialogue-part of the session. This indicates that building up a structure for the music therapy using songs as cues and as means of regulating activity or arousal level facilitates and enables Mr B's ability to experience and express inner feelings.

Conclusion

Mr B has been described as a man suffering from severe cognitive deficits caused by dementia, and it is questionable if he will benefit from or will make use of music therapy as he generally shoots from levels of hypo-arousal to levels of high arousal, which makes it difficult to engage him in situations here and now. By looking at overt behaviour of compliance, like e.g. if he remains seated during sessions, it is concluded that he shows compliance. Additionally there are characteristic changes in heart rate patterns from before to after the whole month with therapy, which could be explained with a carry-over effect of the music therapy. When looking at regulation categories – examining changes in the first part of the music therapy session compared to average heart rate – a clear change in the pattern occur during the last half of the sessions. This indicates that Mr B reacts on and at some level recognizes the structure built up in the setting by balancing at a more optimal level for environmental attention. Being more attentive to the present situation makes it possible for him to be engaged in the music therapy and he shows emotional reactions to the songs, for example by sobbing. Mr B needs more than two weeks of daily music therapy sessions before he seems to react to the structure of the session, which has implications for clinical practice, where short term therapy, e.g. 10 music therapy sessions carried out once a week, seem to be too little. Frequency and number of sessions might have an important influence on the therapy with persons with dementia.

Mr B seems to be more engaged in the therapy during the last part of the sessions, the dialogue-parts. This shows that engagement in music therapy can depend on the way in which sessions are built up, and that a structure of cues (special songs, the room, the surroundings, small rituals, the interaction . . .) helps Mr B to react and interact appropriately and meaningfully.

Later I will include close up analyses on a single event with Mr B at page 222 and on single sessions at page 240, but first I will introduce the other participants and present their cases in the same way as I have done here with Mr B.

6.2 Mr A

Profile

Appearance

Mr A is a neatly dressed man in his eighties with an arch smile in his light blue eyes. He is slim, not very tall and has a stooping – and little lopsided – gait, suffering from osteoarthritis. In spite of this he seems agile and in good form. He has thin, white hair and a lively glint in his eyes. He gives a broad warm smile when staff comes to visit, but can be hostile and angry when peer residents come too close.

Manner

Mr A prefers staying in his apartment at the unit. His living room is beautifully arranged with elegant old furniture and he walks about putting things in order. Each thing seems to be placed precisely on it's own particular spot, and Mr A gets suspicious and angry when he realises that things suddenly have disappeared. Mostly he or staff find the missing things again to be placed in another cupboard or on a shelf. His door is mostly locked, but now and then he leaves the door open and walks to and fro between the doorway and his window, or he stands for a while in the doorway looking if something happens at his corner. If a staff member passes by he greets, smiling and friendly, whereas certain peer residents who show a peculiar behaviour are met with a scowl and sometimes a threatening fist. If a child should pass by he lightens up, and quickly fetches a box of chocolates or biscuits. He enjoys it when his family come for a visit. He asks them to bring bread and butter, and makes a sandwich for himself, if he is hungry outside mealtimes.

Story of life

Mr A was born in a big Danish town in a family of 6. He married during the German occupation of Denmark, and he and his wife had 3 children. He has technical training, and maintained and ran bigger machines on different big factories. In the fifties he worked at a factory, where he ran machines for dip painting, e.g. venetian blinds. He later told his children that he thought this work gave him brain damages. He was very active. Additional to his ordinary work he worked as a caretaker at a block of flats, belonging to his father-in-law, where he and his family also lived. He took care of the property with all his skills, and simultaneously ran a smaller company with his brother. For the last 12 years of her life his wife suffered from hemiplegia, but he arranged to work early in the morning, so he could be back at noon to take care of her. He had meticulous order at home and it was a big challenge for the home help who came to clean the flat when his wife was ill, which the help could never do well enough in his opinion. In these situations he would show his temper, but his normal appearance would be kind and reserved. He retired early to have more time for his wife, and after she died he would visit her grave almost every day. After her death he totally withdrew from social contact and even on Christmas Eve he preferred to stay on his own. Mr A moved in at the unit 1 year and 4 months before starting in music therapy. His children were conscious about his mental condition and applied for him to go to a special unit and not to the local residential home.

Diagnose

Alzheimer's Disease

Medication/aids

No antidepressants/antipsychotics
PN: analgesic (Pamol)
Hearing aids

Stage of dementia

FAST: 6 (in 7)
MMSE: 2-6 (in 30)

Network

Mr A did not have any friends, and his younger brother, with whom he for years had a smaller company in their spare time, died. But his children and their families come visiting once or twice a week, which he enjoys very much. He has 3 children and 7 grandchildren.

Condition

Mr A's mental condition is very shifting, which is also seen on his MMSE score, fluctuating from 2 to 6. His score is depending on his actual state and one day he can be very clear and lucid, being unclear and confused the next.

For many years Mr A did not hear well, but would not accept hearing aids. His contact staff succeeded in convincing him of giving the aids a try, and at the time he started in music therapy they were still new to him. Being very meticulous he several times soaked the hearing aids over night to keep them clean. This resulted in some sessions without the aids, until he got them back from repair service. When he uses his hearing aids it is possible to have a conversation, but only when the person he is talking to uses short sentences, speaks distinctly, and on a subject that is concrete.

He often has a pain in his shoulder. The pain is probably a result of the heavy work when he took care of his wife. Apart from osteoarthritis his physical condition is good, and he eats and drinks sufficiently. Mostly he sleeps well at night, but occasionally he sleeps very late or is awake the whole night, walking about in his living room.

Music

Mr A's children say that he never seemed to enjoy music. They never heard him sing or whistle, he never went to concerts, listened to the radio or saw television. So when they were asked to consent to his participation in music therapy, they were quite sceptical and did not believe that he would be willing, but thought it was worthwhile giving it a try. It was not an inclusion criterion that participants should have been engaged in music, and Mr A certainly did not seem to have been.

ADL & different symptoms

Mr A is able to wash and dress himself if a staff member is there to guide him through the different steps. His is very thankful towards staff for this help and often says: "How should I manage without you". If he feels hunger he makes himself a sandwich, and at dinner he is able to handle knife and fork. In music therapy he does not use the song book and does not show any interest in reading. He prefers his door to be locked, and when he leaves his apartment, e.g. going to music therapy, he himself locks the door with his key.

Symptoms of **aphasia** are increasing. He has difficulty finding nouns and often replaces these with sounds, gestures or transcriptions. If he does not understand what is said in a conversation he reacts with insecurity or with distrust and anger, especially towards peer residents.

He has no problems finding his own door, but he seldom leaves the unit or goes for a walk in the garden. During the six weeks he did this 3 times. He sometimes stands at the front door to the unit, attentively keeping the door open when people walk in and out.

Mr A's symptoms of **amnesia** are already far-reaching. He needs guiding in all doings as he otherwise forgets what he is occupied with, e.g. that he is in the process of dressing. When I come to walk with him to the music therapy room he often does not recognize me. But then when we enter the room he looks at me again, and his facial expression and the glimpse in his eyes show evidently that now he knows what it is all about.

BPSD

CMAI	agitation
phys. agg	(x)
∼ non-agg	(x)
verb. agg	(x)
∼ non-agg	(x)

Table 6.8: CMAI - Mr A

Mr A scores low on the Cohen-Mansfield Agitation Inventory. He only shows agitated behaviour less than one time a day. This mostly happens when peer residents are behaving inappropriate, when he has hidden e.g. his purse and then cannot find it himself believing it has been stolen, or when people around him are having a conversation that he cannot follow which makes him insecure or angry. Atypically for many of the residents with dementia he is able to appreciate help from staff in personal care situations, which makes care much easier and leads to less agitation. It is difficult for Mr A to participate in group activities. In these situations he e.g. snaps peer residents over the fingers if they take an extra piece of cake, and he would demand 100% attention from staff.

Evaluation of the music therapy process

For many years Mr A lived isolated, only appreciating social contact with his close family. He did not participate in any cultural or social activities outside his home, and at the unit it was very difficult to engage him in activities with more people, as he would be aggressive to peer residents. It certainly was important that the music therapy was individual, but still it was questionable if Mr A would find singing an appropriate activity, and if the songs would have

some meaning to him. The headlines for the analyses in the following part are *compliance*, *regulation*, and *carry-over effect*.

Mr A participated in all 20 music therapy sessions, but in session 5 (in week 2) he did not carry the heart rate monitor, which means that there are no heart rate data for this session.

Compliance

After I have sung the first song in the very first session – an old morning song – Mr A says: "You sing wonderfully". After the next song, another morning song, he says: "There is somebody that hears when you sing". After the third song he laughs and after the fourth one he says: "That was good". From the very beginning of the therapy Mr A shows compliance. This is shown at his facial expressions (smiling, laughing, frequent eye contact), verbal statements (many positive comments, thanking for the songs), and gestures (tapping beat, marking musical phrases, holding hands, and a couple of times kissing music therapist's hand). Staff and family are surprised and pleased to see Mr A reacting so positively to the music therapy when they after the end of the therapy course see the video clips. It is very clear that Mr A appreciates the sessions and that he shows a high degree of compliance, so I will go directly on to look at the next question that emerges: is Mr A at some level influenced by the music therapy; can we see some regulative effects?

Regulation over time

Looking at Mr A's average heart rate during the therapy course shows that it mostly varies between 60 and 70 bpm. In the first 3 weeks the variation is more pronounced than in the last week. See bar chart, figure 6.16

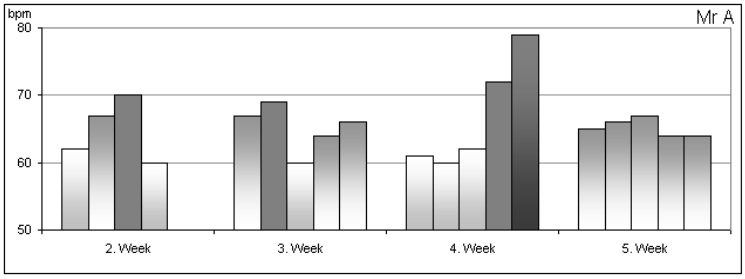


Figure 6.16: Mean heart rate (Mr A) during all sessions except for session 5)

Table 6.9 shows the frequencies of mean HR ranging from 60 bpm to 79 bpm. The distribution of mean numbers is here categorized in four groups, labelled: *low, moderate, high, and very high.*

Occurence	|||	|	||		|||	|	||	|||		|	|	|				
Bpm	60	61	62	63	64	65	66	67	68	69	70	71	72	73	....	78	79
	Low				Moderate					High					Very High		

Table 6.9: Distribution of sessions according to mean HR in bpm

The labels *low*, *moderate*, *high* and *very high* are relative and in this case they are specific to Mr A's heart rate data. The shading on table 6.9 have subsequently been adapted to the bar chart, figure 6.16.

Table 6.10 shows the distribution of sessions according to mean heart rate. In the first 3 weeks of music therapy Mr A's average heart rate measured in each session is varying very much. However his heart rate seems to stabilize at moderate levels in the last week. This could mean that all in all Mr A now reacts to the certain structure built up in the music therapy and that gradually the therapy might have regulative effects on Mr A. Here it is relevant to consider the average heart rate in week 1 and week 6 (the baseline measurements before and after music therapy) to see if it reflects the same tendency.

Label	**Bpm**	**Sessions**	**No.**
Low	60 - 62	1,4,8,11,12,13	6
Moderate	64 - 67	2,6,9,10,*16,17,18,19,20*	9
High	69 - 72	3,7,14	3
Very high	79	15	1

Table 6.10: Distribution of sessions according to mean HR in bpm

Carry over effect

The two line charts, figure 6.17 and figure 6.18, show heart rate curves in the weeks before and after music therapy. Unfortunately no contact staff were in Mr A's group on the 4^{th} day in week 6, and he refused to have the heart rate monitor put on in the morning. On the 1^{st} day in week 6 Mr A is resting on his bed, and it was not possible to place the heart rate receiver near him. I normally would fasten the receiver on his back with a safety pin. I did not want to put it around his wrist like a watch as it was meant to because I feared he would hide it (as he often did with his purse, glasses and other things) or he would soak it in water (like he had sometimes done with his hearing-aids). So on this day I had to stay beside his bed in order to receive the heart rate data. I sat quietly beside him trying to be friendly but neutral – suppressing my wish to sing a song to him. He smiles at me, but does not seem to recognise me, and remains lying on the bed. His heart rate is very low and as it seems relatively stable I stop measuring after 2:25 minutes. This makes the curve very short as can be seen in figure 6.18 in the left low corner.

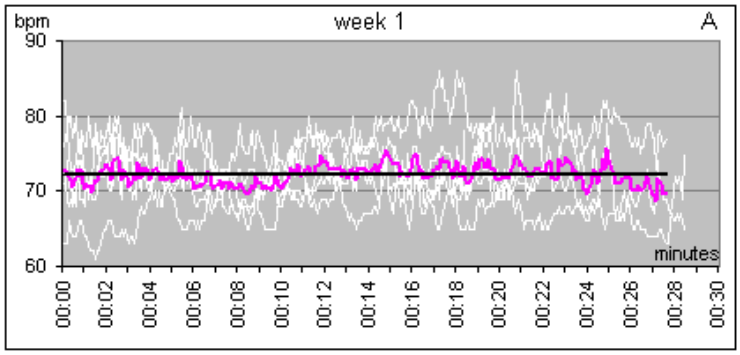


Figure 6.17: 5 HR curves in week 1 + the mean curve + the total mean HR level

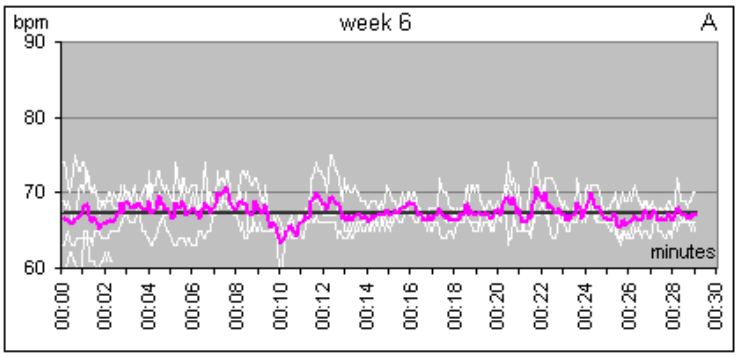


Figure 6.18: 4 HR curves in week 6 + the mean curve + the total mean HR level

Comparing the two figures we see much more variation in week 1 and kind of stabilization in week 6. As already mentioned on page 115 we cannot generalize from these numbers, but compared with the observations above in table 6.10 where the average HR were at more stable and moderate levels in week 5 (sessions 16-20) which now continues in week 6, we can establish that some change appears and suggest that the music therapy has a carry-over effect on heart rate levels.

The straight line in the middle on the two line charts represents the mean HR during all measurements in the whole week. In the bar chart, figure 6.19, the focus is on the two mean numbers from week 1 and week 6. From week 1 to week 6 there is a drop in average bpm on 4,8 bpm. If other data point in the same direction the drop in average bpm could indicate a drop from a level with higher arousal to a more moderate level.

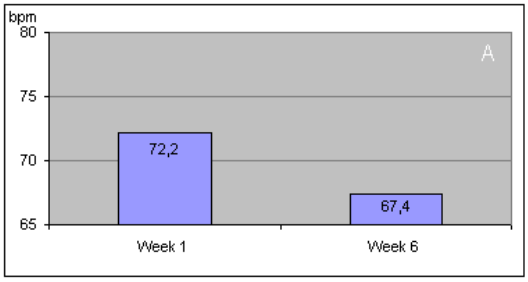


Figure 6.19: Mean heart rate (Mr A) in week 1 and week 6

Regulation in the music therapy setting

From mean numbers I want to go closer to the single session, looking at some overall aspects of Mr A's reactions to the music therapy. I examine the tendencies in the first part of the session and this can be illustrated in the bar chart, figure 6.20. More details about the calculations are explained on page 115.

There are no heart rate data in session 1, 5 and 7. In session 1 the monitor was not placed correctly on Mr A's chest, and only received signals from the heart in shorter periods. Particularly in the beginning of the session it received poorly. This happened as well in session

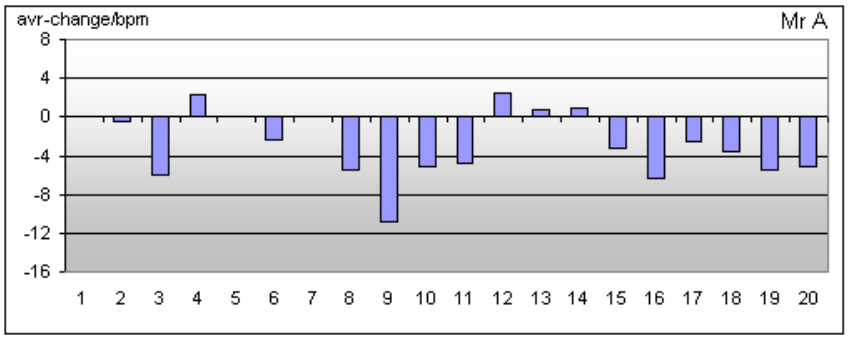


Figure 6.20: Decrease or increase of bpm during first 7 minutes of sessions 1–20

7. In session 5 Mr A was not equipped with the monitor.

The division of the data shows the following phases in the music therapy process (see table 6.11).

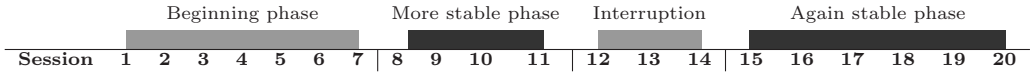


Table 6.11: Different phases in the music therapy course

A quick glimpse on figure 6.20 and the above table once again give the impression of week 5 being more stable than the other weeks, supporting the suggestion that the music therapy now, after 3 weeks seems to have some regulation effects on Mr A. The music therapy has a beginning phase, where data are unstable and show no clear patterns. Then comes a more stable phase, where Mr A calms down in the beginning of the session. This phase is interrupted in the middle by a phase where an increase in heart rate is seen in the beginning. These phases are consistent with the impression I as a music therapist have of the therapy process, and I will return to this later.

Regulation categories

When Mr A enters the music therapy room he sits down and in most of the sessions (13 sessions) this results in a decreasing heart rate. This is what is normally expected when a person sits down. But 4 times his heart rate increases and I have to consult more data to explain this. First I want to include the regulation categories (for explanation see page 117) that are presented in table 6.12.

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Category		di	di	*id*		di		di	di	di	di	*id*	*id*	*id*	**dd**	di	di	di	di	di

Table 6.12: Regulation category in each of the sessions

Most of the sessions are in category dec-inc, which means that after the first decrease in bpm, the heart rate increases again. This generally gives the impression of a session where the person calms down and then in some sense is active in the session.

If a person calms down and heart rate continues decreasing it could be a sign of the person dropping off, not able to participate. Category dec-dec could indicate this, which is seen in

only one session; session 15. Consulting the data it is clear that Mr A needs a rest in this session and he falls asleep several times. He has not slept the whole night, but has walked about in his living room. He talks a lot and much faster than usual, and it is difficult to find a meaning in what he is saying. Already in the second song he is lost in his own thoughts, and soon after he sleeps for a little while. His heart rate however remains high, and not until 20 minutes in the session he sleeps for longer periods, and the heart rate decreases at last. It seems obvious that Mr A is highly aroused and in this situation his participation in the music therapy allows him to calm down – and here with a decrease in bpm followed by a decrease – and attain a more moderate level.

If this decrease – decrease happens when heart rate is already low, it would most likely mean that the person drops off into sleep. With a low heart rate, a decrease-increase or increase-decrease would be most positive to the process as they indicate an increase. Category inc-dec is seen in session 4, 12 and 13 just where the heart rate was already low, and the increase – decrease seems to be a regulation in the right direction. Even with low heart rate no category inc-inc is seen in Mr A's case.

In session 14, where a category inc-dec is also seen, the pattern is different, as the heart rate already is high at the beginning. Even if the increase on the tendency line is only 1 bpm (from 72,7 to 73,7 bpm) it calls for further attention that the heart rate remains high. Later in the session smaller drops in heart rate are seen and Mr A dozes off now and then, but only very shortly before he wakes up again. In the end of the session his heart rate drops off to levels at 67 bpm. In session 14 Mr A is aroused to a level just on the threshold of being too aroused. His questions are relevant, he seems concentrated, he laughs, taps the beat, sings a few strophes, and seems to recognize me when I meet him at his door. In one way he seems top fit, in another he seems not to be in balance. Knowing some details from the context of the last sessions makes this clearer. The two previous sessions has been held in his living room as he wanted to stay in bed and apparently was in pain. Now in this session he suddenly appears to be at his peak and, what I later learn, is not able to calm down in the evening with the consequence that he does not sleep the whole night. Even though he calms down a bit during music therapy in session 14, he later on in the day or in the evening must have regained the already high level of arousal from the morning and to some point have exceeded the threshold, resulting in a night without sleep. The next day his heart rate is even higher, but decreases strikingly in the last part of the music therapy session.

It seems clear that Mr A has had two days where he withdrew and wanted to stay in bed, followed by two days where he shoots to the opposite behaviour. On the day for session 14 there were no contact staff in Mr A's group. It might have caused a break in his daily routines – routines that could have helped him regaining a poised stage. As mentioned before his heart rate peaked in session 15, but decreased during the first part of the session, and continued decreasing (category dec-dec: Decrease – Decrease). This illustrates that music therapy sessions as a fixed point in this participant's life can be a reassuring daily routine and that this routine in itself has regulative effects. Additionally, music therapy techniques used in the very session can regulate arousal level towards more balanced levels avoiding too big fluctuations of hypo- and hyper-arousal. Week 5 illustrates this more balanced level where heart rates concentrate at moderate levels.

Summary

Mr A shows unexpectedly high compliance in the music therapy. In the first weeks of participating in music therapy heart rate fluctuates between low, moderate and high levels, but then seems to stabilize at moderate levels. This tendency to stabilize at moderate levels continues

even after music therapy has finished and indicates a carry-over effect of the therapy. In the last week another pattern is noticeable; Mr A's heart rate decreases in the beginning of the sessions but then later increases to a higher level. This way of reacting seems to stabilize and shows gradually a pattern where Mr A reacts in a balanced manner to the sedating effects of the music therapy setting followed by stimulating effects.

Communicative signals

Mr A shows lots of responses to the songs, spread out over the whole session. As a random example the following responses are written in transcripts from video data in the first 5 minutes of session 17:

> He "smiles, holds my hand, nods, bops foot up and down in beat" during the greeting song (session 17 at 10:49:29). In the break between songs he "smiles and squeezes my hand". During the next song he "smiles, holds my hand, gets eye contact, nods, gets lost in his own thoughts."

In the following 3 examples of session-graphs (see page 135) I have chosen to mark singing/verbalizing, sleeping, and acts orientated towards music therapist (as when he takes my hand, or turns towards me). Holding hands is not marked here, as it is not clear if the initiative is from Mr A – only when I read an act directed towards the therapist in the transcripts it is marked "x" in the graphs. The session-graphs give a more detailed picture of the music therapy session than just heart rate data, but still they are outlines. These visual outlines are helpful in further handling of the data. As examples they might give an insight into some aspects of the music therapy setting.

The two first examples are clearly two extremes: In session 13 Mr A's average heart rate is very low, in session 15 it is very high. Session 13 is in regulation category inc-dec, session 15 in category dec-dec. The third example, session 17, is in category dec-inc.

Example one

In session 13 (see figure 6.21, page 135) we are more than half through the music therapy course. Up till now Mr A has shown a high degree of compliance, and a certain stability already seems to have happened in his responses to the therapy. But then in session 12 I find him lying on his bed with closed eyes and deep knitted brows. I do not ask him to come with me, but sings softly to him at the bedside. He slightly nods to the songs and now and then he opens his eyes and looks at me.

The next day in session 13 I find him in his bed again. I bring the video camera and again make a session at the bedside. After the greeting song Mr A shakes his head and says: "don't ruin yourself, because I know ... suddenly get caught if you do ..." (sess. 13 - 11:18:05). I assure Mr A that I will not be ruined and that I would like to sing some songs to him. Later he calls himself an old gnome; "such an old gnome like me" (sess. 13 – 11:35:26). I say: "such a kind old gnome" and he answers: "orh, yes". I then say: "such an *angry* old gnome" and again he says; "yes". I shake my head and assure him; "it doesn't matter". This dialogue is very intense and I feel we have a mutual understanding. In all the sessions up till now Mr A has been smiling, friendly, attentive, and active. In the last two sessions he has shown me a total different face. I feel it is very important to accept this other Mr A lying on his bed; this angry old gnome, and to assure him that is does not harm me to see him like this.

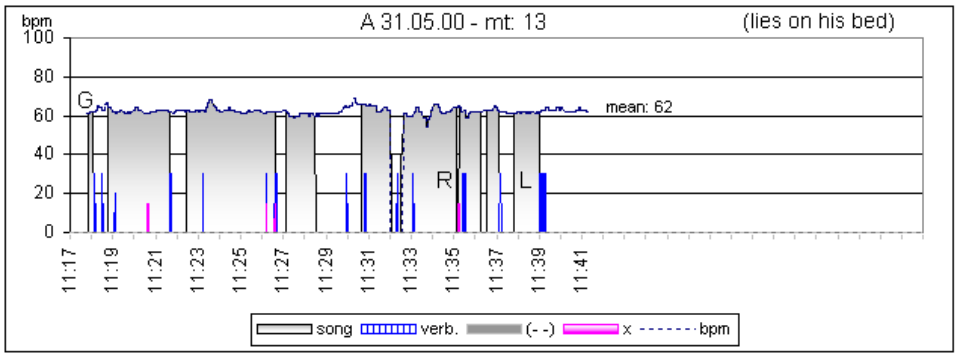


Figure 6.21: *Example 1.* Session-graph, Mr A – session 13

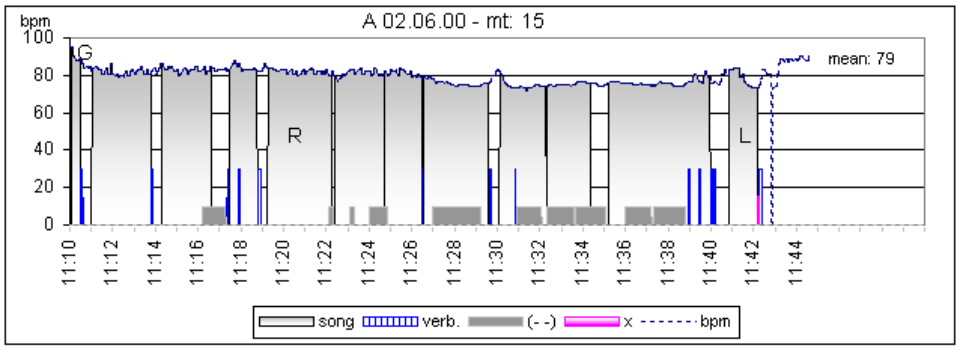


Figure 6.22: *Example 2.* Session-graph, Mr A – session 15

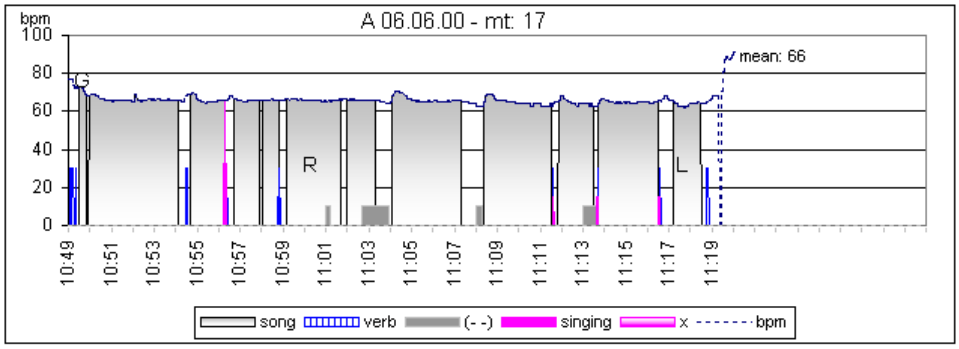


Figure 6.23: *Example 3.* Session-graph, Mr A – session 17

After the session Mr A says: "I will pray to the Lord to take care of you now" (sess. 13 – 11:39:10), and he waves to me when I leave the bedside.

Figure 6.21 shows a relatively short session lasting 21 minutes. Mr A's heart rate level is relatively low with smaller fluctuations (when he lifts his head from the pillow). I keep the structure of the session, but only sing one song in the dialogue-part. Mr A verbalizes (verb.) several times and is positively orientated towards me (x): strokes my hand and my cheek. The verbal dialogue about the old gnome takes part when I sing the song "Brother Jacob" just after the song Roselil (R).

Example two

After 2 music therapy sessions at the bedside where I as a music therapist meet and accept another side of Mr A, he certainly is back to business again! In the 14^{th} session, which is described at page 133, he is at his peak but calms down a bit in the end of the session. In the next session, session 15, his heart rate at the beginning is even higher than in session 14. But it decreases during the first songs and later decreases again (see the session-graph page 135). This session is relatively long and lasts 32 minutes. Between several songs there is almost no break. A break can be seen as a signal to Mr A to take the turn and be active, and this is avoided by going from one song to the next. This technique combined with the "neutral" character of the songs makes it possible for Mr A to relax, and he ends up sleeping several times. Letting him have his small naps can be helpful in regulating the arousal level. In the end of the session I say; "thanks for today", and he answers by giving a hug.

Example three

Session 17 is an example of a "stable" session. The heart rate is at a moderate level and the regulation category is dec-inc. Category dec-inc is the most frequent category, especially in the last part of the therapy course. I sing 12 songs and the session lasts 29 minutes from the first to the last song (see page 135). Mr A verbalizes (verb.) between the songs, takes a small nap four times, and 3 times his attention is directed at me (x) when he pats my hand or knee, or leans towards me. In the third song he sings the very last line of the song with me! Mr A does not sing very often and when he does, then just for a short time. He shows active participation in many ways but seldom by singing himself. He uses singing as an active way of communication and in the following I will deepen this way of communicative sign.

Target sign: singing

Mr A never joins me in singing a whole song or a whole verse – only twice he sings some single words with me. His way of singing is using small melodic verses as replacement for talking: he sings "thank you for the wonderful singing" or "have a nice trip home". All in all the singing only takes place 13 times and the event coding shown in table 6.13 shows in which sessions it occurs.

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Singing				|	|	||			|	||	|			||			|		||	

Table 6.13: Number of times Mr A joins in the singing

I see no clear pattern with Mr A's singing as with Mr B's sobbing. He sings when average bpm is moderate, and on two occasions when it is low. In session 14 Mr A's average bpm is

Structure of session	G	Regulation part	R	Dialogue part	L
Occurrence of singing	||	||||	|	||||	||

Table 6.14: Relation between structure of session and singing. G, R, and L are the structure songs

high and here he sings twice. The spreading (illustrated in table 6.14) in proportion to the structure of the session shows a very regular distribution, indicating that the singing is not depending on the structure.

Most of Mr A's singing consists of small, improvised melodic sentences. The contents of the sentences are relevant and appropriate, except on one occasion where he sings: "Who lives up there that sits and . . . sings together with you?" It is striking that all the other small singing episodes are relevant, with correct grammatical structure, and with no word-retrieval problems. They deal with the "here and now" situation and are grammatically all in present tense, except 3 questions that are in future tense. This fact is interestingly contrasting the image of old persons, only able to dwell in the past. When I code the contents in these few sentences, it shows that 17 times he either thanks or gives a compliment (sometimes both possibilities in one sentence). 3 times he puts a relevant question asking if it is time for me to leave now or wishing me a nice trip home. One time he greets me by singing hello ("Goddag"), one time he copies a refrain from an old ballad, but uses it to ask his question, and one time he expresses the importance of being together and being understood by the music therapist. He sings: ". . . it is lovely to have it sung, such a wonderful song, so you understand. . . "

In our western culture it is not common to make dialogues by singing; only in Hollywood it seems to be accepted or even worshipped when the hero serenades the heroine. On some occasions it is possible that words come more easily when put in a melodic and rhythmic frame. When Mr A sings his thoughts to me instead of using spoken language he seems more clear and precise. Creating a setting where singing dialogues are natural might be an important difference to Mr A in the long run allowing him this creative way of expressing himself.

Summary

Mr A shows active participation in the music therapy in many different ways. In the graphical outlines I have focussed on verbalizing, singing, and being orientated towards the therapist. The analysing of one communicative signal (Mr A's singing) shows no pattern in relation to the structure of the session. There might be a relation between singing and low to moderate heart rate, but the number of only 13 events is too low to state this with certainty. Mr A mainly makes use of the songs to express thanks and compliments, and in general the contents of his short, improvised songs are relevant, appropriate and meaningful.

Conclusion

Looking at the heart rate data both before, during and after music therapy and combining these data with clarifying data from video observations, music therapist's log, medical charts and staff's observations shows some of the effects that a music therapy course has on a man suffering from severe dementia. Mr A responds very positively and clearly enjoys the sessions. The data shows that he remains seated during the sessions and that his heart rate gradually stabilizes at moderate heart rate levels, which even seems to last during the week, after the music therapy has stopped. The music therapy seems to have regulative effects on Mr A; he calms down in the beginning of the sessions, but not more than being able to

participate actively in the session. His activity in the sessions seems not to be depending on the structure of the session. Two sessions in the third week are held at Mr A's bedside and it seems to be important that the music therapist accepts this part of Mr A, where he feels bad and depressed. In half of the sessions – but for only a very short time – Mr A sings short, improvised passages. When he uses this way of expressing himself he appears clear and relevant and in a direct, "here and now" dialogue with the music therapist.

6.3 Mrs C

Profile

Appearance

Mrs C is a chubby, smiling woman, 80 years old, with her short, straight, grey hair combed back. She is mostly dressed in colourful, fancy chintz dresses. Often she sits with her eyes closed, or she potters about in a slight stooping, but vigorous and stable gait. She talks a lot, in a gentle voice, and often with the same sentence or the same words repeated over and over again.

Manner

Mrs C very often sits with her eyes closed. It does not look as if she is sleeping, as her body is straight and not laid back. She often finds an armchair in one of the recesses at the unit where she sits for longer periods; mostly at the window just in front of the door to her apartment. When not sitting she usually walks about, and likes to join Mr B on his walks, holding his hand. She seems to like company and activities, and then chuckles and talks. She is not that friendly and obliging when the personal morning care is to be carried out. She simply does not want this help, and in order to let the situation pass as smoothly as possible, two staff members always do the work together.

Story of life

Mrs C was born at the countryside in the beginning of the twenties in a family of 9. After 7 years' school attendance she worked as housemaid in a vet's house. Shortly after World War II she met her husband. They married and later went to live in a bigger town with their two children. When the children were small Mrs C stayed at home with them, but later she started to work. In her spare time she was active doing gymnastics and folk dancing, and she enjoyed sewing clothes. The family had a big circle of friends and Mrs C often invited family and friends, and loved cooking nice food for them. In the end of the 1950'ies she and her husband bought a car and the family travelled all over Denmark and as far as Italy and Spain with a tent in the boot. The couple joined a religious congregation, which made them differ from the "ordinary Danes" as they e.g. did not celebrate Christmas and birthdays.

Diagnosis

Vascular dementia (diagnosed by GP)

Medication/aids

Antidepressants (Cipramil, $\frac{1}{2}$ mg.)
Antipsychotics (Risperdal, $\frac{1}{2}$ mg.)*
PN: ointment against psoriasis

* Risperdal is given just before bedtime to avoid the struggles the following morning, when getting dressed.

Stage of dementia

FAST: 7 (in 7)
MMSE: 0 (in 30)

Network

Mrs C's husband comes visiting once a week. He has problems with his health and the visits are difficult for him. On his visits the couple will go to the music therapy room after having drunk coffee and will listen to favourite music sitting close together in the sofa. The only child (the other died in an accident) lives far from the residential home, but comes visiting once or twice a month.

Condition

Mostly Mrs C sleeps well at night and she has a good appetite. She has circulatory disturbances, but otherwise seems in good health and seldom expresses pain.

Music

Mrs C did not play an instrument, but she and her husband took part in folk dancing for many years with great enthusiasm.

ADL & different symptoms

Mrs C is able to eat and drink on her own, but needs help in cutting the meat or the bread. In personal care situations she needs guiding and help. During the first period of her stay at the unit she hid all different kinds of objects in her bag or wrapped them in serviettes. Now her hands mostly rest motionless on her lap.

Mrs C talks a lot, and repeats her sentences many times. Sometimes her sentences seem to be relevant, but mostly it is a flow of words where it is difficult to find a meaning. Her way of talking can be characterized as "word salad"; generally there seems to be no semantic meaning in what is said, but the way things are said follow syntactic and phonologic structures of the language.

Mrs C sometimes eats odd things, such as earth from the pot plants. When she walks about it seems to be without aim, and she does not go goal-oriented to her room if she wants a rest. She might or might not recognize her husband when he comes visiting, but seems to recognize the special jargon or way of friendly teasing each other that they have created during the years. She does not recognise close family, and does not recognize me if I am not in the music therapeutical context. She never calls any staff member by their name, and it is clear that she suffers from considerable amnesia and that she all in all is not orientated in time and place.

BPSD

According to Cohen-Mansfield Agitation Inventory (CMAI) Mrs C shows physical aggressive behaviour less than one time a day. Episodes of physical aggressive behaviour such as hitting happen during personal care in the morning. To avoid these episodes Mrs C is treated with antipsychotic medication. More over Mrs C shows non-aggressive physical agitated behaviour mainly by ambulating, and verbally aggressive behaviour such as "socially inappropriate

CMAI	agitation
phys. agg	(x)
∼ non-agg	x
verb. agg	x
∼ non-agg	-

Table 6.15: CMAI - Mrs C

commentary" less than once a day. Her use of repetitive sentences is not ticked as agitated behaviour, and this means that she does not show verbally non-aggressive behaviour. Mrs C is treated for depression with a lower dose of antidepressant.

Evaluation of the music therapy process

Once a week Mrs C joins a sing-along at another unit with many people gathered, which she seems to enjoy, although she sits with her eyes closed much of the time. Now and then she participates in another activity, e.g. folk dancing, and smiles and laughs when she steps around doing the simplified dances. Family and staff were positive about the idea of Mrs C participating in individual music therapy but did not have expectations about Mrs C being active and joining the music by e.g. singing. First of all my concerns were if I could reach her at some point between sitting with closed eyes and walking about/leaving the room.

Compliance

Mrs C participated in 18 music therapy sessions. In session 3 staff forgot the music therapy and brought her to the Wednesday sing-along as usual. In session 6 a trip together with her husband in the minibus was planned so music therapy was cancelled.

In Mrs C's case it is difficult to "measure" compliance by registering if she remains seated. We can establish that she remained in the sofa during all sessions and did not get up a single time to leave. When observing the first session it is clear that she sat with eyes closed during most of the session. During the second session she verbalized constantly, but talking in a steady flow with words that did not seem related to what was going on. During the first 8 sessions she sits in the sofa, now and then she looks directly at me, smiles or verbalizes, but to me there does not seem to be a single reaction to the music. She seems to like the setting, but sometimes in the beginning her flow of words have a negative character (e.g.: "because that's a whore, that's a damned whore, yes yes, that's what it is, that's what it is, yes, yes, yes, yes,.. because I do not want that.. because I don't want to be here any more, because I don't like you anymore, because…" - Session 2, 10:50:16) changing over time to be more positive (e.g.: "look that sweet one over there" – Session 2, 11:05:24). In session 7 I am so much in doubt about her perceiving the music or the sounds at all that I clap my hands loud while she sits with her eyes closed. She reacts! She opens her eyes, laughs and verbalizes. 12 seconds later she closes her eyes again.

On one hand Mrs C's positive emotional valance and the fact that she stays with me, shows compliance to some extend. On the other hand the total absence of reactions to the music shows no engagement in the music therapy.

But the change occurs in session 9. Here she shows active participation when I stimulate her by moving her lively from side to side in the rhythm of the song. As if we are doing a sitting dance. I will return to this later and first give an overall description of the session,

using heart rate data among other data.

Regulation over time

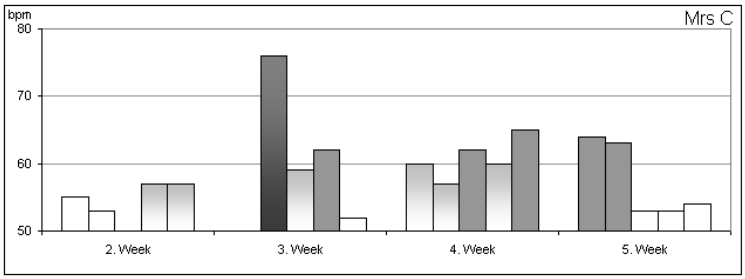


Figure 6.24: Mean heart rate (Mrs C) during 18 sessions

Figure 6.24 shows the average heart rate measured in each of the 18 sessions. Mrs C generally shows a very low heart rate, which in this sense fits to the given description of a woman being very little active. Session 7 differs obviously from the others having a very high average heart rate. But consulting the transcripts and the session-graphs shows no difference from the previous sessions except that she 14 times moves to sit straight up and then leans forward and touches her shoe. Her verbalizations in the sessions are of a positive character from the very start of the session: "That is mine (takes the songbooks) . . . and you will sweet, it . . . now come here (sits down) . . . now come here little one. . . " (session 7, 10:44:40). She sits with her eyes closed most of the time and does not show agitated behaviour. But her periods of sitting with eyes closed are interrupted by her touching the shoes, and these movements could raise the heart rate level. Her verbalizations and her facial expression do not indicate that she is in pain, but when I ask her if I should take off her shoes she answers: " . . . they can break it, break on it . . . but I don't want it". She might be in pain, not being able to express it, which arouses her.

Table 6.16 shows number of session in connection with heart rate and shows a more or less even distribution between 52 and 65 bmp, with a big jump to 76 bpm in session 7. When divided in groups, 6 sessions shows *very low* heart rate, 6 *low*, and 5 *moderate* heart rate levels. Only one session shows *very high* heart rate level. Moderate heart rate levels mostly occur in the last half of the music therapy course.

Occurence	|	|||	|	|	|||	|	||	||	|	|	|										|	|
Bpm	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	...	...	76

Table 6.16: Distribution of sessions according to mean HR in bpm

Carry over effect

In Mrs C's case I would suggest that an ideal carry-over effect would indicate an increase in activity level reflected in the heart rate level over time. From week 2 to week 5 there is a clear increase in average heart rate level, apart from session 7 and the very last 3 sessions. In the last 3 sessions a sudden drop to very low levels happens and this drop seems generally to

continue in the week after music therapy has stopped, which is indicated in the next figures. Figure 6.25 shows heart rate in week 1; the week before music therapy started.

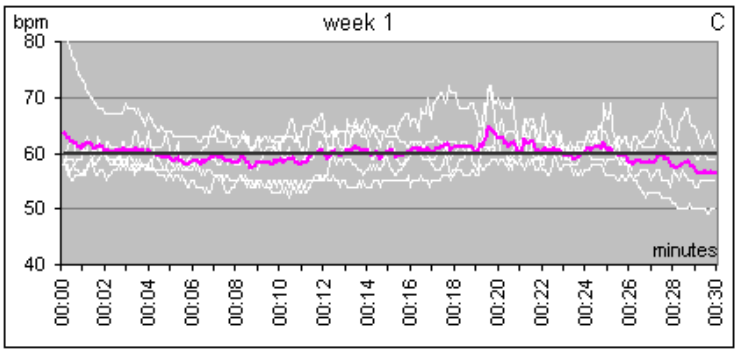


Figure 6.25: 5 HR curves in week 1 + the mean curve + the total mean HR level

Figure 6.26 shows heart rate in the week after music therapy. Generally there is a drop in heart rate levels when the two graphs are compared.

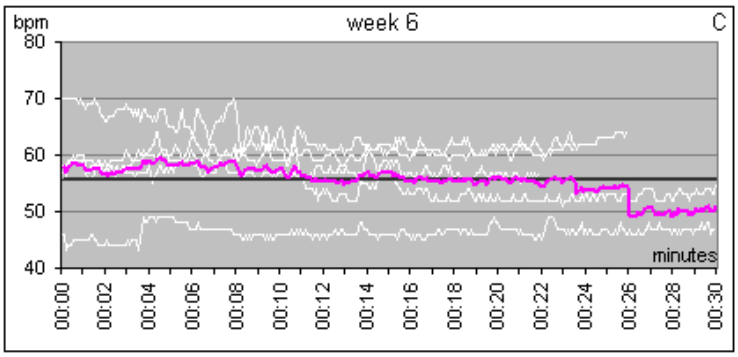


Figure 6.26: 5 HR curves in week 6 + the mean curve + the total mean HR level

Figure 6.27 only shows the mean heart rate level in week 1 and week 6 in order to compare these average numbers. There is a drop of almost 5 bpm at an already low level. As in the cases with Mr B and Mr A mean heart rate decreases after the month with music therapy. A drop is seen even if the very low curve representing the third day (see fig. 6.26) in week 3 is removed. I would not have expected such a big decrease, and would even have thought it possible with an increase in mean heart rate. Mrs C first started participating actively in the music therapy in session 9. More sessions (possible 30 or 40) might have shown a clearer pattern in Mrs C's case. Mrs C's rest heart rate level and the heart rate level when she is walking about have dropped from week 1 to week 6. This indicates a carry over effect of the music therapy.

Regulation in the music therapy setting

Looking at some overall features of the fluctuation trends in the single sessions that are displayed in the bar chart, figure 6.28, there seems to be a clear pattern in Mrs C's case that

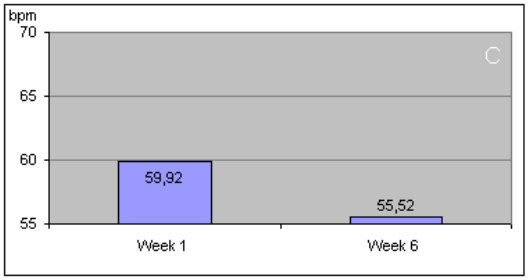


Figure 6.27: Mean heart rate (Mrs C) in week 1 and week 6

the heart rate drops in the first part of the session.

On two occasions heart rate increases: in session 2 and 15. In session 2 Mrs C is angry at the beginning and verbalizes nearly constantly. In session 15 there is a decrease in the first minutes but then the increase comes in the third song when I sing a folk song and we move/dance from side to side. To assess whether the increases continue it is possible to consider the regulation categories.

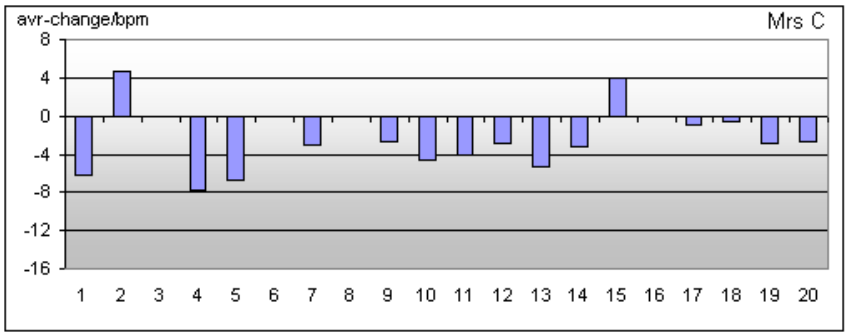


Figure 6.28: Decrease or increase of bpm during first 7 minutes of sessions 1–20

Regulation categories

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Category	di	*id*		di	di		di	di	di	di	di	**dd**	di	di	*id*		**dd**	**dd**	di	di

Table 6.17: Regulation category in each of the sessions

Table 6.17 shows that session 2 and 15 are in regulation category inc-dec (Increase – Decrease). In session 2 Mrs C verbalizes less and less, and the character of the words changes to be more positive. In session 15 Mrs C sits with eyes closed for a longer period in the middle of the session and heart rate drops slowly over time.

In session 12, 17, and 18 category dec-dec (Decrease – Decrease) occurs. This calls for attention as the mean heart rate in these sessions is already on *low* to *very low* levels, and further decreases might be a hint of understimulation. In session 12 Mrs C does not sit with eyes closed as long as in other sessions, and in that sense seems more active although her

heart rate continues decreasing during the session. She is in a good mood; smiles, laughs and verbalizes by making short comments and not the endless word flows. But she does not sing. After the session she remains seated in the sofa and I leave her there with the door open. A quarter of an hour later I pass by and see her still sitting in the sofa with eyes closed, but singing! I unpack the video camera and record the last of her singing. In session 17 and 18 the decrease in the beginning of the session is very small as well as the later decrease to mean levels. The difference is respectively 0,9 and 0,5 bpm. In both sessions Mrs C participates actively in the last part by singing. Seeing the 3 sessions labelled with category dec-dec (Decrease – Decrease) in these contexts, it is clear that the sessions do not lead to understimulation.

Summary

By mainly looking at heart rate data it is difficult to suggest the effects of the therapy, as one tendency shows an increasing trend (which could indicate increased activity level) during the whole therapy course except for the last three sessions. The pronounced drop in these sessions continues generally over the week after therapy. With only the last 3 sessions with a marked drop the number is too small to indicate any stabilisation, and it is not clear why there is this noticeable change from before to after therapy. From a general perspective it might be suggested that the music therapy has sedative effects on Mrs C *in* sessions and even in a period of a week *after* sessions. As a contrast to this she seems to be stimulated by the therapy as her participation increases. I will deepen this in the following.

Communicative signals

I have already written that from session 9 a change occurs in the therapy course and Mrs C begins participating actively. I will illustrate this by giving examples of 3 sessions. In the first example in figure 6.29 verbalizations are marked as communicative signals. Details of the session-graphs are explained at page 121.

Example one

In session 5 (see figure 6.29, page 146) the typical structure of the session is carried through starting with the beginning song (G), singing some particular songs in the middle part (around R) and ending with the song L. The session lasts 33 minutes, and I sing 14 songs. The difference between the lowest digits on the tendency line of the decrease in the beginning of the session is only slightly lower than the average bpm, indicating that this is a category dec-inc (Decrease – Increase) session, although Mrs C's heart rate level (that is *low*) is slowly decreasing over time in the middle and last part of the session. Mrs C verbalizes (verb.) in the beginning, but then follows a long period where she sits with her eyes closed (- -). The verbalizing in the beginning reflects that Mrs C is grumpy. I start the first song while we are still standing in front of the sofa. She looks angrily at me and says: "you are able to do nothing, you see, you are able to do nothing, you damn it cannot do anything, you sit there ... again. ..." (session 5, 10:43:55). I sit down and hold out my hand. She pushes it away and says: "belt up, such a Kurt" (session 5, 10:44:46), and then sits down beside me. Her angry verbalizations stop and as an answer - when session is over - to my: "see you on Monday" she laughs and says: "yes, one likes to see it, when ... home, then we had it at home" (session

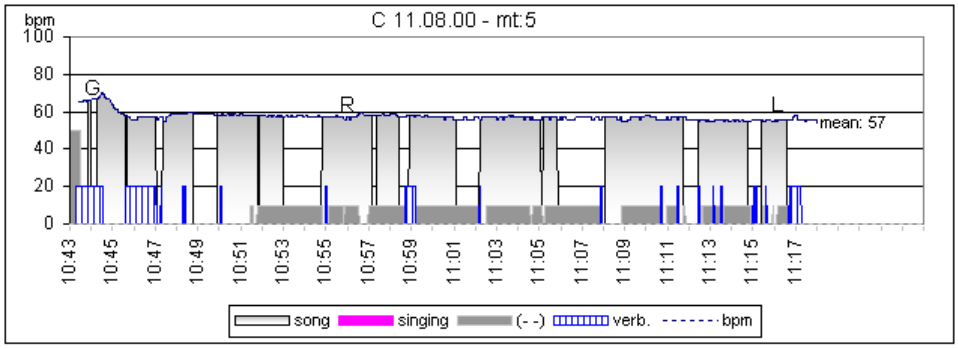


Figure 6.29: *Example 1.* Session-graph, Mrs C – session 5

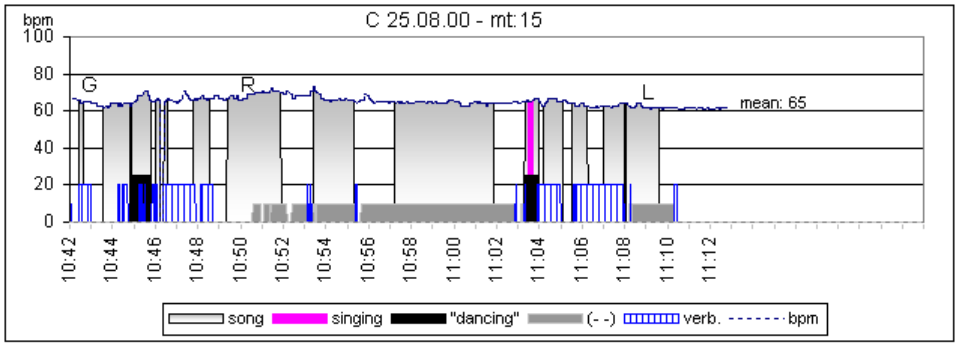


Figure 6.30: *Example 2.* Session-graph, Mrs C – session 15

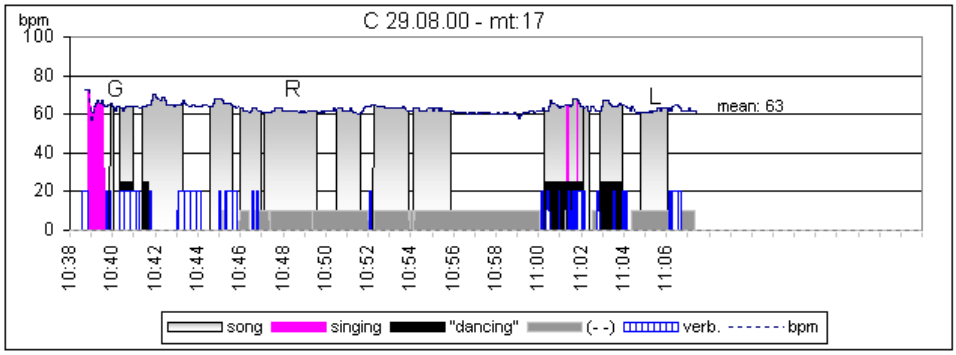


Figure 6.31: *Example 3.* Session-graph, Mrs C – session 17

5, 10:16:42). Although Mrs C did not participate actively in the session the change in her emotional valance over time seemed beneficial to her. This seemed more or less to be the pattern in the first 6 music therapy sessions.

In session 9 I change my way of contacting Mrs C. We had carried through the structure and are in the dialogue-part. I sing the song "Oh Susanna, don't you cry for me" and pull her arms back and forth like we are dancing. She joins me in the song, and later even sings a fragment of the tune on her own! In the next example from session 15 the "dancing" is added to the session-graphs.

Example two

Session 15, seen in figure 6.30 lasts almost 28 minutes and I sing 13 songs. In the first part of the session bpm increases but then later decreases: category inc-dec. Mean heart rate level of the session is *moderate*. As in session 5 Mrs C sits with her eyes closed (- -) in the middle part of the session. The verbalizations and "dancing" occur in the beginning and in the end. When the session is about to start she points at some flowers and remarks: "no, that was actually nice after dog rose. So it was nice ... at least it is beautiful" (session 15, 10:41:38). Her last words, after session is over and I have said, "thanks for now", are: "the same to you, yes, yes, yes" (session 15, 11:10:18). In the third song I take Mrs C's hand and start "dancing". She laughs and says, "yes, that was surly good" (session 15, 10:45:14), but does not participate in other ways. In the middle of the song R (Roselil) Mrs C closes her eyes and remains like that. After a long improvisation where I sing long tones in *pp* followed by a break I sing "Oh Susanna". I take Mrs C's hands again and we "dance". Her comment is "yes, that is good" (session 15, 10:03:20) and shortly after she joins me in the song for a short while at 10:03:29 and again at 10:03:39.

The next example is from session 17 (figure 6.31) where a *moderate* mean heart rate level and a regulation-category dec-dec is seen.

Example three

The session-graph from session 15 and 17 looks very much alike with verbalizations (verb.) in the beginning and the end of the session, and a longer period in the middle part where Mrs C sits with her eyes closed (- -). One big difference – that is special to this session – is that Mrs C starts the session!! We come to the music therapy room and sit down on the sofa. Mrs C appears in a good mood and chuckles and verbalizes – and then starts singing. She stops after a minute and does not sing anymore, even when I sing "Oh, Susanna". Instead she says: "You can't hear that ... yes, yes, yes, it is ... in a way it's ok ... when one is tired. Yes" (session 17, 10:40:56). I ask if she is tired, and she answers, "yes, it is". Shortly after she closes her eyes (10:45:09). Now and then she opens her eyes and I continue singing. After the 10^{th} song I make a break, but have a folk song ready when she opens her eyes. Now she is alert. She laughs, joins the song twice, and we play a kind of peek-a-boo game, where I swing close to her in our "dance" and she answers by looking surprised and saying "boo" (session 17, 11:00:59). Shortly after the second folk song she closes her eyes, and I end the session with the last song.

After 6 sessions where Mrs C only responded indirectly to the music I am able to reach her for shorter periods by the sitting folk dancing, the sofa dancing, where she suddenly joins the singing. In the following I will take a closer look at these episodes.

Target sign: singing

In session 14 Mrs C joins me when I sing a folk song that is mostly song to children. She takes over and for a while sings on her own, while I mark the rhythm by swaying from side to side holding her hands. She sings for almost one minute, and this is the longest period where she actively sings. Table 6.18 shows how many times she sings in each session.

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Singing			-			-			||||	||	|	(|)		|	||		|||	|	-	||||

Table 6.18: Number of times Mrs C is singing in each of the sessions

Mrs C sings all in all 18 times in the music therapy setting, and then one time (session 12) where I register that she sings after session is over. In session 17 Mrs C starts the session by singing before the greeting song. Table 6.19 shows where the singing episodes occur in the structure of the session:

It is very clear that the singing occurs in the dialogue-part of the session. Mostly after Mrs C has been resting for a period sitting with her eyes closed, as already seen in the session-graphs from session 15 and 17 above. It is clear that the singing occurs when I move Mrs C from side to side in rhythm of the song, as if we are making a sitting dance. 4 times Mrs C makes a solo. Twice she starts on her own; humming/improvising her own tune, and twice she first starts singing with me but then takes over and continues in her own song. She never sings words, and when she sings alone she makes her own tune. She often sings in pitch, but not always.

As seen in the session-graphs from session 15 and 17 (Fig. 6.30 and Fig. 6.31) I also do the sitting dancing in the regulation-part of the session but here Mrs C does not join the singing. The dialogue-part is mostly the longest part of the session, so it is expected that most of the singing will occur here with a natural spreading. But with not a single incident of singing during the other parts of the sessions, it is here convincing that Mrs C's active participating by singing is dependent on the structure of the session.

Even though Mrs C seems to sit inactively with eyes closed she needs the regulation in the music therapy setting before she participates actively. Apparently she is hypo-aroused, indicated by the low heart rate, her immovable sitting with her eyes closed, and her lack of active participation. The opposite seems to be the case. She seems to benefit from her small nap in the middle part of the session and is afterwards able to concentrate and interact for shorter periods of time. In the 3 last sessions her heart rate level is very low and in the week after music therapy the heart rate level continues being low. This could indicate stabilization, but 3 sessions are not enough for conclusions and a longer period of music therapy could have revealed a clearer pattern.

Summary

After the first $1\frac{1}{2}$-week of music therapy where Mrs C either sits with her eyes closed or verbalizes in a flow of incoherent words, she begins participating actively when prompted with "sofa-dancing". She joins me in the songs with small melodic fragments or she even

Structure of session	**G**	**Regulation part**	**R**	**Dialogue part**	**L**	
Occurrence of singing	1			17		1

Table 6.19: Relationship between structure of session and singing

hums her own small improvisations. Her participation is clearly dependent on the structure of the session, which is supported by the fact that 17 out of 19 events, where she sings, happens in the dialogue part of the session. Even though she sits with her eyes closed a great part of the time during the day and seems to be in a hypo-aroused state, she needs the small rests or naps in the session. After rests that have a regulative function, she "wakes up" and in a period is very attentive to her environment.

The heart rate data seems to show two different trends in Mrs C's case. The first trend points at an increasing tendency for the mean heart levels to stabilize at moderate levels. This tendency is for some reason broken during the last 3 sessions, where the heart rate level is very low. With this trend it is expected that heart rate levels increase to moderate levels again.

The second trend shows that Mrs C's heart rate level stabilizes at very low levels in the end of the music therapy course. It is here expected that the heart rate levels stay low, which is supported by the fact that heart rate levels continue being low after music therapy has stopped.

Conclusion

It is not clear if there is a pattern with stabilization on low heart rate levels and a carry-over effect of the music therapy, but it is clear that there is a perceptible drop in heart rate from before to after the music therapy course. Not until session 9 Mrs C participates actively in the music therapy. A longer course of music therapy might have revealed more clear patterns, as Mrs C needed a long time to relate to the cues that defined our relation.

Mrs C is clearly dependent on the structure of the music therapy and needs time to integrate and recognise the cues that defines the setting to her, and needs time in the single session as well to calm down – even if her arousal level from an outer perspective already seems very low. After having calmed down Mrs C seems attentive and reacts on the rhythmic stimulation in the "sofa-dancing" by participating actively.

October 16^{th} (6 weeks after end of music therapy) midication with antidepressants (Cipramil) and antipsychotics (Risperdal) is stopped. On November 23^{rd} it is decided to resume Risperdal ($\frac{1}{2}$ mg in 24 hours), as Mrs C is very aggressive during personal care in the morning, but Cipramil has been stopped with good effects. That antidepressive medication is stopped supports the suggestion that the music therapy has a carry-over effect on Mrs C, and that the month with daily interaction and communication adjusted to her functional abilities had a positive effect on Mrs C.

6.4 Mrs D

Profile

Appearance

Mrs D is a charming eloquent woman in her eighties. She has beautiful white hair in a half-length haircut. She likes to wear trousers and a blouse or jersey and no finery and frills. She is wheelchaired and makes her tours about the unit by turning the wheels with her hands in a slow tempo. She has a loud voice and fully uses her verbal abilities, sometimes with words that I had better not translate. She has a strong personality and moves to the extremes in her expressions; either charming everybody with her smile, laughter, and comments, or being a big challenge to staff when she shouts, scolds, nags, cries for help, or throws her dinner, china or other items on the floor.

Manner

Mrs D eats her breakfast and lunch at a secluded recess near her apartment in a small group of residents. She has a view over the garden and often remains sitting here where it is relatively quiet. In the period of baseline measurements she one morning sat quietly looking out into the air when I came to place the heart beat monitor. I greeted her with a "how are you?" She answered: "I'm sitting here looking out of the window. That's what I'm always doing. Every day" (04-08-00).

Apart from sitting looking out of the window it is possible for Mrs D to take part in several activities, if she is in the mood for it. The physiotherapist comes to walk with her most mornings, and she participates in activities with music, mostly the Wednesday sing-along. She likes tours in the garden, and visits with coffee drinking. Her participation in activities is never scheduled, but assessed every time as her participation is very much depending on her actual mood.

She recognises several peer residents. Sometimes she greets them warmly, other times she triggers them, as on the first day when heart beat was measured. I observed that she went to Mrs E, who sat resting in a chair in "Mrs D's recess". Mrs D went very close to her and Mrs E asked her to leave. A quarrel started, culminating with Mrs E shouting; "Cut it out, you ##", and Mrs D answering: "You hedgehog!!", leaving the place.

Mrs D recognises peer residents although her vision is very poor. Once I showed her a little beautifully done bird in a flower decoration and she eagerly tried to establish what it was, suggesting it was a snowdrop or an orange.

Story of life

Mrs D was born in a market town in a family of 7. In session 3 she told fragments of her story with a glimpse in her eye, and I will use her words: "I have worked as a housemaid and served my apprenticeship ... and then my mother asked: what about being a dressmaker, since then I haven't been anything else. I have only been a dressmaker. And then I have been at home. A mother at home ... cooking ... looked after the children, the house and the home, and then nothing else ... but that was also ok, you see ... if only you could cook. But I couldn't!! ... and then my husband came with a cookery book for me, after we had married." (3 – 10:27:05)

The second time she tells me about her childhood is in session 17: "I'm a great-grandmother now. Yes, that is a lot (of years). And I am also the only one left. Of the

girls. We were 4 girls and 1 boy, and all are dead except me. I am the 4^{th} girl ... I'm not even 100 years old yet. But I'll be that soon." (17 – 10:10:14)

When she married she moved to a bigger town and lived in a flat where she took care of the 3 children. The family lost one child and in the beginning of her stay at the unit Mrs D would often talk about the illness and death of this child. Mrs D was active in church but disliked when things became too "holy" or "missionary-like".

Mrs D was admitted to the gerontopsychiatric hospital because of confusion, manic behaviour, and hallucinations. At that time she lived in her own apartment, alone after the death of her husband. Shortly after she moved to a local residential home, but after one year she moved in at the unit. When she started in music therapy she had lived for one year and two months at the unit.

Diagnosis

Mrs D suffers from vascular dementia caused by apoplexia cerebri, diagnosed at geriatric unit. CT scanning showed new changes as well as previous small strokes, and confusion of cerebellum. The latter could be the cause of her abrupt reduction of sight.

Medication/aids

Antidepressants (Zoloft, 50 mg)
Antipsychotics (Risperdal, $\frac{1}{2}$ mg)
Hypnotics (Stilnoct, 10 mg.)
Prophylactic (Magnyl), remedy against constipation
PN: analgesics (Pamol), and (Nitromex) against heart spasms
Hearing aids (but does not like to use them)

Stage of dementia

FAST: 6 (in 7)
MMSE: 5 (in 30)

Network

Daughter-in-law visits once a week. Mrs D knows her name and talks about the visits. Other child lives far away, and does not visit that often.

Condition

Mrs D suffered collum femoris fracture two months before we started music therapy. She is in a rehabilitation program, but contact staff prefer that she remains in the wheelchair during music therapy instead of sitting on the sofa.

At the time when we are to start music therapy she looks very bruised. At night she has managed, in spite of the fracture, to climb over the bed guard and out of bed. She is found on the bathroom floor, but has managed previously to empty her cupboards and shelves. Now a mattress in front of the bed at night should cushion new falls. According to staff Mrs D has many turbulent periods during the week where she shouts, hits and spoils/throws things.

Mrs D hears badly, but does not want to use hearing aids. Her vision is very poor, but she seems to recognise colours. She normally eats with a good appetite, but has problems sleeping at night without sleeping pills.

Music

Mrs D must have been singing her way through life. She knows (or knew) an enormous number of songs. She listened to the radio and learned many of the songs from there. She and her husband had a record player, and the children say that when she "gathered with the ladies" they used to sing. In connection with church and church arrangements she knew many hymns too and sang them by heart.

In session 2 she says: "All the old songs are like this. I know them. I know the tune, but I don't know the words ... now they just use such short ones, if they use any at all. Isn't it true? Well I don't know, but it wasn't like that in the old days when we sang. We could keep on singing the whole evening" (2 – 10:19:48).

ADL & different symptoms

Mrs D needs guiding or help in all personal care. She eats and drinks on her own, but needs help to cut the meat. She is only able to walk with a person on each side of her and only short distances.

Her verbal language is relevant with use of many words. Now and then she mixes up words and has word-finding and -naming difficulties. She often does not understand what is said to her, either due to comprehension or hearing problems.

Mrs D has some understanding of the fact that she lives in a residential home. In the beginning of session 10 (10:00:00) she says: "Where do you know me from? ... You know me.. then I do not need to die. Either I'm crazy or insane.. or at the university or where ever I am. My name is D.. and I like this song.. and where are you?". My answer is that I am here at Caritas. She continues: "Yes, and that's a nursing home, and that's where I am employed – or placed ... because I can't take care of myself."

Sometimes she clearly remembers names of family members, at other times she mixes it all up when trying to remember. She knows the names of contact staff, and when we are going to start session 8 she comments: "and now you sing "Mrs D"", which means that she remembers the beginning song and that I will start with it. She is seldom orientated in time and do not know if it is morning or evening, or time of year.

BPSD

CMAI	agitation
phys. agg	x
∼ non-agg	x
verb. agg	x
∼ non-agg	x

Table 6.20: CMAI - Mrs D

In the summary from the monthly psychiatric supervision, that took place the week before week 1, it is stated that the patient yells, hits, spoils/throws things. On Cohen-Mansfield Agitation Inventory (CMAI) Mrs D is ticked to show physical aggressive agitated behaviour (e.g. hitting or throwing things) once or twice a day, physical non-aggressive agitated behaviour (e.g. ambulating) about once a day, and verbally aggressive and non-aggressive agitated behaviour (e.g. screaming/temper outbursts or constant request for attention) 3-6 times a day.

Mrs D is treated for both depression and psychosis.

Evaluation of the music therapy process

Family and staff are very positive of the idea about Mrs D participating in music therapy, as it is clear that she needs the one to one attention, that she enjoys singing, and seems to profit from sing-along activities. Usually Mrs D only participates in activities if staff beforehand estimate that she is in the "right" mood. It happened too often that Mrs D became more and more upset and angry if she already before start of the activity seemed to be aroused. Family tell that if Mrs D is very upset when they come visiting, it has no sense trying to calm her down, as her anger seems to escalate. If daughter-in-law sees that she is upset, when she comes, she simply waits some time in the hope that Mrs D has calmed down meanwhile, or she goes for a walk with her, pushing the wheelchair, which sometimes has a calming effect.

I know Mrs D from group work and am familiar with her temper outbursts. I am convinced that Mrs D will show compliance if she is in a good mood, but see it as a challenge if it is possible to reach her on mornings where she is highly aroused and shouts and scolds. Mrs D enjoys singing and it might be that she can use this way of expressing herself in a way where she is able to enter a dialogue about her feelings and feel understood by another person. I do not intend to evaluate her mood before therapy in order to see if she is in the right mood. First of all I intend to offer her a structure that will help her calm down if she is upset, and then gradually make it possible to create a framework where we can find other channels of communication. The music therapy will be suited to her needs and her actual mood, which might (?) make it possible to carry through the therapy, even if she is highly aroused.

Mrs D participates in all 20 music therapy sessions. In two sessions (4 and 17) there is no heart rate data. In session 17 she had torn off the heart rate receiver before the session started, and in session 4 it happened for the first and only time in 12o music therapy sessions that I simply forgot to press the start button on the heart beat monitor.

Compliance

Mrs D participated in all sessions and showed a high degree of compliance. She never left the room and most of the time she participated actively by singing, commenting on the song text, or marking the beat. In 8 sessions (session 2, 3, 6, 7, 8, 12, 15, 17) she was either scolding, weeping or crying loud for help at the unit before starting music therapy. She still accepted the invitation to participate in music therapy and the session was carried through without Mrs D's anger or sorrow escalating.

Before starting the very last session I state: "well, this is the last time" and Mrs D replies: "Yes, that is true ... but I'll just ignore it and pretend this is the first time" and she gives me one of these charming smiles.

Regulation over time

In the previous case of Mrs C all mean heart beat measurements (except one) were *less* than 65 bpm. In Mrs D's case all mean heart rate numbers are *more* than 65 bpm, which can be seen in figure 6.32. These numbers are high in view of the fact that Mrs D sits in her wheelchair and does not stand up or walk about, which in other cases would change the mean level decisively.

If HR mean values at levels between 72 bpm and 74 bpm are considered *moderate*, we see that 40% of the sessions are at these levels (see table 6.21), and that 15% are at *high*, and 20% at *very high* levels. 15% are at *low* levels, and in 10% of the sessions there is no heart rate data. The levels are relative and related to Mrs D's data.

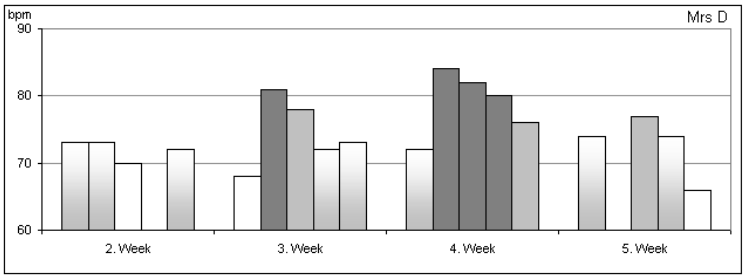


Figure 6.32: Mean heart rate (Mrs D) during 18 sessions

Occurence																				
Bpm	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	
	Low						Moderate				High				Very High					

Table 6.21: Distribution of sessions according to mean HR in bpm

High and very high levels mostly occur during week 3 and 4. Consulting the questionnaire data does not give "explanations" to the increased heart rate level in week 3 and 4. Additionally there is no relationship between agitation before music therapy and mean heart rate level during therapy. Based on music therapist's log and questionnaires sessions where Mrs D showed negative emotional valence (e.v.) or was agitated before therapy are pointed out and marked with x in table 6.22. In the bottom column categories of mean heart rate level in bpm are indicated.

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
neg. e.v.		x	x			x	x	x				x			x		x			
HR level	m	m	l	-	m	l	vh	h	m	m	m	vh	vh	vh	h	m	-	h	m	l

Table 6.22: Negative emotional valence (e.v.) is marked with x. Heart rate level is either categorised: l: low, m: medium, h: high, or vh: very high

The shape of heart rate mean levels could be seen as an inverted u-shape, where mean HR increases in the two weeks in the middle and then decreases again, but there is not a "clear" pattern and in the following I will consult more data and see if I find any tendencies.

Carry over effect

A very overall perspective on the music therapy is to look at pre- and post-measurements. Figure 6.33 shows the 5 (white) heart beat curves in week one, the mean curve, and the mean level. Week 1 is the baseline week, or the week before therapy.

Figure 6.34 shows the 5 heart beat curves in week 6 (after music therapy), the mean curve, and the mean level.

In week 1 the variance in the 5 curves is bigger than in week 6, and when only the mean value is considered it shows a drop from week 1 to week 6 on 2,3 bpm (See figure 6.35, page 155). I here want to include that we have seen exactly the same tendencies in the three previous cases. The comparison with the other cases might be interesting as Mrs D is sitting

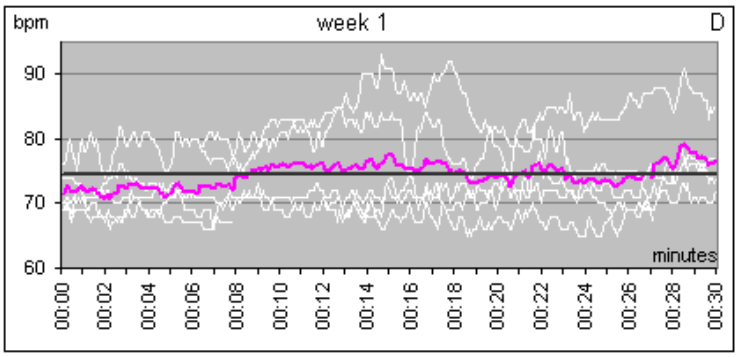


Figure 6.33: 5 HR curves in week 1 + the mean curve + the total mean HR level

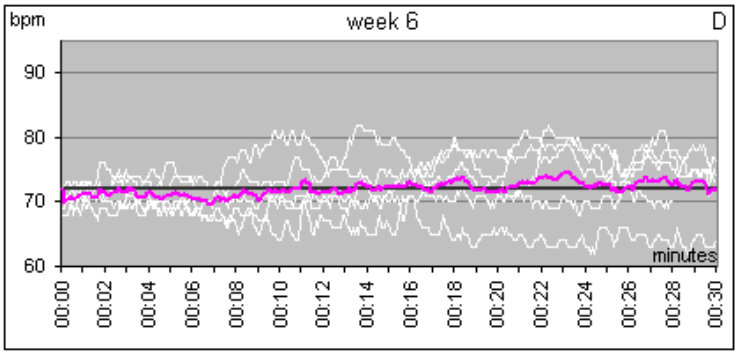


Figure 6.34: 5 HR curves in week 6 + the mean curve + the total mean HR level

down all the time in her wheelchair. This means that increases that are a result of standing and walking are eliminated.

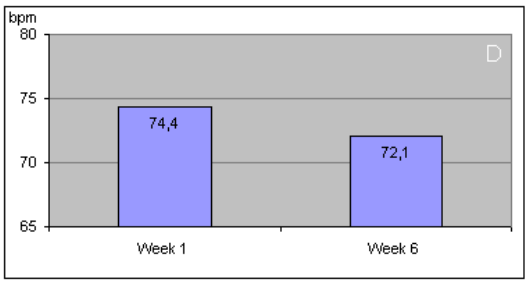


Figure 6.35: Mean heart rate (Mrs D) in week 1 and week 6

Looking at figure 6.32 it is clear that the mean bpm values from session 12 are steadily decreasing during the last sessions in week 4, in week 5, and keep a moderate mean level after therapy in week 6. This might indicate a carry-over effect from the music therapy, but the pattern is not clear enough and the assumption needs more data to support the ideas of an effect.

The following will deal with data that go more into detail about the process in each of the sessions.

Regulation in the music therapy setting

In 35% of the music therapy sessions Mrs D shows high or very high mean heart rate levels. It means that in these sessions the mean heart rate level is higher than the total mean value in week 1. It is important to assess if this is due to overstimulation in the music therapy. Figure 6.36 shows the decrease or increase in heart rate level during the first 7 minutes of music therapy.

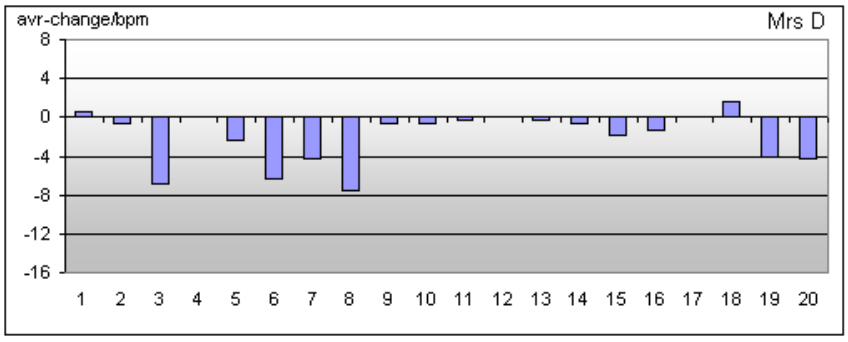


Figure 6.36: Decrease or increase of bpm during first 7 minutes of sessions 1–20

Figure 6.36 shows that the heart rate level decreases in 15 sessions, and increases in 2 sessions: session 1 and session 18. From a very generalizing point of view the overall drop in the beginning of the sessions shows that Mrs D is not being overstimulated. Once again it is important to consider that Mrs D is sitting in her wheel chair and that her walking and subsequent sitting does not cause the drop in heart rate. Still there is the transport to the music therapy room where I push the wheelchair, which might influence heart rate level, but the sheer physical factor of walking is eliminated. This means that the drops in e.g. session 3, 6 and 8 (about 7 bpm) are pronounced as we can state that Mrs D is sitting even before the drop.

I now will add the regulation categories to the data, first of all to see if the increases in session 1 and session 18 are continuing.

Regulation categories

Table 6.23 shows the regulation categories in each session. In session 12 the heart rate receiver around the chest does not sit properly and is not receiving data in the beginning of the session. In the table is additionally added when Mrs D showed agitated behaviour *before* beginning of the session. The observations of agitated behaviour are based on music therapist's log. In the last column heart rate levels are indicated.

It is interesting that in Mrs D's case category dec-dec is the biggest group, closely followed by category dec-inc as the second biggest. In the cases described up till now, category dec-inc was clearly the biggest with category dec-dec representing a smaller part.

As seen in the bar chart, figure 6.36, the heart rate increases in the beginning of session 1 and 18. We now see that they are in category inc-dec, which means that the increase is followed by a decrease. It is *not* followed by a further increase (category inc-inc) indicating

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Category	*id*	**dd**	di	-	di	**dd**	**dd**	di	**dd**	**dd**	**dd**	-	**dd**	di	**dd**	di	-	*id*	di	di
agitation		x	x			x	x	x				x			x		x			
HR level	m	m	l	-	m	l	vh	h	m	m	m	vh	vh	vh	h	m	-	h	m	l

Table 6.23: Overview of regulation categories, agitation before session, and mean heart rate level; l: low. m: medium. h: high. vh: very high

overstimulation. The decreases are only small and the drop is to a level slightly lower than when starting, which means that Mrs D is not sedated by the music therapy but stimulated to a stable level. Consulting the session-graphs (see later in figure 6.38, page 159) we see that Mrs D is active in session 18 and joins in the singing in every song except the African one and the very last one.

As just mentioned above category dec-dec accounts for the biggest part of the categories. Category dec-dec is a decrease followed by a decrease. Generally category dec-dec can be a hint at understimulation. Above is stated that in 35% of the music therapy sessions Mrs D shows high or very high mean heart rate levels and it was important to assess for overstimulation. Generally spoken it seems to be necessary with category dec-dec regulations, at least for a period in the music therapy process, to regain moderate heart rate levels: levels that might be more optimal to perceive environmental stimuli.

Session 6 is in regulation category dec-dec, but shows a low mean heart rate level. However, the heart rate level at the beginning is high. Mrs D is quite angry and unsatisfied in the beginning of the session (see later in figure 6.37, page 159), but heart rate decreases with a big drop of 6.4 bpm in the first 7 minutes. After only 2 minutes (!) she calms down and rests motionless in the remaining part of the session, not joining in a single song, which is very unusual. This results in a decrease to low heart rate levels and as the session lasts 47 minutes this determines that the *mean* level is low.

With 7 sessions in category dec-inc this category cover 35% of the sessions. Category dec-inc generally spoken shows a tendency for the participant to calm down and then show active participation, which keeps up heart rate levels. Apart from being in category dec-inc, sessions 5, 14, 16, 19 and 20 have in common that Mrs D has been sitting quietly, when I come to fetch her, and that she has had a calm morning. In session 3 and 8 this is not the case; I hear from far away her crying for help, scolding and weeping. The bpm-decreases in the beginning of these sessions are respectively 6.8 and 7.5; the highest values concerning decreases. In both sessions the decrease stabilizes but then slowly increases to the end of the session. Either Mrs D has been calm or agitated before session; the 7 sessions showing category dec-inc point at a constructive process in the therapy where Mrs D calms down – markedly in the sessions where she at first is agitated – but later show increases in heart rate indicating her active participation.

With help from music therapist's log and questionnaires it is possible to point out 8 sessions where Mrs D shows agitated behaviour before therapy: session 2, 3, 6, 7, 8, 12, 15, and 17 (See table 6.23, page 157). There did not seem to be a relationship between heart rate level and episodes of agitation before therapy, but there seems to be a pattern between episodes of agitation and steep decreases. A mean value of the decrease in first part of sessions 2, 3, 6, 7, 8, and 15 (no heart rate data for session 12 and 17) is 4.6. In sessions 5, 9, 10, 11, 13, 14, 16, 19, and 20 the mean decrease is 1,6. This shows that when Mrs D is agitated before therapy the decrease in the first part of the session is in average 3 bpm bigger than if she has had a calm morning. This shows a very important regulative effect of the music therapy. It shows that the music therapy has a calming effect on Mrs D *even* if she was agitated before start,

and it shows that it is possible to carry through an activity with Mrs D – if it is adjusted to her needs – *even* if she is agitated.

Summary

Even though Mrs D sits all the time in her wheelchair she shows relatively high mean heart rate levels, which even increase during the middle weeks. In all but two sessions heart rate levels decrease in the first part of the sessions. In sessions where Mrs D showed agitated behaviour before therapy the decreases in the beginning are more pronounced than if she had a calm morning. This, and the fact that there are no regulation-category-inc-inc-sessions, indicates that Mrs D is not being over-stimulated by the music therapy and that the therapy has a calming effect on agitation. In the week after music therapy a mean drop of 2 bpm is seen. This might point at a carry-over effect of the therapy.

Communicative signals

Several times I have stated that Mrs D was participating actively during sessions. This fact is very easy to determine, as just one glimpse at the session-graphs reveals that she joins in singing most of the songs. Singing, verbalizing or quoting the text is marked in the session-graphs. In the following I will show 3 examples of session-graphs representing different regulation-categories and different types of sessions. The first session is very untypical as very few communicative signals are given.

Example one

From table 6.23 page 157 we know that Mr D showed agitated behaviour before session 6, we know that *mean* heart rate level is low and that the session is in regulation-category dec-dec. We clearly see a decrease from a high heart rate level in the first part of the session, followed by a slow decrease later in the session. The session is the longest of all sessions in this project, lasting 47 minutes.

Already when I enter the unit on August 14^{th} before music therapy I hear Mrs D shouting. As usual before a session, I have a word with her contact staff, before preparing the last things for the session. I hear her shouting for coffee, and blaming staff that she is not allowed coffee when she wants. A staff member tells her that she has just drunk coffee, which makes her even angrier. Later, having prepared the music therapy room, I open the door to fetch Mrs D. But she is already close to the room. A peer resident (Mrs F) is pushing her wheelchair down the corridor. On the way the wheelchair has collided with a rollator, belonging to another resident sitting in an armchair. This resident is very angry, and so is Mrs D who wants the involuntary drive to stop, and shouts the best she can. Mrs F's grip on the wheelchair is very difficult to loosen, but I and another staff member succeed at last. Mrs D continues shouting in the music therapy room but does not make any attempt to leave the room. Her comment when I start singing is: "Oh, belt up, #" (6 – 10:04:16) and after the song she asks in a schoolmistress' voice: "Well, are you trying to learn singing?" (6 – 10:04:31). As usual I give her my hand and greet her during the first song. She takes my hand, and keeps holding it, which is in contrast to her verbal rejections. I start singing the next song, but do not look at her as I assume that would be too demanding. Suddenly in the refrain she joins in the song. She sings the words but in a very angry manner. In the end of the song she corrects the text

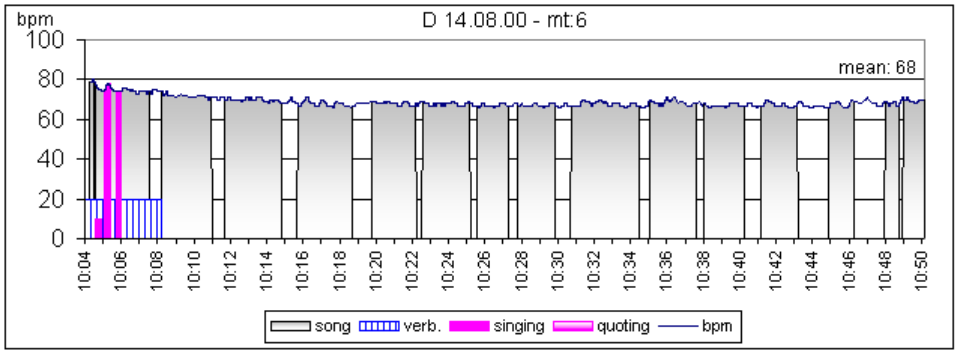


Figure 6.37: *Example 1.* Session-graph, Mrs D – session 6

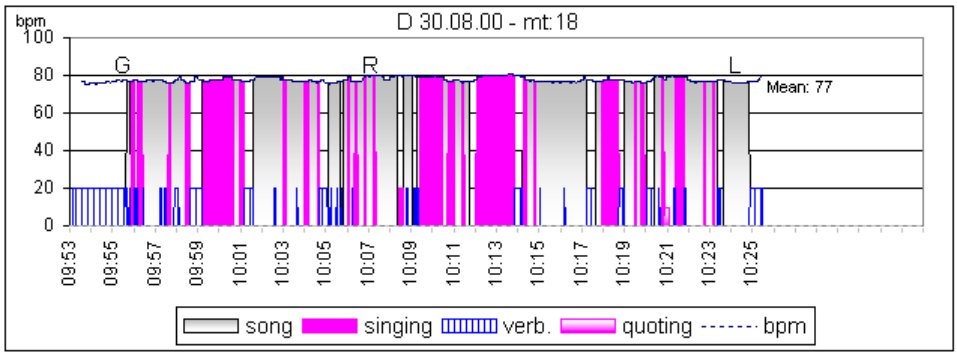


Figure 6.38: *Example 2.* Session-graph, Mrs D – session 18

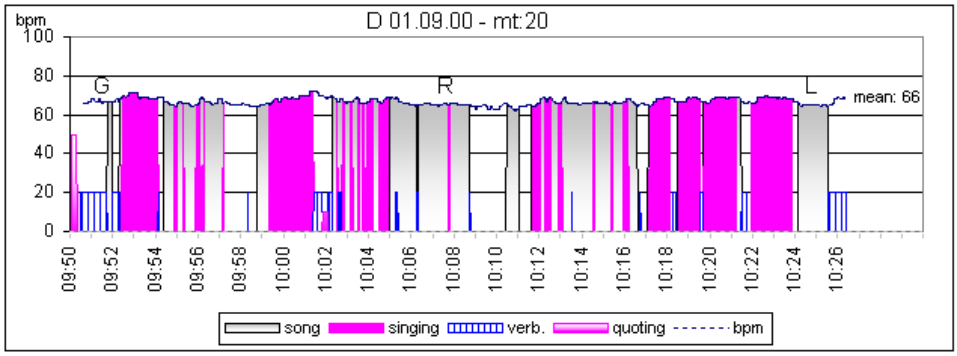


Figure 6.39: *Example 3.* Session-graph, Mrs D – session 20

I am singing. I repeat the line like she wants it, and after a few more scornful comments she remains silent.

As can be seen in figure 6.37 page 159 Mrs D joins in the music, verbalizes, and quotes the text only in the beginning of the session. Already after the 4^{th} song Mrs D blinks and in the 6^{th} song she closes her eyes for shorter periods. She does not fall a sleep but often closes her eyes during the altogether 17 songs. I extend the session as I think she needs the rest after a turbulent morning. I sing songs that in the beginning are "neutral". I have the feeling that too "soothing" or sedative songs could be provocative to her, but gradually I introduce more "melancholic", slow, minor scale songs. When I sing the last song, Lærkereden, a song that she seems to like, she moves her head slightly from side to side in beat. After the song she gives me a smile. I ask her if she wants to go out into the garden and she answers:

"We can do that. The weather is nice today.. lovely.. it seems to be fine today."

This session illustrates that it is possible for Mrs D to calm down in the music therapy. The session can be suited to her needs, but not in a way that is demanding to her. The songs make it possible for her to stay with another person in a way where it is enough to *be* without demands to *do*.

Example two

In contrast to session 6, Mrs D is actively participating and *doing* in session 18. It is Wednesday, the day where she normally participates in the sing-along session at another unit. Her name is listed on the activity board by mistake, and she already waits in front of the main entrance in order to leave the unit. Well, we only have three times left and I am happy that the group had not already left the unit. Mrs D seems not to bother whether she goes with me, or stays to wait for the others. But at some level it might be confusing to her.

Mrs D smiles when I start singing the beginning-song. I sing good morning, shake her hand, and sing her name. She then breaks in and *sings*: "What is it she can? She damned remember nothing, because she ...". I sing to her: "She remembers so many songs" and she starts singing a party song where people by turns are called to sing the next song. We sing the song together and she comments: "Well, this is such a team song we sang". In the next song I try to match the companionship or team feeling from the first song. She joins in the singing now and then, and makes short verbal comments. When the song is over she says: "... it was a tribute to the Danish patriots ... just because they sang, because they paid tribute to the Danish soldiers that did not give up against the Germans." (18 – 09:58:47)

I continue singing some patriotic songs and then later sing the African songs I sing in every session. She nods and smiles, and then comments. "That was from Tanzania" (18 – 10:05:14). In the first session when I sang these songs, Mrs D asked if they were from Finland. She clearly distinguishes the songs from the other ones and hears that the tonality and the words are different. The one song *is* from Tanzania, which she correctly remembers.

At 10:11:43 there is a very short break before I start the next song. This is the only time in the transcript that I register a break in this session and it is so short (20 seconds) that it is hard to recognise on the session-graph. Mrs D's frequent comments, very active participation and no time for a rest where both of us are inactive, reveal her as aroused. This is also reflected in her high heart rate level. After this small break I start singing "Lili Marlene" in a slow tempo. My intention is to keep the calm feeling from the small break, but my choice of song is not good. I do not realise that this song is so strongly related to the patriotic feelings from the beginning of the session. After just a single line in my slow tempo, Mrs D powerfully takes over, increases tempo and introduces a total different version

of the song. - A version where the text is a lampoon against the Nazis, sung just after the war. This incident is described in chapter 7 page 231.During the rest of the session Mrs D continues being active, very generous with her precise comments on the songs. Now and then she listens to the songs but I never have the feeling that she really calms down, which, as mentioned before, is reflected in the high heart rate. This session is in the category inc-dec. In the beginning of the session heart rate increases as seen in figure 6.36, page 156. Gradually there is a slight decrease, but still the heart rate level remains high.

Session 18 was amusing and good entertainment. Mrs D did lots of reminiscing from the post war period, remembered that the African songs were from Tanzania, remembered more or less the words to the lampoon and made relevant comments to the songs I was singing. But I do not see the session as the ideal session. In a balanced session we would have had moments sitting in silence. Mrs D was not alarmingly aroused as in session 6 so I was not aware that we should have made a calmer start at the beginning of the session. I could have chosen songs more suitable in regulating her arousal level instead of choosing patriotic songs right from the beginning. Only two sessions are in regulation-category inc-dec; this session and session 1. The next session-graph from session 20 clearly reflects a more balanced session compared to session 18.

Example three

The pink fields in figure 6.39 page 159 show that Mrs D joins in the singing, verbalizes and quotes the text. As may be seen on the session-graph there is more balance between "empty spaces" in the beginning, in the middle, and at the end of the session, which at this overall level reflects structure.

Session 20 is in regulation-category dec-inc; from 09:51:44 when the first song starts to 09:58:44, 7 minutes later, the tendency line decreases with 4,3 bpm. Heart rate level is low and contact staff tell me that the morning with Mrs D was very calm. As mentioned before Mrs D remarks with a laugh, that she will pretend that this is not the last session, but the first. After the first song, she says: "I do not usually join you in the singing . . . I just enjoy it" (20 – 09:51:57). I ask her if there is a special song that she wants today. Mrs D: "Well, no there isn't. I'm excited to see which song you choose." From the beginning of the session Mrs D is positive and relevant. She participates actively by singing and making relevant comments on the song texts. Now and then she smiles and says yes, and most importantly: she seems self-contained and several times between songs we are together in a peaceful silence. The natural balance between action and rest is difficult to grasp. If a therapy in its goals focuses exclusively at either activating or sedating activities the danger is category inc-inc and dec-dec sessions, where arousal level either escalates or goes to the lowest possible position.

I have given examples on 3 very different sessions; a session with 2 minutes' full blast followed by 45 minutes of healing silence, a session with almost constant engagement, tempo and action, and a session with a balanced flow between acting, receiving and digesting. I now want to describe one target sign in detail. Looking at the pauses in the sessions would have been interesting, but pauses are very indefinable. There are pauses full of togetherness and understanding, and pauses with distance and vacuity. Instead I want to look at Mrs D's singing. Her ability to remember tunes and even words is amazing.

Target sign: singing

In the 20 music therapy sessions I/we have sung 260 songs or verses, and out of these Mrs D sings with me – the whole song or just a few words – in 191 songs! She joins in singing in

73% of the songs. This shows a high degree of active participation. The songs where she does not sing are first of all the beginning-song and the African songs. She never joins in these songs. In 10 out of 20 sessions she does not sing the ending-song. Her smiles and nods show me that she likes the ending song. She often makes comments about the text showing that she listens. All in all we sing 111 different songs and repeat some songs several times.

Mrs D very seldom shows initiative to start a song herself. She needs prompting; like in session 18 where the Lili Marlene-tune in connection with memories of a special intense period in her life makes her remember the song text of a lampoon. She never suggests a song on her own, and only on very few occasions improvises; as in the beginning of session 18 where she sings "What is it she can? . . . "

Table 6.24 shows how many songs I/we sing in each of the sessions. Number of songs where Mrs D sings, from a single word to the whole song, are entered in the column, labelled "sings". The last column is the number of songs where Mrs D does not participate by singing. Here she might be listening to the song, or she might doze, ignoring the song or even disliking the song?

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Songs in the session	11	12	13	13	13	17	13	13	11	13	11	12	17	17	15	13	13	15	14	14
Mrs D sings	8	9	11	10	8	1	10	9	9	9	9	10	14	14	12	11	5	13	11	10
Mrs D does not sing	3	3	2	3	5	16	3	4	4	4	2	2	3	3	3	2	8	2	3	4

Table 6.24: Number of songs in each session and number of times Mrs D joins in the singing

There seems to be no connection between number of songs where she does not join the singing and heart rate, regulation category, etc. It is clear that Mrs D sings remarkably less in session 6 and 17 where she was very much aroused before session, but apart from that there does not seem to be a connection with mood or arousal.

It is clear that it is not accidental in which songs Mrs D participates and that she has her song preferences. Here I do not analyse the particular songs for genre, tonality, tempo, meaning of text, etc. The song choice is very much depending on cultural background and is worth further analysing in research to come. In this work I look at the function of the song in the structure of the music therapy setting. Table 6.25 shows when Mrs D joins in the singing, and how many percent of each of the songs she joins.

Structure of session	**G**	**Regulation part**	**Af**	**R**	**MJ**	**Dialogue part**	**L**
Number of songs	19	73	19	18	18	83	19
Number of songs/joining	1	65	0	16	15	80	11
% of songs Mrs D joins	5	89	0	89	83	96	48

Table 6.25: G: Greeting song, Af: two African songs, R: the song "Roselil", and L: the last song "Lærkereden".

There is a clear connection between songs where Mrs D sings, and their function in the structure. Mrs D never sings the African songs. Her comments show that she recognizes the songs, and she even connects them with Tanzania. The greeting song she only joins in once (in session 18). On this occasion she does not express the words or sing the tune, but uses it as a jumping-off point for a very short improvisation. Half of the time she listens to the last song, "Lærkereden". In contrast to the greeting song and the African songs she knows this song very well and seems to appreciate it very much. Her very last comments when I have song "Lærkereden" in the last session is: "Yes. I know a lark's nest (quoting first line of the song). It has become our song, I think. This sounds boastful. But it is nice too. And he is

faithful. He will keep a secret, the guy. He, who knows where the lark's nest is. He will keep that ... as his lark's nest." (20 – 10:25:31) When Mrs D listens to this song, she is active. She enjoys the song, and listens to the text. This is a very important quality that is difficult to measure. Degree of listening seems to be an odd quantity and is dependent on sensitive instruments if we want to assess it.

The fact that there is this very big difference between choice of songs shows that the songs have different functions, and that Mrs D makes distinctions between the songs. There are three episodes in the dialogue-part and 8 episodes in the regulation-part where Mrs D is only active by listening. This is respectively 11% of the songs in the regulation-part and 4% of the songs in the dialogue-part. This is not a big difference but shows a *minor* tendency to leave out more songs in the regulation part, and join all the songs in the dialogue part.

Summary

Mrs D reacts clearly to songs she knows and then joins in singing. Sometimes she sings the whole song, sometimes only a single line or word. She knows an enormous number of songs but only on few occasions does she take the initiative to start a song on her own. She needs the prompting. Often Mrs D only joins in the song in a single line. For the rest of the time during the song she is not active – which does not mean that she is inactive. Mrs D seems to listen to the songs, especially the song text, which she very often comments on.

Conclusion

Mrs D reacts to the music therapy by calming down (especially with clear drops in bpm in first part of session when she beforehand was agitated), and by actively taking part in the music therapy e.g. by singing (often with text), verbalizing, commenting on the text, or quoting the text. Her way of joining in the songs with single words or strophes, and commenting on the text shows that she is an active listener. Mrs D might lose her verbal abilities, and even the ability to sing – but will she also lose her ability to listen to and enjoy a song?

Mrs D *joins in* songs, but seldom *initiates* songs. She needs the prompting in order to get assesses to this huge store of songs she knows. She gradually seems to lose the ability to remember the text, but with a certain prompting she suddenly remembers whole songs with text. She is able to relate to new song material by listening and making relevant comments.

Although Mrs D sits in a wheelchair there is a drop in mean HR from the week before to the week after music therapy. This drop, together with the facts that Mrs D showed compliance, and that she profited from sessions even when she was agitated beforehand, points in the direction of a carry-over-effect of the music therapy.

6.5 Mrs E

Profile

Appearance

Mrs E is a stout widow in the middle of her eighties. Her heavy white/grey hair has a parting to one side and is cut at the ears. Her smile is warm and motherly, – and almost melting when she spots smaller children. When walking her gait is stiff and slow but stable. She speaks in a gentle low tone of voice in one-to-one conversations, but when upset she puts things clear in a sharp or keen tone. She has a strong character and does not give in easily. She also has a wonderful humour, sometimes quite sarcastic and ironic, with her comments so catchy that people either laugh or get angry.

Manner

Most of the time Mrs E is found either sitting with her eyes closed or walking about. When she is restless, she has "things" to organise or to search, and starts walking. She quickly gets tired, and feels pain from arthritis, but "needs" to continue. This has a heavy influence on her mood, resulting in her scolding or demanding full attention from staff. This is particularly a problem in the evening where she is more restless. During the morning she is tired and her walkabouts mostly stop when she finds an armchair or sofa, where she then seems to fall asleep.

In order to have a calm and quiet morning she eats breakfast in her living room. She sits in the sofa with a tray on the coffee table, often watching television or old black and white videos. She enjoys when many people are together for a dinner party or the like, but gets upset if somebody behaves in a strange manner that she does not understand. It therefore has to be carefully planned where she sits if she participates in a party, sing-along activity, etc.

Mrs E has a fantastic ability to observe people. She cannot keep back comments if a person with a big nose or behind passes by. If somebody laughs or talks in a special way she copies it exactly to the point. This way of thinking out loud can be very provocative or offending to peer residents and staff.

Mrs E is fond of the Royal family and makes positive comments when she watches their pictures in Magazines. She often sits with a Magazine in her hand turning over the pages.

Story of life

Mrs E was born at the countryside in a family of 9 (two babies died). The parents had a small farm and were not well off, but they worked hard and managed to give the children a good childhood. After 7 years at school, where Mrs E did well, she was apprenticed to her teacher's home. She worked as a housemaid in several homes and in this way met a herdsman, who worked at the same place. They married and moved to a bigger city where she was employed to iron the washing at a big hospital. Her husband worked as a driver, but later they bought a laundry and ran that for several years. They got 4 children. During the war they sold the laundry and moved to the south of Denmark. Her husband became ill and she took care of him until he died. When she was in the end of her sixties a colon-cancer caused that she was given a colostomy. The children noticed that Mrs E sometimes behaved in a little odd way, or sometimes was a bit confused, but only in retrospect they realised that these were the first

symptoms of dementia. When it was decided that she was to live in a residential home, Mrs E moved to a town closer to the family. After a year in the residential home it was clear that she needed more structure and a more calm environment and she moved in at the unit in 1996; 4 years before she started in individual music therapy.

Diagnose

Mrs E suffers "a frontal vascular dementia with the result that her social behaviour has coarsened." (Medical charts)

Medication/aids

Antipsychotics (Trilafon, 8 mg.)
No antidepressants
PN: analgesics (Pamol)
Colostomy

Stage of dementia

FAST: 6 (in 7)
MMSE: 3 (in 30)

Network

Mrs E has a big family network in all generations who often come visiting. Sometimes her living room is crowded to bursting point with singing grandchildren. When she moved in at the unit she often talked with warmth about her sister and children. She did not talk about the family a single time during the therapy course, but she still might recognize family, or recognizes them after they have stayed for a while.

Condition

Mrs E repeatedly suffers cystitis, and pains in the back, loin, knees and hip. She easily gets tired and sleeps for long periods in a chair or sofa during the morning. She sometimes wakes up during night, but mostly accepts to be guided back to bed again. Staff members see it as a problem that she is most active and walking about in the evening causing many problematic episodes with staff and peer residents. They hope, that if she could be engaged in activities during the morning and early afternoon, she would be less restless and aggressive during the evening.

Mrs E's sight and hearing seem very good, and so does her great sense of humour. She often misunderstands peoples' intentions which can lead to anger – if not resolved in a good laugh. When feeling at ease Mrs D is warm and caring towards peer residents, she enjoys sing-alongs and appreciates the ceremonies at church services held at the residential home.

Music

Music was an important part of Mrs E's life. Her mother played the piano when the family sang. Parents were religious and the repertoire was hymns that Mrs E learned by heart. Mrs E sang in a choir for several years. Several of Mrs E's children are musicians, and they are surprised that Mrs E clearly knows lots of songs from other genres than hymns; genres

that they thought she never listened to. In her medical charts is noted, "Music and song are activities that mostly makes Mrs E feel calm and well".

ADL & different symptoms

Mrs D is only little disturbed by apraxia, which is mostly manifested when dressing. When eating she has no problems in handling knife and fork. For a long period she has collected things such as magazines and serviettes. They were rolled very tight and she then carried them with her or hid them under chair bottoms. This behaviour is not that pronounced any more.

Symptoms of aphasia are increasing. She expresses herself in often used phrases, in half sentences, and avoids using nouns. Like this she manages keeping up a conversation. Her comments to the greeting songs in the 10^{th} sessions are: "Hello" repeating my "Hello", and then; "It is cold in here." After the next song she says: "They are some good ones." She looks at her dress and starts rubbing it, like rubbing off a stain, and says: "There is too much. Can't you see that, there is full of too much?" After the next song she comments: "But that is exciting", and after the African song; "What was that thumping good one?" (10 – 10:38:16-10:48:36). For a long time she has been able to read the text in songbooks and magazines but is not able to do this anymore.

Mrs E recognizes faces of well known persons, and recognizes her living room as hers, but seems to lose her way when she walks about at other units.

Symptoms of amnesia are extensive. On the day of the 4^{th} session her birthday is celebrated in typical Danish tradition. She is the central figure in her finest clothes and gets presents, songs, birthday cake, chocolate with cream, the whole family visiting, and is congratulated by everybody. - And every time somebody comes to greet her, she laughs in big surprise when being told it is her birthday. She clearly enjoys the attention the whole day through and has a wonderful day.

It happens daily that Mrs E confabulates about going home to her mother, or that her small children are waiting for her to come home. She often misunderstands people's intentions or words. In session 10 she hears me singing that the sun "skider" (shits) instead of "stiger" (rises), and she reacts by looking very angrily at me, commenting the word. I apologize and say the correct word I was singing. She realises that it was a mistake and starts laughing. In these situations her sense of humour is worth gold.

BPSD

CMAI	agitation
phys. agg	(x)
∼ non-agg	(x)
verb. agg	x
∼ non-agg	x

Table 6.26: CMAI - Mrs E

According to Cohen-Mansfield Agitation Inventory (CMAI) Mrs E shows physical aggressive agitated behaviour and physical non-aggressive agitated behaviour less than one time a day, but shows verbally aggressive agitated behaviour and verbally non-aggressive agitated behaviour about once and twice a day.

In medical charts is written that Mrs E in periods has expressed depressive thoughts, which at present does not seem to be the case. She appreciates company with others and seeks contact. It is difficult for her to associate with others. She shows irritable, quick-tempered, and irascible behaviour and can be disturbing to others. "Her feeling of insufficiency and powerlessness has a big influence on her behaviour. When Mrs E suffers defeat she feels insulted and rejected, and she reacts being aggressive – primarily verbally, but she also hits those she feels has insulted or rejected her ... Mrs E has a great need to feel confirmed – she likes when somebody holds her hand, and she likes to feel needed." (Medical charts)

Evaluation of the music therapy process

Family and staff are very positive about the idea of Mrs E participating in music therapy. It is clear that Mrs E profits from sing-along activities and that she generally feels at ease with individual initiatives. So the music therapy is expected to be a positive element to Mrs E.

Staff on evening duty invite me to carry through the music therapy sessions in late afternoon, where Mrs E is most "active" (often in a negative sense). I consider this, but in the end we decide that the sessions are held during the morning, where Mrs E mostly is very tired – in the hope that more positive initiatives and activity during the morning could entail a change in her circadian rhythms and in the end have a carry-over effect on her behaviour and mood in the evening.

Mrs E participated in 19 music therapy sessions. Session 9 was cancelled, as Mrs E did not want to come with me to the music therapy room. In session 3 and 6 staff forgot to put on heart beat monitor in the morning and there is no heart rate data from these sessions.

Compliance

Mrs E's willingness to come with me when I invite her is not based on an intentional choice to participate in music therapy. She sees me smiling, inviting her to sing with me and reacts on this. On the one hand it shows her compliance when she is willing to come with me, on the other hand it is not because she makes a choice to participate in the music therapy. On the first morning I knock at her door to bring her she does not answer, and I find her sleeping in an armchair in front of the television. She smiles when I wake her up, and rises at once to come with me, although with some difficulties because of "those old legs". In session 3 I search for her for a long time before I find her at another unit. She has made a long walk and I hear her scolding a staff member. In this situation, too, she immediately comes with me. But in session 5, 9 and 13 she sits in the common room, and she does not want to get up from her chair. In session 5 she sits together with all the staff members. They are having a coffee break, and Mrs E is imitating their voices and laughter in a sneering and angry way, accusing them of being silly and stupid. She might understand my invitation to come with me as a kind of reprimand and does not want to leave her chair. Instead of trying to persuade her, another staff member and I simply take her under one arm each and guide her up. When first standing up, there is no problem at all walking, just the two of us, to the music therapy room and getting started.

In session 9 it happens again that she does not want to go with me. Again she stays in the common room. She sits sleeping in the sofa. She smiles when she sees me and says: "Well, are you coming here?" as if I was an dear old friend. But she does not feel well and does not want to come with me. I leave her for a while, and then come back. I ask a staff member to help me guide her to the music therapy room. Unfortunately this staff member seems not to know Mrs E. She *asks* her instead of *inviting* her to come, getting a clear "no". She then

starts persuading her to come with us. - With no result. Under these circumstances I do not find it right to force Mrs E to come with us, as she has made a clear statement that is to be respected. I cancel the session and tell Mrs E that I come to see her the day after.

I find her walking about before the next two sessions, and she joins me immediately, but before session 12 and 13 she sits in the sofa in the common room, and does not want to get up. These times I ask contact staff to help me guide Mrs E up from the sofa, before I ask her to join me to the music therapy room. In session 12 she joins me with no problems, in session 13 she is angry and hits the staff member, but sits down soon after and calms down. The incidents are discussed with leading staff, but there is a clear stance that it is our responsibility as staff members to give Mrs E support and possibilities to participate in beneficial activities. We would not show this responsibility by leaving Mrs E sleeping in the sofa. To intervene and take responsibility for other people's choices is controversial, making it important to consider ethical aspects by every incident.

Table 6.27 shows where I find Mrs E when I come to fetch her before the music therapy. 8 times I find her in her own apartment, 6 times she walks about at the unit or sits in a recess (session 4). 3 times I find her at the neighbour unit and 4 times she sits in the common room at the unit.

Place before session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Own apartment	s	s					+		+					+	+		+	+		
Unit				+				÷		o	÷								÷	o
Other unit			÷			o										÷				
Common unit					÷				o			s	÷							
Does not want to join Mt to Mt room					x				x			x	x							

Table 6.27: Context before the music therapy session. s: sleeping, ÷: negative mood, +: positive mood, o: neutral mood

The table shows when Mrs E does not want to join me to the music therapy room. There is a clear coincidence with the 4 times she does not want to come with me and the 4 times she sits in the common room. An explanation could be that she already has been walking about for some time, before she finds rest in the living room, and now is too tired to get up. As a contrast she seems positive about some diversion when I find her in her own room, where she has normally been sitting alone for some time.

When first seated in the sofa in the music therapy room and having had the first couple of songs, Mrs E shows compliance by staying in the room during the whole session, making generally positive comments to the songs, and now and then participating by actively joining in the songs.

Regulation over time

Figure 6.40 page 169 shows mean heart beat measures in the 19 sessions where Mrs E participated, except session 3 and 6 where there is no heart rate data. Session 9 in week 3 was cancelled and the heart rate data in the hatched field are two minutes measurements done at 10:55, where we are normally in the last part of the session. At this time Mrs E was still sitting with eyes closed in the sofa in the common room.

Table 6.28 shows the division of sessions in relation to heart beats per minute. In 12 sessions heart rate levels concentrate at about 65 to 70 bpm. This could be labelled *moderate* HR levels. In 4 sessions HR is lower than 63 bpm, and only in a single session the mean heart

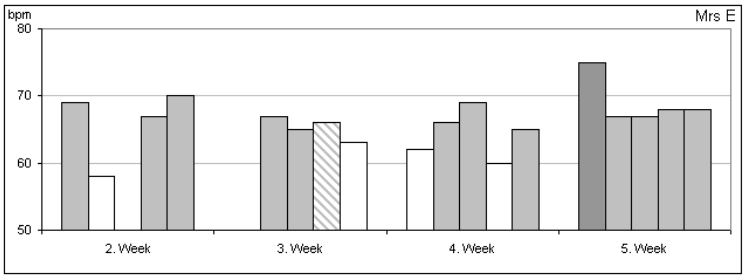


Figure 6.40: Mean heart rate (Mrs E) during 17 sessions

rate level in a session reaches 75 bpm. Generally Mrs E's HR is at moderate levels, and apart from session 16 where HR is 75 bpm, the mean level in week 5 seems to stabilize compared to the first 3 weeks.

Session 16 leaps to the eye looking at figure 6.40 page 169. In table 6.27 it is clear that Mrs E was at the neighbour unit and showed negative mood before session. I had started looking for her, but then a nurse brought her all the way from the other unit. Mrs E was very angry and scolding, telling me I was stupid. She sat down in an armchair instead of the sofa, so I had to move the camera in order to record the session. I later show the session-graph from this session.

The mean heart rate from the last 4 sessions looks quite stable and it is interesting to see what happens in the week after music therapy and if there seems to be a carry-over effect.

Occurence																		
Bpm	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
			low						Moderate								high			

Table 6.28: This figure shows the division of sessions in relation to heart beats per minute.

Carry over effect

Figure 6.41 shows heart beat curves in week 1, during the same period of the day as the music therapy is held later. In Mrs E's case the difference between walking and sitting is reflected in a clear jump in bpm. This makes it easy to point out the two episodes where she is walking about in the beginning of the measurement period. The rest of the time she sits down. The thicker white curve that is twisting about the straight mean line is from the 3^{rd} day, where she participates in the Wednesday sing-along with about 40 peer residents and staff. She is awake all the time and sits quietly just beside the piano (and the male music therapist that she finds very likeable). From this place she can survey the situation, but with a certain distance to the other residents. This seems to be a good position to her.

Figure 6.42 shows the heart rate measurements during week 6. It is clear that Mrs E during these five periods is moving about for some minutes and then sits down again. The variance seems greater in week 6 that in week 1. This is different from the 4 previously described cases, where the variance seemed smaller in the last week.

In the previously described cases we have seen a drop in mean HR when comparing week 1 and week 6. In Mrs E's case we see a very small increase (0,6 bpm) in bpm (See figure 6.43).

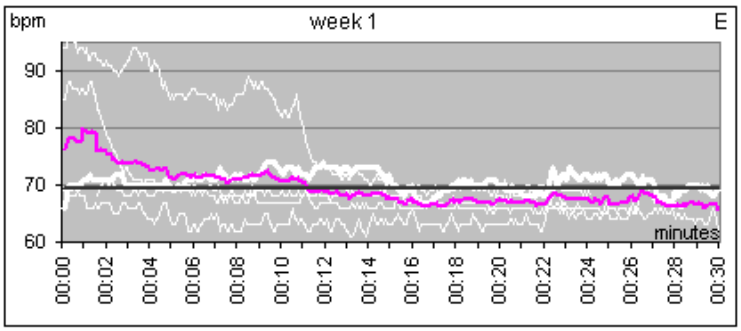


Figure 6.41: 5 HR curves in week 1 + the mean curve + the total mean HR level

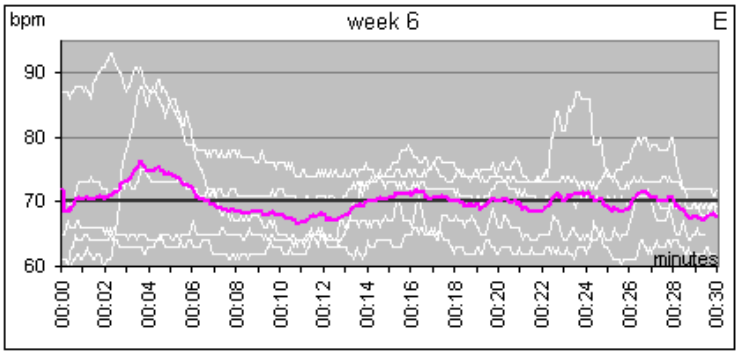


Figure 6.42: 5 HR curves in week 6 + the mean curve + the total mean HR level

The differences are too small to be concluded on, but at least it is clear that bpm did not decrease as was seen in the previous cases from week 1 to week 6. Maybe Mrs E is slightly more active in week 6 than in week 1 but it is not possible to establish a carry-over effect.

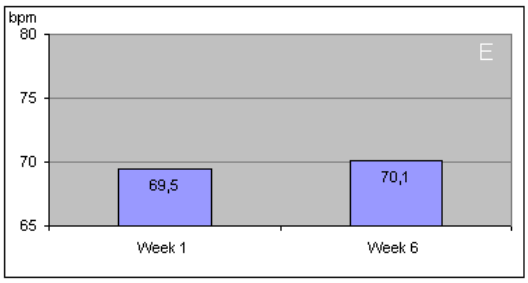


Figure 6.43: Mean heart rate (Mrs E) in week 1 and week 6

Regulation in the music therapy setting

In the bar chart, figure 6.44, it is clear that Mrs E's HR drops in the first part of the music therapy. Considering the low and moderate heart rate levels (except session 16) during the

music therapy sessions and the general drops in the first part of the session, there seems to be no danger that Mrs E becomes overstimulated during music therapy. It is rather a question if it is possible at all to activate her during music therapy, or if she simply remains hypo-aroused and falls asleep?

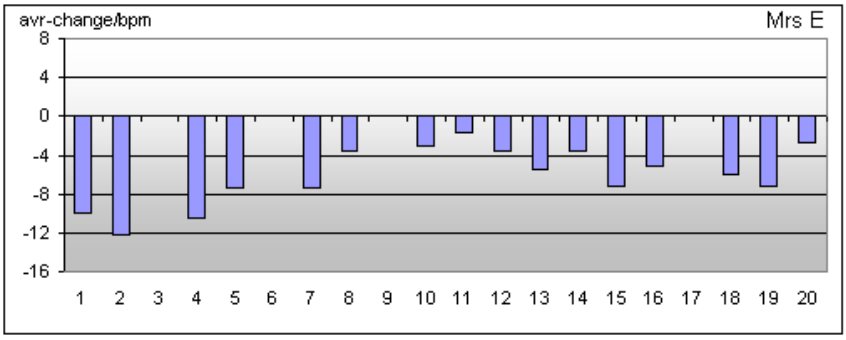


Figure 6.44: Decrease and increase of bpm during the first 7 minutes of sessions 1-20

Regulation categories

Table 6.29 shows the regulation categories during the sessions. In 10 sessions it is regulation category dec-inc (Decrease – Increase) and in 6 sessions category dec-dec (Decrease – Decrease). Sessions with the category dec-dec cover 38% of all sessions and have a mean drop of 3,4 bpm. The category dec-inc-sessions have a mean drop of 7,6 bpm. This means that where we see the biggest decreases, these are followed by an increase. With the relatively smaller decreases a later decrease is generally seen in the rest of the session. This pattern seems to be very stable with session 18 as an exception. Here the decrease in the beginning is as big as 6 bpm, and as it is in category dec-dec, we see that is continues decreasing. A glimpse on the session-graph shows that Mrs E is participating actively in the last part of the session, which rules out the possibility that Mrs E reaches a level of hypo-arousal. The session-graph from session 18 is shown later in figure 6.47. In order to rule out hypo-arousal in the rest of the category dec-dec-sessions (session 10, 11, 12, 14, and 20) I consult the session-graphs. They show that Mrs E sings or taps the beat in the last part of the sessions and only has her eyes closed in shorter periods, except in session 11 where she sits with eyes closed, but in spite of this sings, verbalizes, and taps the beat in shorter periods. This shows that she generally reacts to the music and actively participates in the last part of the sessions, although heart rate decreases further.

There seems to be no connection between regulation category and mean heart rate levels in the sessions.

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Category	di	di	-	di	di	-	di	di	-	**dd**	**dd**	**dd**	di	**dd**	di	di	-	**dd**	di	**dd**

Table 6.29: Regulation categories in each of the sessions

Summary

Mrs E spends her mornings shuttling between two stages, where she either dozes off in a chair or where she walks about, often to a point where she gets tired and edgy. She seems to be most motivated and at ease when she has spent the morning in her own living room, – having been able to stay on her own might already be a sign that she is less restless. Nevertheless it is possible to carry through music therapy sessions independent of state of arousal before therapy started. There seems to be a clear regulative effect during the process in the sessions, so that the activity level increases in sessions starting with steep decreases. When this decrease is moderate, heart rate levels continue decreasing, but not to levels where Mrs E does not participate actively in the session.

Communicative Signals

In order to assess if Mrs E has been participating actively the session-graphs give a quick answer. They visually give information of number and length of songs, and when and for how long time Mrs E joins in the singing, verbalizes, taps the beat, or closes her eyes. In the following I give examples of the session-graphs by picking out different "types" of sessions, covering *different* regulation categories, the context she came from, how her mood was, etc.

Example one

Session 12, figure 6.45 page 173 is one session out of four where Mrs E does not want to join me to the music therapy room. She sits sleeping in the sofa in the common room with a blanket over her legs to keep her warm. When I tell her that I want her to come with me so we can go singing, she refuses, explaining that she is too tired. I then get help from a staff member to guide Mrs E. She grumbles, telling us she is too tired and does not feel well. But soon after she accepts the situation and walks quietly with me without problems, and without needing the staff member to hold her other hand. As soon as she sits down again, and I have covered her legs with the blanket, she closes her eyes. I start singing and now and then, just after a verse, I ask her if she knows the song or other short questions, to see if she is awake. She briefly answers but keeps on sitting with eyes closed. During song number 5 she shortly taps the beat with her foot in the beginning of the song, and she later does this in other songs.

After almost 20 minutes where Mrs E has been sitting with her eyes closed all the time, she looks at me for a short period. She then leans back her head against the backrest and hums with me for 13 seconds. She closes her eyes and for a very short period she seems to sleep looking very relaxed, with her mouth open. On the HR curve there is a small decrease shortly after 10:57 reflecting this. I sing some old Danish songs in a faster tempo. The songs are originally children's songs, but at the same time songs, that most parents would sing to their children. Mrs E smiles, moves her foot to the beat and then opens her eyes. Again she hums with me for a short while. During the very last song she joins me once again.

After having finished I say: "that was nice" and she answers: "Yes, that was nice . . . oh yes it was". "Even though you were a bit tired today. But that's ok", I add. "Yes, there is nothing I can do about it" she says (12 – 11:05:22). Even though she is so tired Mrs E did participate and did have a nice time. This session is a category dec-dec session (with mean HR at *moderate* levels), but during the very last song heart rate increases slightly again. If I had asked Mrs E if she wanted to participate, she would have refused. Instead of that staff

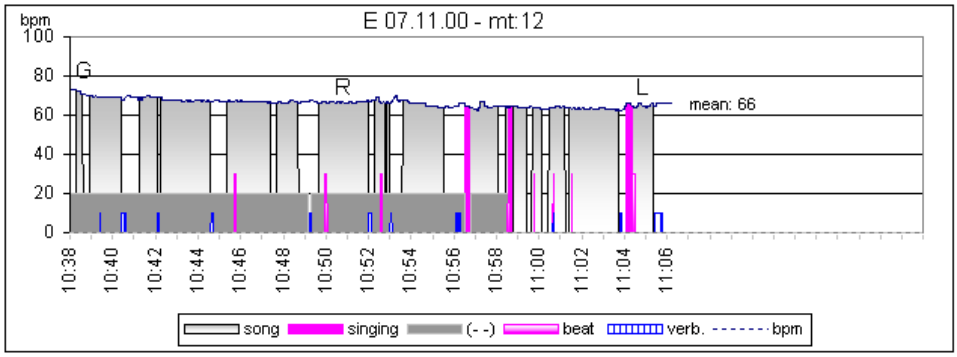


Figure 6.45: *Example 1.* Session-graph, Mrs E – session 12

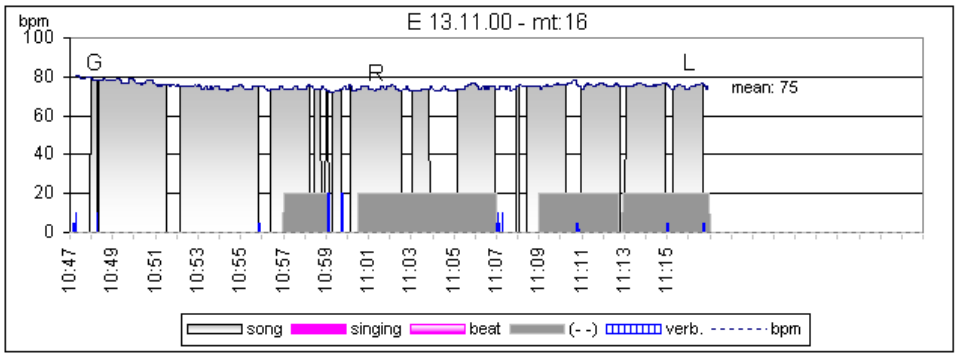


Figure 6.46: *Example 2.* Session-graph, Mrs E – session 16

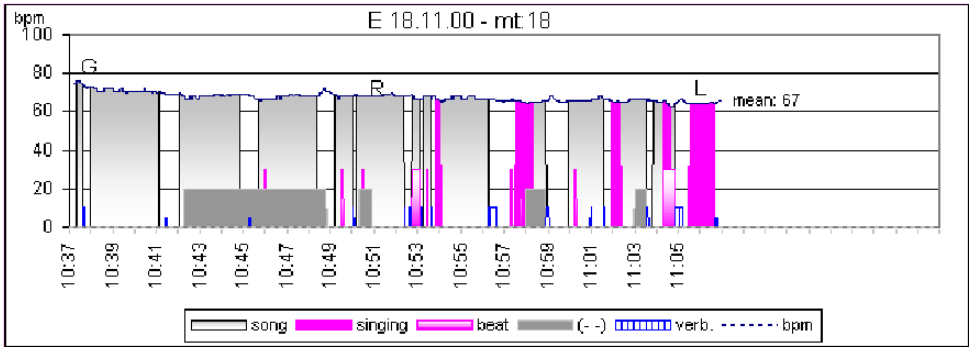


Figure 6.47: *Example 3.* Session-graph, Mrs E – session 18

and I (with support from the family) made the decision that we wanted her to give it a try, and with a good result.

Example two

Only in session 16 (figure 6.46) a high heart rate is seen, with a mean level at 75 bpm. The decrease in the beginning is "only" at 5 bpm, but heart rate continues decreasing. It then increases again, and is coded a category dec-inc session. This is the only session where Mrs E does not participate at all by either singing or marking the beat. Her comment after the first song is: "Such nonsense" (16 – 10:48:15), and she then remains quiet for almost 10 minutes. After the 3^{rd} song I ask her how things are, and she answers: "It isn't fun" (10 – 10:55:49). I now ask her how she feels and she answers: "Rotten". She finds the first African song "terrible nonsense" and after the second song she asks me "Why are you so mad at me?" (16 – 10:59:43).

She then sits in silence for a long period, and I sing two more songs. Her glasses are sliding down, and by adjusting them she loses the piece of sweet she has been holding in her hand. She takes it and gives it to me saying: "Here you are". I now know that she is feeling better, and thank her for the "present". After having song the last song I say: "Thanks for today". Mrs E answers "The same to you" (16 – 10:16:40). She remains seated after session is over and I put on some music for her. She smiles at me and moves her arms to the beat of the music, like conducting.

Mrs E does not participate actively in session 16 by singing, marking the beat or making comments to the text. Her heart rate remains on high levels even though she sits with her eyes closed for longer periods. Before session she showed aggressive behaviour and was walking about at the neighbour unit. Even if this session could be labelled "the less successful session with Mrs E", because she does not respond actively to the music, a change occurs in the character of her verbal comments, and she ends up with a smile on her face. Her emotional valence has changed from negative to positive.

Example three

In the first two examples Mrs E was either in the common room or at another unit before the session. In session 18 (figure 6.47) she comes to her door after I have knocked, crunching a piece of sugar and having a cup of coffee standing at the foot end of her bed. She smiles friendly and obligingly and is happy to come with me. There is a steep decrease in heart rate level in the beginning of the session, with the decrease continuing gradually during the whole session. In the first part of the session she sits with her eyes closed for a period, but in the last part she has her eyes open most of the time, joining the songs, marking the beat, and commenting the songs: "It really works" (10:50:02), "Well, it makes fun now and then" (10:53:13), "Yes, it seems to be.. like it should" (10:58:55), "That is good" (11:01:32), "That is nice" (11:03:32), "Yes, that is funny (laughs) it is almost ... oh help (laughs) (11:04:50). The latter comments are made to a song from a revue, and might be one of those songs that her children are surprised to see that she likes. It is very clear to me that I should only sing these songs if she is cheerful. If she is in a bad mood she seems only to accept hymns.

In the first part of the session Mrs E needs a rest, but in the last part she is actively participating and having a great time. In the following I want to examine if there is a pattern between activity level and regulation-/dialogue-part of the session. I will focus on a single communicative sign: singing.

Target sign: singing

During all 19 sessions I sing 261 songs to Mrs E (some of them repeated several times). She never starts singing a song on her own initiative, but joins me in 99 different songs, singing the whole song or just joining single words or tones (see table 6.30). It is clear that Mrs E never joins the greeting song in the beginning. She sings with me one time in the beginning when I instead of the greeting song sing a birthday song. Neither does she join in the African songs, but joins about half of the other songs. This indicates that she prefers well-known songs, and not the new and unfamiliar greeting song and the African songs.

Structure of session	G	Regulation part	Af	R	Mj	Dialogue part	L
Number of songs	18	75	19	19	19	92	19
Mrs E joins in	0	39	0	9	9	33	9
% of songs she joins	0	52	0	47	47	36	47

Table 6.30: Distribution of songs according to the structure of the session

In the regulation part less songs are sung (75 songs) than in the dialogue part (92 songs). Mrs E joins in, in about half of the songs in the regulation-part (52%) and a little more than a third (36%) of the songs in the dialogue-part. In 10 sessions Mrs E has her eyes closed during the regulation-part, and in 16 sessions she has her eyes closed in the dialogue-part. Generally spoken she seems to be more active and aroused in the first part of the sessions, but then shows a tendency to doze off in the later part. In e.g. session 18 (see figure 6.47 page 173) a different pattern occurs, where she in the beginning of the session has a rest, but then "returns" to be attentive to the music and participates actively. In order to have more of these balanced sessions, a phase in the music therapy process is first needed where it is possible for her to stay awake at all. To change Mrs E's circadian rhythm so that she is more active during day time will take time, but the music therapy seems to be a gentle way doing it step by step. I suppose that the next phase – if the music therapy process was prolonged – would show more sessions with the same pattern as in session 18.

Summary

Although Mrs E is very tired in the mornings (sessions are held approximately between 10.30 and 11.00 pm) the music therapy sessions are carried through with positive results. It is possible to register a positive change from start to end in emotional valence, and in all sessions but one, Mrs E participates actively by joining the songs, commenting the songs, or by marking the beat. Heart rate levels seem to stabilize in the last 4 sessions, and a vague increase in bpm is registred in the week after the music therapy course, compared to the week before music therapy. This points in the direction of Mrs E balancing at a more moderate, but active, level, but it is not clear enough to establish a carry over effect.

Conclusion

Mrs E is a very charming, and sometimes very challenging woman. She enjoys company but being together with others is not unproblematic as she often misunderstands the intentions of other persons. In the music therapy Mrs E without exceptions calms down in the first part of the sessions with considerable decreases in heart rate. She clearly enjoys the songs, participates actively to well-known songs, and behaves appropriately in the session. In a majority of sessions Mrs E dozes off in later parts of the sessions, joining in less songs in the dialogue-part than the regulation-part. This shows that the music therapy alone is not

enough (at least for one month) to change circadian rhythm and keep Mrs E more active during mornings. But generally she does not drop off to a level of hypo-arousal as she still, but to a lesser extent, in the last part of the session participates actively, and expresses that she enjoys the session.

6.6 Mrs F

Profile

Appearance

Mrs F is a widow in the beginning of her seventies. She is tall and slim and has a short haircut. I met her for the first time when she moved in at the unit 10 months before she started in music therapy. She was suntanned, straight-backed and athletic. Now she is pale and stooping and has a glassy stare. Her gait is shuffling and in a recent fall she has lost her front teeth.

Even old-timers from the staff are affected by her very quick decline.

Manner

Most of the time Mrs F restlessly walks about. She opens every door but does not enter smaller rooms. She seems to prefer walking where there is space, especially outdoors, and likes to walk hand in hand with somebody. Her gait is rapid and often tempo increases at the same time as she leans more and more forward. If not stopped she ends up falling.

Mrs F does not use semantic language. She uses the same few words to express everything by changing tone of voice. In that way she contacts both peer residents and staff. She might show them a thing she carries in her hand, and sometimes laughs spontaneously. When she is angry she uses the same words but changes the character of her voice.

Mrs F is constantly under supervision. She does not like to be "pursued", but a staff member always keeps an eye on her from the distance, and supervise that she does not pass through the front door, as she is not able to find her way back. If she leaves the unit the staff member will "meet" her on her walk and they will walk back together. Every day since Mrs F came to the unit she has gone for long walks with a staff member. The same walk *every* day so she might have a possibility to get to know the way and get used to this daily routine. For a period she has been too aggressive and staff members do not feel they can hold her back if she suddenly leaves them and e.g. crosses the street. The daily walks are cancelled for such a period.

Story of life

Mrs F is born in the late twenties in a big Danish town in a family of 6. Besides going to school she delivered milk or clothes that were mangled. When she was 14 her mother died of cancer and a couple of years later her father died of cardiac arrest. The family was split up and with a sister she moved to Copenhagen, where they worked together as housemaids in the same family. She worked there for many years but then learned office work and later got a job in a bank. She stayed in the same bank until she retired. She married in the 1960s and travelled a lot all over Denmark. Later she and her husband bought a boat and then preferred holidays in the South of Europe. They did not have many friends. Her husband had quite a temper, which often made family get-togethers end up with him angrily leaving. They were married for 20 years and they did not have children.

After her husband died, Mrs F spent much time working in the bank and did not have hobbies, except from doing long walks. She joined an organisation for "walkers". When she retired she moved back to her native town in a good apartment close to her sister, who was then her only relative in Denmark. They often visited each other, dined together and went

on holidays. Their last holiday together was 9 months before Mrs F moved in at the unit. The sister describes the holiday as quite bad, as Mrs F could not handle things and often got angry. She had not been able to pack her suitcase and the sister had to help her find something to wear, often the sister's clothes.

In the period to come Mrs F was no longer able to keep an appointment. She would walk about for hours without afterwards being able to tell anybody where she had been. Sometimes she would ring the neighbours' doorbells as if she did not know which door was her own or her sister's. This also happened in the evening, which made neighbours quite angry.

About a year before she moved in at the unit, her GP carried through a MMSE where she scored 16 and she was referred to further examinations at a psychiatric hospital. She failed the Clock-test, had problems finding words and expressing herself, and was not able to date memorable occasions. She seemed to be aware that she "now and then" had problems remembering, but thought it was not that disturbing in her daily life. She said that she was content with her life and that she managed well. She was diagnosed to have Alzheimer's disease in moderate to severe degree, and started treatment with Aricept. 11 months later she moved in at the unit, no longer able to take care of herself.

Diagnosis

After a couple of months at the unit Mrs F is admitted to a psychiatric hospital for a short period, and her first diagnosis, Alzheimer's disease, is reassessed. She is now diagnosed to have dementia with symptoms of Pick's Disease. Pick's disease is a progressive cortical dementia that particularly affects the frontal lobes.

Medication/aids

Antipsychotics (Risperdal* $1\frac{1}{2}$ mg)
No antidepressants

(*Treatment with Risperdal (2mg) is prescribed July 21^{st} 2000 – 3 months before she starts in music therapy. September 20^{th} amount is reduced to $1\frac{1}{2}$ mg; $\frac{1}{2}$ mg in the morning, 1 mg in the evening.)

Stage of dementia

FAST:	7 (in 7)
MMSE:	0 (in 30)

Network

Mrs F has no visits. In this period it is very difficult for Mrs F's sister to come visiting. It is hard for her to accept Mrs F's behaviour and that she does not recognise her. Instead she often talks on the telephone with contact nurse. A woman friend from Copenhagen sometimes phones the sister, but never comes to see Mrs F.

Condition

Mrs F seldom seems to be in pain. She eats well and her physical health is good in contrast to her rapid decline.

The very fast motor functioning decline might partly be due to adverse effects of neuroleptics. For a period Mrs F constantly has her mouth half open and dribbles very much. This stops in line with stepping down the dose of Risperdal.

Music

The sister says that Mrs F apparently did not relate to music. She did not play an instrument, never heard music on the radio or went to concerts, and the sister never heard her humming or singing to herself. When they were children their parents did not practise any kind of music or music related activities in their home.

Every Friday afternoon at the unit residents, relatives and staff are invited to join the song-café in the common room. A big number of relatives turn up to this arrangement to enjoy the cake and coffee, and lots of different songs are suggested with the music therapist playing the piano. I knew Mrs F from these arrangements, and had a clear impression that she enjoyed the songs and the company and often would rest seated. In the light of these good experiences it was tried to let her participate in the Wednesday sing-along, which she also seemed to enjoy.

ADL & different symptoms

Mrs F's motor function is declining rapidly. Over a few months she is no longer able to eat or drink on her own, or to go to the toilet. She does not find her way to the toilet and does not express a need to go. Apraxia causes big trouble when dressing and eating and she needs to be guided or helped in all activities in daily living. In the beginning of her stay at the unit she would find her way to her living room or toilet, but now she is not orientated in her surroundings.

Her language is reduced to a few particular words that she repeats over and over again. By changing tone of voice she communicates her mood. She uses gestures to indicate if somebody should go with her, by grasping the other person's hand. She does not understand verbal instructions and has symptoms of global aphasia.

Mrs F does not recognise her sister and shows symptoms of severe amnesia. Emotionally Mrs F is very fluctuating, and this makes it difficult for staff to predict her acts and to avoid it when she suddenly hits. She constantly ambulates, trying all doors on her way, or exhausted dozes off in a chair.

BPSD

CMAI	agitation
phys. agg	x
∼ non-agg	x
verb. agg	x
∼ non-agg	x

Table 6.31: CMAI - Mrs F

According to Cohen-Mansfield Agitation Inventory (CMAI) Mrs F shows physical aggressive behaviour once or less than once a day. She shows physical non-aggressive behaviour once or twice a day. Verbally aggressive behaviour occurs about once or less that once, and verbally non-aggressive behaviour occurs about once a day.

Evaluation of the music therapy process

Mrs F's sister is positive about Mrs F participating in music therapy when asked to sign the consent. She is generally satisfied with the different initiatives given at the unit, and trust it to be the best for her sister. She tells me that she does not think the sister will participate in singing, but simply hopes that the therapy course can make Mrs F calmer.

In this period Mrs F does not participate in group-activities. Her restless walking about and vocal incomprehensible expressions seem disturbing to the other residents, like their irritability towards her makes her more restless or even aggressive. The daily walks are cancelled unless two staff members join Mrs F.

I do not feel insecure about being alone with Mrs F. I know her from the beginning of her stay at the unit, and at first, until a fixed plan was made, I went for many of the walks with her. This and the fact that I was never in a situation where she was aggressive, makes it possible for me to relax and feel at ease with her. Feeling insecure about a resident is a feeling that cannot be hidden and staff have clear agreements about taking such a feeling seriously, e.g. by working together two by two when bathing and dressing, if the residents make them feel insecure.

I am aware that I have to put up very moderate goals for the therapy. It is clear to me that Mrs F will not sing with me or even express that she heard the song. But I hope that the regulative effects of the setting might make it possible to catch her attention in glimpses and lead her to a balanced and healing experience of the present.

Compliance

Mrs F does not show compliance. Well, she joins me to the music therapy room, but simply because she likes walking arm-in-arm with somebody. She gets seated only for very short periods, and if seated for longer periods she falls asleep. She does not seem to recognize any songs or seem to react to the songs in any way. She was very agitated during the first sessions, and if there are occasions, where music therapists might break off a therapy course because the client is "not suitable" for therapy, it must be on occasions like this ("Suitability for music therapy" is described by Lindvang & Frederiksen 1999).

I do not break off the therapy. No long waiting lists put pressure on me, as I am in a research project, only seeing two clients a day. Contact staff are very interested in music therapy with Mrs F, I get supervision from the OT, who has done a lot of work with Mrs F, and we all think it is worth giving it a try. All 20 sessions are carried through. 9 times (in six sessions) Mrs F leaves the music therapy. In one single session (session 14) she remains seated during the whole session. 3 times she sits 7-9 minutes during the session, and the rest of the sessions 4 minutes or less. On the average she sits 15% of the time. In other words she wanders about 85% of the time during music therapy. The bar chart, figure 6.48, page 181, shows for how long time in a session Mrs F sits down. She might sit down and get up many times during a session. The x-axis shows the 20 sessions, y-axis shows time in hours. In session 14 she sits for 30 minutes. Sitting down could be interpreted as a sign of compliance or a sign of being less restless.

On the surface we see that Mrs F does not show compliance, but small incidences and glimpses of contact assured me that it was worth carrying through the music therapy course. In the following I will illustrate the case by adding more data.

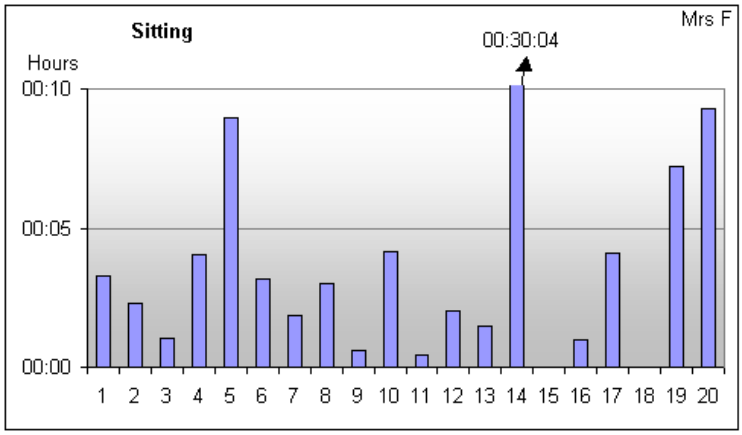


Figure 6.48: Amount of time Mrs F is sitting down during the 20 sessions

Regulation over time

Figure 6.49 shows the four weeks of music therapy and the mean HR in each of the 19 sessions. There is no heart rate data from session 6 as staff forgot putting on heart rate monitor.

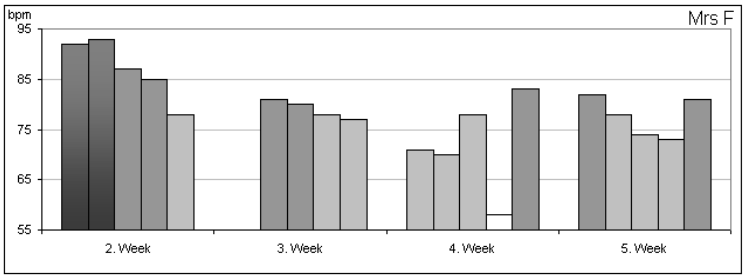


Figure 6.49: Mean heart rate (Mrs F) during 19 sessions

The heart rate variability is very big and I have to extend the y-axis making this figure differ from the previously shown figures on mean HR. Lowest level is in session 14 in week 4 where Mrs F seems to sleep during most of the session. Highest levels are in the first two sessions where the mean HR is more that 90 bpm. Roughly HR levels can be divided in 5 groups: *low* when bpm is in the fifties, *moderate* when in the sixties, *high* from 70-79, *very high* from 80-89, and *too high* over 90 bpm. In the first two sessions mean HR is *too high* and in no sessions *moderate* levels occur. Almost half of the sessions have *high* mean levels.

Occurence																									
Bpm	58	...	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
	Low					High								Very high									Too high		

Table 6.32: Distribution of sessions according to mean HR in bpm

Mean heart rate levels start off being too high or very high, but decreases gradually –

still with big variations. Week 1 and week 6 are not comparable with week 2-5 as too many variables are different, but it is possible to compare week 1 and week 6 and see if a change has occurred.

Carry-over effect

The line chart in figure 6.50 shows heart beat curves during week 1. The white curves show each of the 5 measurements. The dark curve shows the mean of the 5 curves and the straight line shows the mean number for all measurements.

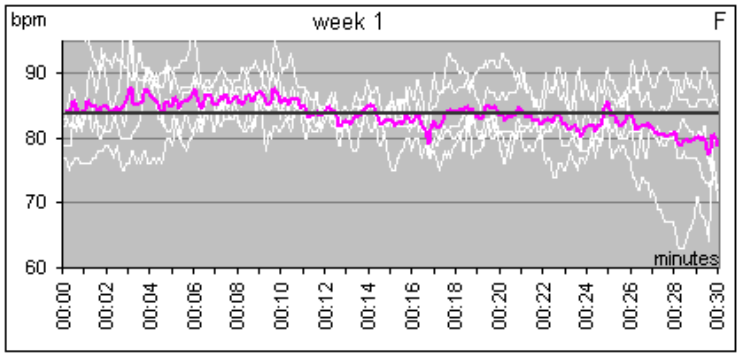


Figure 6.50: 5 HR curves in week 1 + the mean curve + the total mean HR level

In week 1 Mrs F sits together with staff when they drink their morning coffee. She does not remain seated but walks to and fro.

For shorter periods she might sit down. Even when she sits there are no clear drops in heart rate. Only when sleeping heart rate drops to marked lower levels. In the first couple of minutes where heart rate is at *too high* levels she sits down! During the first week heart rate often reach *too high* levels.

Figure 6.51 shows heart rate data from week 6; the week after music therapy has stopped.

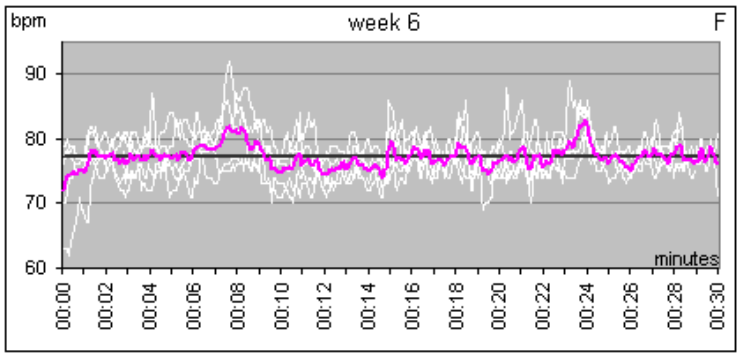


Figure 6.51: 5 HR curves in week 6 + the mean curve + the total mean HR level

There is a marked drop in heart rate as well as variability. Only a single time heart rate is *too high*. In week 1 the concentration of the curves are at *very high* levels, in week 6 a marked drop now shows the concentration at *high* levels.

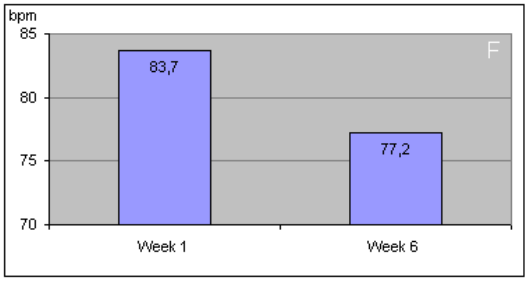


Figure 6.52: Mean heart rate (Mrs F) in week 1 and week 6

Figure 6.52 is a focus on the mean heart rate level for the whole two weeks. The drop of 6,5 bpm – from week 1 before music therapy to week 6 after music therapy – is considerable.

A reason for the drop could be changes in staff burden, changes in routines, health, weather, etc, but questionnaire data does not reveal clear explanations. One explanation could be that the decrease is due to a carry-over effect from the music therapy.

If the considerable changes from week 1 to week 6 are due to a carry-over effect, other data must point in the same direction; showing that the music therapy has effects in the single sessions.

Regulation in the music therapy setting

Looking at what happens in the first part of the session gives an image of Mrs F's first reactions to the music therapy; if she seems to calm down or if her activity or arousal level increases. The bar chart, figure 6.53, shows the direction of a tendency line during the first 7 minutes and how big the increase or decrease of this line is.

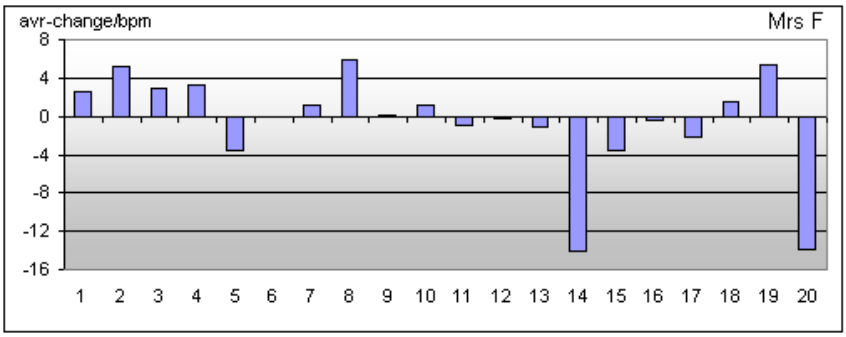


Figure 6.53: Decrease or increase of bpm during first 7 minutes of sessions 1–20

In the first 10 sessions in the music therapy course bpm increases, except in session 5. In the last 10 sessions – session 11-20 – bpm decreases, except in session 18 and 19. We already know that heart rate levels are high, especially in the first 4 sessions. -That heart rates now increase further are certainly no good sign. It is important here to assess if Mrs F is being overstimulated by the music therapy.

It could be a good sign, though, that a change seems to appear during the last sessions (with two exceptions), where heart rate decreases. But again it is necessary to assess for

understimulation here, in order to get an idea of what is happening.

Regulation categories

Tabel 6.33 shows the regulation categories for each session. In the first 10 sessions mainly category inc-dec or inc-inc are seen. In the last 10 sessions mainly category dec-inc and dec-dec are seen.

In the first three sessions we have seen that HR level is higher than 87 bpm (see figure 6.49, page 181). This makes it alarming that these sessions are category inc-inc sessions as it indicates an increase during the first part of the session, followed by a further increase.

It is the first time in this material that category inc-inc sessions occur. They are pointing at the risk of overstimulation.

Session	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Category	***ii***	***ii***	***ii***	*id*	di		*id*	*id*	*id*	*id*	**dd**	**dd**	**dd**	di	di	**dd**	di	*id*	*id*	di

Table 6.33: Regulation category in each of the sessions

To me it is clear that Mrs F is overstimulated and hyper-aroused during the first sessions. She sits down less than 4 minutes (see figure 6.48) during the sessions. The sessions pass off with me sitting in the sofa. I sing, Mrs F walks to the door, tries to open it, says "B" (the two words she uses starts with B), comes to me, says "B", takes my hand, I guide her down, says "B", sits for a very short while, says "B", stands up, says "B", walks towards the door, says "B", tries to open the door, etc. Mrs F does not manage to open the door that is locked from inside. The lock is simple to unlock by turning a knob, but she does not manage to turn it. It is locked to avoid disturbances from other residents. The music therapy room is very centrally placed and it very often happens that somebody walks into the room if the door is not locked. There are more doors in the room. A double door leads to a bigger dining and activity room. This door is not locked and twice in session 1 Mrs F leaves the room through this door. The double door is white like the walls, and might not be as eye-catching as the other door that looks more like a front door. When Mrs F leaves the music therapy room I walk with her. We walk a small distance together and then turn back to the music therapy room.

On the third day I have supervision with the OT. We conclude that Mrs F might not like the room and needs more space. The room is very cosy with lots of flowers, cushions in the sofa, music instruments and bric-a-brac. From now on I remove all superfluous things before therapy with Mrs F, and in fact the room seems bigger. I include the activity room so the double doors can be left open, and even leave open the door to the kitchen that lies next to the room. I lock the door from the activity room to the corridor to avoid disturbances, but Mrs F has now plenty of space. In session 4 the activity room is already occupied, but from session 5 we get more room. This has a great effect on the music therapy. Mrs F still walks from the door to me, and back again, most of the time, but now and then she walks about in the other rooms before she comes back.

In session 5 Mrs F sits down for almost 9 minutes and says "B" much less. In figure 6.54, page 185, I have counted the number of times Mrs F says "B" in a session. X-axis shows the 20 sessions, y-axis the number of "B's". The white fields show the mean levels of "B's" in each of the 4 weeks.

During the first 4 sessions where we only use the small music therapy room Mrs F says B hundreds of times. Session 2 peaks with more than 500 B's. The B's can be expressed very differently, sometimes angrily, sometimes with sadness, and does not necessarily mean that

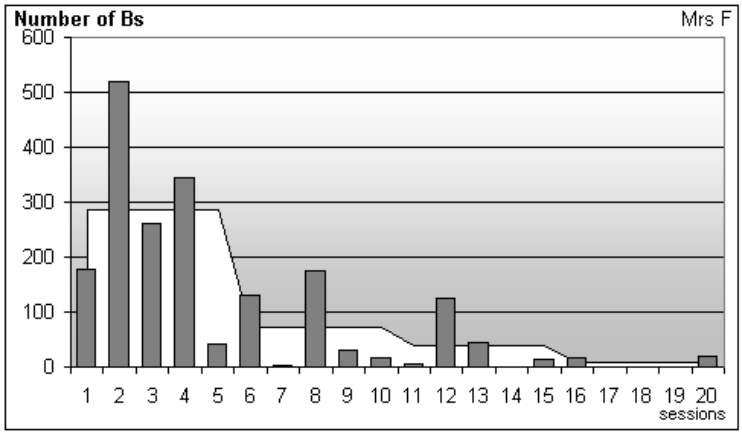


Figure 6.54: Number of B's during 20 sessions

Mrs F is aroused. But here the very high heart rate level, together with the fact that 3 of the sessions are in category inc-inc, the fact that she does not sit but makes for the door most of the time, and the fact that she says B very often, point at Mrs F being hyper-aroused.

A marked change occurs in session 5. Mrs F only says B 42 times, she sits down for longer periods (altogether for 9 minutes), and a couple of times she looks intensively at me. Another change is that I (!) show more compliance. When I sit in the sofa and she comes to me and takes my hand, I follow her if she pulls me up, and we walk around together for some time while I sing. When she then goes to the door, I sit down in the sofa waiting for her to turn around against me. When she turns, I start singing the next song.

Session 5 is a category dec-inc session but the change that occurs is not stable and in week 2 all sessions are category inc-dec sessions (with no heart rate data from session 6). Mean heart rates are still *very high*, but additionally increase. The decrease later on indicates that Mrs F calms down a little in the process of the session.

The category inc-dec and inc-inc sessions in the first two weeks indicate that music therapy is no promising therapy to Mrs F.

Luckily we carried on for another two weeks.

In week 3 category dec-inc and dec-dec sessions occur. A good sign! Heart rate drops during the first part of the session, and in session 14 and 20 the drops are as big as 14 bpm. In the latter sessions heart rate increases again as these sessions are category dec-inc sessions. Sessions 11, 12, 13, and 16 show smaller decreases, but as they are category dec-dec sessions the decrease continues. Category dec-dec sessions indicate understimulation. In Mrs F's case category dec-dec sessions are a good sign, considering her very high heart rate levels.

If session 18 and 19 are left out (as they are category inc-dec sessions) an important change occurs from the first two weeks with category inc-dec and inc-inc sessions, to the last weeks with category dec-inc and dec-dec sessions. It seems that Mrs F is now, generally, able to calm down. In the last two weeks the number of B's are reduced remarkably, mean heart rate has decreased, and Mrs F sits down for longer periods.

Greeting song

Up till now I have looked at the regulative effects in the first 7 minutes of the session. With Mrs F I want to examine the first part of the session a bit closer. I always start the session

with the same song, the greeting song. I greet Mrs F with the song, shake her hand and sing her name. This is a clear cue that the session is going to start. I wonder if she hears the song and understands it as a cue. Figure 6.55 shows what happens to the heart rate when I sing the greeting song. The curve is the mean of bpm during the greeting song in session 1-13. The song only lasts about 25 seconds and the x-axis shows the number of 5 second intervals. Y-axis shows heart beats per minute.

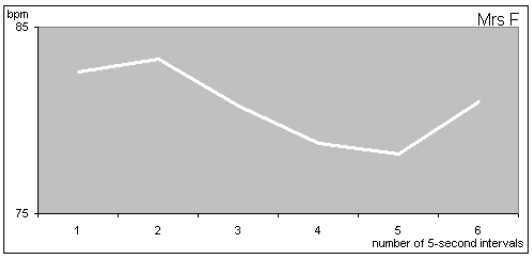


Figure 6.55: Mean curve of greeting songs sung in session 1-13 (not 5 and 10)

There seems to be a clear pattern occurring during the first greeting songs: that heart rate shortly increases, then makes a steeper decrease, followed by an increase again. In the case of Mrs F these steep decreases are interesting.

Figure 6.56 shows 3 exceptions; session 5, 10, and 14, where heart rate generally makes a steep increase.

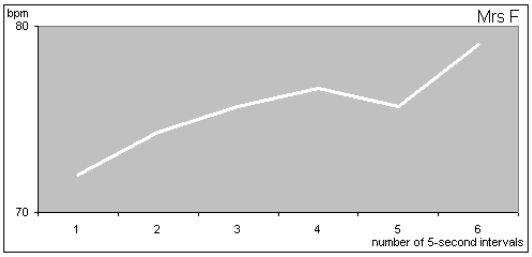


Figure 6.56: Mean curve of greeting songs sung in session 5, 10, and 14

The greeting song in the last 6 sessions again shows a decrease (see figure 6.57, page 186, but this time not followed by an increase. The decrease is perceptible.

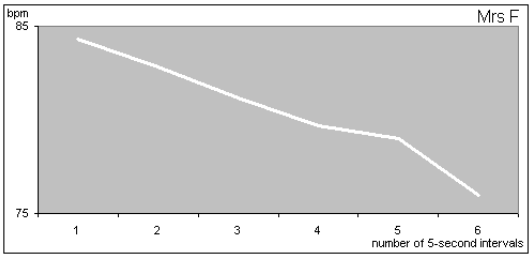


Figure 6.57: Mean curve of greeting songs sung in session 15-20

The heart rate curves, measured when I sing the greeting song, seem to be independent of Mrs F's sitting down or walking about. During the first sessions she sits part of the time 8 of 10 times (see figure 6.48, page 181). During the last 6 greeting songs where we see the steep decrease she only sits once out of 6 times.

The very steep decreases, that characterise the HR level when Mrs F hears the greeting song, indicates that Mrs F at some level reacts to this song. Her reaction might not be due to the song itself or the cues related to it, but as well to the fact that I shake her hand and sing her name. The song seems to have a strong regulative effect on Mrs F. The song is very short and only lasts about 25 seconds. When I carried through the therapy I was not aware of the effect on the heart rate of this song. What would have happened if I had prolonged the song?

Summary

Mrs F shows no compliance and seems to get hyper-aroused in the first sessions of music therapy. Her heart rate levels are very high and during the first two weeks of therapy they further increase in the beginning of the sessions. A change occurs during the last two weeks. There is a drop in mean heart rate, heart rate levels decrease additionally in the first part of the sessions, and the number of times Mrs F verbalizes is markedly reduced. The greeting song is the start signal for the session and Mrs F clearly reacts to this song with steep decreases in heart rate.

At some point the music therapy seems to reach Mrs F and makes it possible for her to calm down. These tendencies support the explanation that the marked changes in heart rate pre- and post therapy are due to a carry-over effect.

Communicative signals

In the session-graphs I have focussed on Mrs F verbalizations, where she uses two words starting with B. Additionally it is marked when she sits down, leans back, sleeps, and when she moves towards the door, turns around in the direction of the music therapist, moves to the next room beside the music therapy room, or when she leaves the music therapy through the "front door". In the case of Mrs F I have included 4 examples of sessions in order to cover all four regulation-categories.

Example one

The session-graph, figure 6.58, shows the very first music therapy session with Mrs F. Mrs F's heart rate is most of the time *too high* and is additionally a category inc-inc session. Mrs F says B very often, and she often stands at the door as if she wants to go out, without being able to do so. Twice she leaves the music therapy room through another door (at 10:09:52 and 10:21:40). The session is very short (17 minutes) and I sing only 6 songs (song 2 and 3 on the session graph are the same song), keeping the structure songs and the structure-part of the session, but without introducing the African songs and without the dialogue-part.

The increasing heart rate and restless and agitated behaviour indicate that Mrs F is overstimulated and hyper-aroused.

Example two

In this example from session 8 (figure 6.59 page 189) bpm mean levels are 12 bpm lower than in the first session, but still at *high* or *very high* levels. Being a category inc-dec session, heart rate increases in the first 7 minutes but then decreases. The decrease in this session is small. 4 times Mrs F walks about in the room next to the music therapy room, but then comes back. She very often stands at the "front door" and only sits down for altogether 3 minutes. The longest period where she sits is at 10:27:17, where she sits for almost one minute. At 10:27:27 she even leans back for 2 seconds! I sing 13 songs during the session. When Mrs F walks away I finish the verse I am singing, but then wait to start the next verse until she turns around in my direction. In that way the song R (Roselil) now appears as four small songs. The 3 songs in the dialogue-part are sung without breaks between the verses.

In session 8 Mrs F is aroused and agitated, not able to calm down and to have a rest. The music therapy has no calming effect on her.

Example three

Figure 6.60 is the session-graph from session 11. The mean heart rate level from this session is at 71 bpm, respectively 21 bpm and 9 bpm lower than session 1 and 8. Being a category dec-dec session a decrease of bpm is seen in the first part of the session, followed by a later decrease. Heart rate level is *high* but now and then drops to *moderate* levels. Mrs F only sits down twice and for a very short time, in spite of this she makes a more calm impression and rarely says B (5 times). She leaves the therapy room twice at 10:20:53 and 10:26:33.

Mrs F often comes to grip my hand, and we walk arm in arm for a little while. Often we walk to the window and stand there for a short while at the same time as I sing. We have very short glimpses of tranquillity – but only glimpses – before Mrs F gets restless again and needs to move on.

Example four

The last example is from the last session. During session 17, 18, and 19 heart rate has been *high*, but now in session 20 it reaches *very high* mean levels again. Even when Mrs F sits down with her eyes closed, probably sleeping, heart rate is about 70 bpm, which is high when at rest. Unfortunately the heart rate monitor does not receive heart beat signals from 10:25 until the end of the session, as the monitor might have slipped or there is used too little

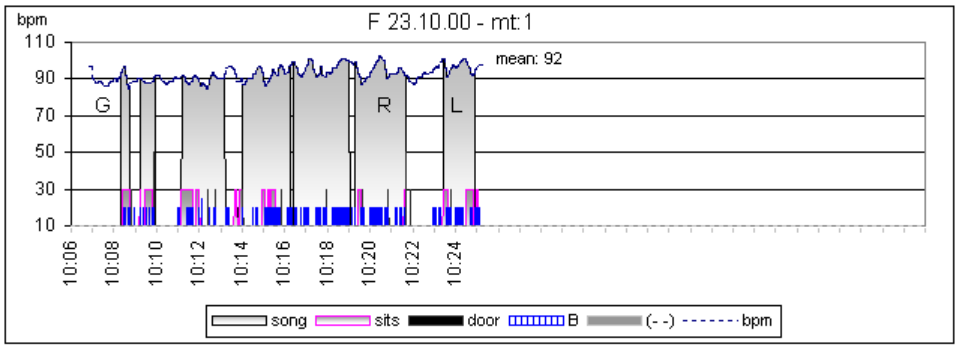


Figure 6.58: *Example 1.* Session-graph, Mrs F – session 1

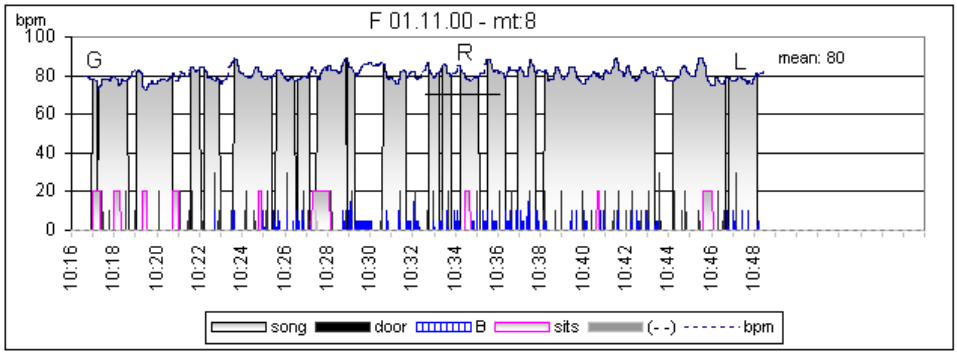


Figure 6.59: *Example 2.* Session-graph, Mrs F – session 8

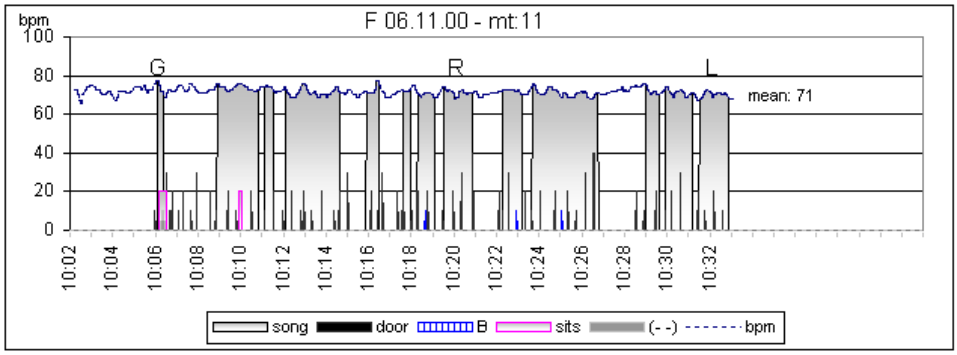


Figure 6.60: *Example 3.* Session-graph, Mrs F – session 11

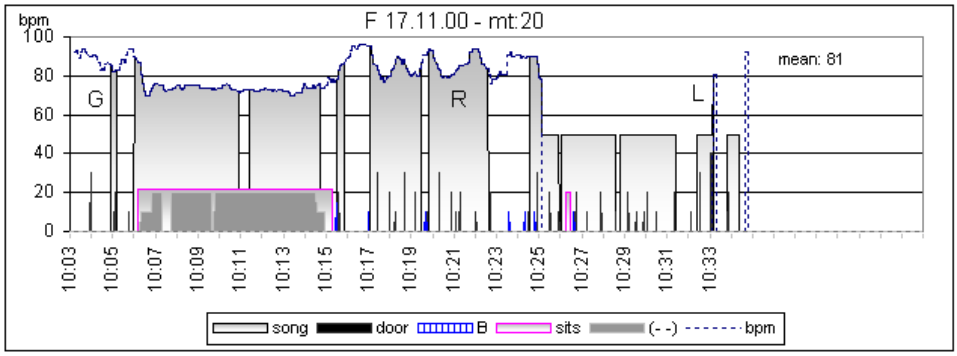


Figure 6.61: *Example 4.* Session-graph, Mrs F – session 20

electrode gel. Songs and communicative signals are still marked. In the end of the session (10:33:04) Mrs F leaves the music therapy room. After a short walk we come back to finish the song in this last session.

At 10:28:53 Mrs F stands in front of me while I sit in the sofa, having just started a new song. She looks intensively at me, reaches out for me and gently touches my chin. I have the feeling that often when I start a song she is attentive for a short while, until her inner restlessness drowns her attentiveness and she slips away. We have seen that Mrs F's heart rate makes a steep decrease when I sing the greeting song. When I sing song 2, 5, 6, and 7 in this session VERY steep decreases occur, see line chart, figure 6.62.

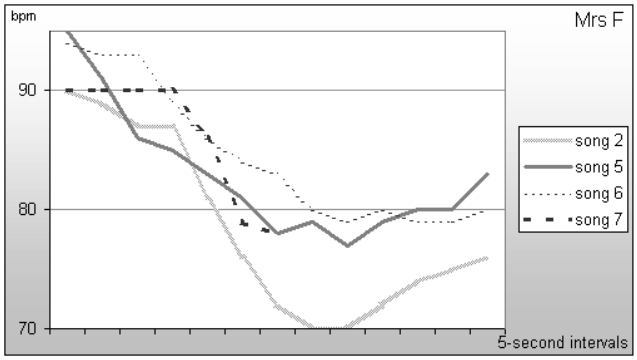


Figure 6.62: Song 2, 5, 6, and 7 in session 20

I cannot rule out that the fact that Mrs F turns away from the door, which is the signal for me to start the song, results in these steep decreases. But decreases happen in the greeting songs too, and here *I* turn towards Mrs F to start the song. It could also be that the two things co-operates and makes Mrs F more attentive.

From this I will conclude that Mrs F in glimpses is very attentive and hears the songs. The regulative effects of the songs are not seen directly as the decreases are only temporary, but over the long run comparing the first and the last sessions there seem to be clear regulative effects of the music therapy.

Target sign: contacting the therapist

It is very difficult to see any signs where Mrs F communicates that she hears the music. She never sings and does not show by gestures or facial expression that a song affects her emotionally. When I have a feeling that a song affects Mrs F it is strongly based on my intuition. Several times I see that Mrs F follows the beat of a song when she walks – but it might as well be me following her beat?

Even if Mrs F does not "hear" the songs, she comes to me, contacts me, takes my hand or looks at me. That she relates to me as a person in a positive manner is a very basic aspect of the therapy.

It is a way of showing compliance and is the foundation for building up trust and confidence. I therefore want to see if it is accidental that she approaches me or if she does it intentionally. Showing intentionality might not mean that she shows conscious intentions, but that she simply follows an inner clear impulse to contact me. To do this I have picked out events where she:

- looks intensively at Mt (e.g. session 5 – 10:21:45)

- seems to smile (session 5 – 10:26:48, this only happened once)
- takes Mt's hand (e.g. session 10 – 10:15:09. Majority of the events)
- gives Mt a thing (e.g. session 11 – 10:32:47)
- touches Mt (shoulder, chin, cheek. E.g. session 14 – 10:24:50)

I looked for events in randomised chosen sessions: in all session with uneven numbers, excluding the first and last sessions. This gave me the following 7 sessions: sessions 5, 7, 9, 11, 13, 15, and 17. I found 51 events in the 7 sessions.

As I was interested in finding out what happened *before* an event, I used heart rate data in a minute up to the event. Figure 6.63 shows the 7 *pre-event curves* (the white curves) in session 13. The black curve is the mean pre-event curve of the 7 events. X-axis is 5 seconds time intervals and y-axis shows bpm.

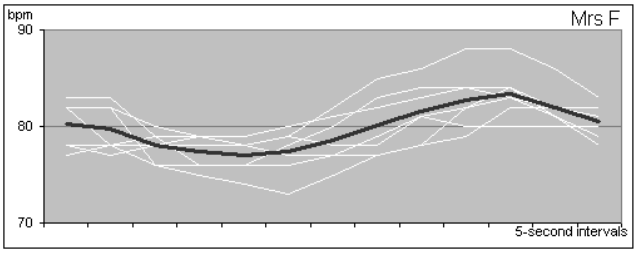


Figure 6.63: 7 pre-event curves. Session 13

In the minutes before an event there seems to be a drop in bpm followed by an increase, and then a slight drop again during the last 10 seconds. It looks like a tilted S. Figure 6.64 shows the mean pre-event curve of all 51 events.

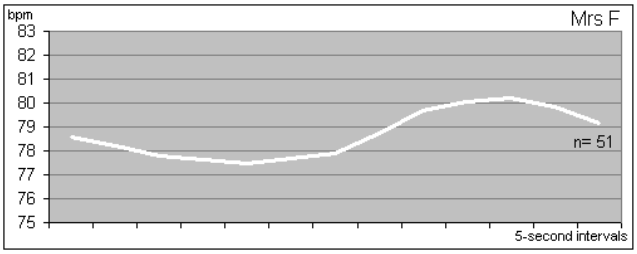


Figure 6.64: Mean curve of 51 pre-events

The same tilted S is seen. The variation of this curve is about 3 bpm, which is not big. To carry out a control, I selected 50 random "events". The random selected "events" were found in the same sessions, but systematically selected after whole minute digits, e.g. at 10:15:00 to 10:16:00. The random selected "events" were taken at two minutes' intervals in the middle part of the sessions. Figure 6.65 shows the mean curve of 50 random selected "events".

In the control mean curve the variation is about 1 bpm and shows no pattern in bpm in the 50 random selected "events". Figure 6.64 shows a certain tilted S pattern. That Mrs F shows this particular pattern in heart beat before an event indicates that she does not

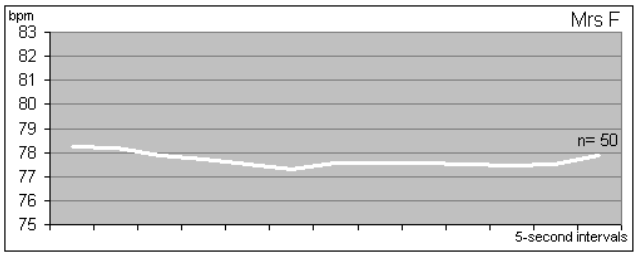


Figure 6.65: Mean curve of random selected "events"

accidentally grip my hand. My interpretation is that the slight decrease in heart rate shows increased environmental attention. She seems to be aware that there is an object/subject (the music therapist) in the room. The very decision to approach this subject/object makes heart rate increase with a slight decrease again, before she carries through the action and approaches the music therapist. This clear pattern before she carries through the action indicates intentionality.

Summary

Examples from four music therapy sessions show

- the first (category inc-inc) session in week 2 where Mrs F was hyper-aroused,
- a (category inc-dec) session from week 3 where Mrs F is still – but less – aroused,
- a (category dec-dec) session from week 4 where she is calming down and sometimes reaches *moderate* heart rate levels,
- and a (category dec-inc) session from week 5 where she starts session with having a rest.

In a number of songs in session 20, heart rate decreases markedly for a short time in the beginning of the songs, which leads to a supposition of Mrs F being attentive to the songs. A certain pattern in heart rate before Mrs F contacts the music therapist shows that these events are not accidental but that Mrs F intentionally approaches the music therapist.

Conclusion

Before starting music therapy with Mrs F, and during the first weeks, music therapy seemed to be no alternative to the more or less constant ambulating of Mrs F. During the first sessions it actually worsened her agitation. But during the last 2 weeks Mrs F became less agitated, her vocalisations decreased markedly, and even in the week after music therapy had stopped heart rate decreased, compared to the week before music therapy.

Mrs F did not participate actively in the music therapy or visibly reacted to the songs, but heart rate data show decreases during the greeting song (that signalises beginning of the sessions), and steep decreases during songs from the last session. This shows temporary attentiveness when a song starts; an attention or awareness that she seems unable to keep.

Several times during the sessions Mrs F would contact the music therapist by gripping her hand or by looking intensively at her. Heart rate data show a certain pattern before the actual event and points at Mrs F intentionally approaching the music therapist.

Even in this case – with a woman with severe symptoms of dementia and agitation – it seems to be possible to create a way of being together where she calms down, and in glimpses is attentive to her surroundings. The first two weeks was all about starting a therapy course and creating trust and structure, and even in the following weeks this was the main aspect. We hardly got started with the course before it was over. If Mrs F had got used to the structure, to the music therapist, and to the whole setting before her cognitive abilities were that afflicted by the disease, our starting point would have been very different. In this case it might have been possible to reach her for longer periods, instead of small glimpses, and to pass on a feeling of safety and tranquillity to her that she seemed to need so desperately.

But the small glimpses, where the person F was present, showed that the music therapy had a meaning and made a difference. The glimpses where she seemed to realize that she was together with another person, where a fleeting smile lit up her face, where she went straight into the room and sat down before we got started (session 19), and where she breathed deeply and leaned back.

Subsequent comments:

- On November 23^{rd} Mrs F's antipsychotic medication (Risperdal) is reduced to 1 mg. (The last music therapy session is on November 17^{th}.)
- On January 8^{th} treatment with Risperdal stops.
- The decline in motor functions proceeds rapidly. On February 5^{th} I went to see Mrs F. She is no longer able to walk straight, but walks about in circles, like a fly having had a swat.
- On a visit March 28^{th} I for the first time find Mrs F in her own living room. She sits in a wheel chair no longer able to walk.

Chapter 7

Hermeneutic analysis of response

7.1 Response

> "It may be that a vital aspect of communication ... is not the ability to produce sound but the ability to listen and respond appropriately to sound." (Aldridge 1996)

In chapter 5 I have outlined different aspects of communication and dialogue. Starting from this I will now study the communicative signals given by the participants in the music therapeutical setting. I will include video data material and based on this I will try to outline what the responses in the music therapeutical setting are telling us about the quality of being together.

The term "**response**" illustrates communicative signals given as a kind of answer in a communicative interaction. When two people interact and communicate both are responding to each other. Even if one person is "not responding", e.g. by staring out of the window not moving at all, this "not listening" or "not reacting" might be the basis to new responses in the first person. This entrainment of reacting and responding when persons are interrelating is difficult to see through. What is the cause of a response? Is there an inner impulse that has nothing to do with the interrelation? - Or is the impulse to move or react a response to an interrelational aspect? When observing video data material I might ask myself why Mrs F e.g. is moving her head. Is she listening? Does she hear a sound, that she find strange and obscure? - or does she hear a song that she recognises? - or a person telling her something?

Using video data material gives facts that we can agree on. It is possible to make observations and register movements. When we disagree we can have another look at the video clip and decide whether or not the person is moving. Some movements are so small that we have to make an interpretation and in these situations we must take measures against seeing movements that are not there. – or *not* seeing movements that actually are there.

When a person is moving, making a sound, freezing in a non-moving state, leaning back or is changing in some way, I suggest that we observe a response. In Miller's (1962) definition of response the term is connected with the term stimulus. I return to the term stimulus later, and first concentrate on responses that can be defined as:

> "Any pattern of glandular secretions and muscular contractions resulting from activity that arises in the nervous system as a result of a stimulus." (Miller 1962)

This means that responses are observable with the right methods of observation. With video observations it is possible only to observe "larger" muscular activity but not very small movements. If we e.g. see breathing as a muscular activity (Newham 1999), this response is not possible to observe on the video material I have included, as the participant sits too far away from the camera.

Above in Millers definition of response he only includes muscular contractions. I also want to include the opposite; muscular extension. I see stretching out the arm as a response as well as leaning back in a relaxed manner. So my use of the term response is very broad and differs from the behaviouristic fear conditioning theory (see LeDoux 1998). Stretching out the arm is an act at a very different level from a contracting movement caused by alertness when the person hears a threatening sound. The two movements are controlled by different nervous systems. The latter is controlled by autonomic nervous system; the first is a more or less conscious act. Common for both terms is that the reaction is caused by a stimulus. If the arm suddenly hurts this inner stimulus causes us to stretch or bend the arm. If somebody throws a ball directly at us we will try to catch it. If we see something we might reach out for it or point at it.

The terms **stimulus/response** are related to behaviourism. The most seminal works from this approach to psychology stem from Watson, J. B. (1878-1958), Skinner, B. F. (1904-90), Pavlov, I. P. (1849-1936), and Hull, C. L. (1884-1952). Especially Pavlov's experiments with dogs and the physiology of digestion led to theories about conditioned/unconditioned stimulus and response. LeDoux explains conditioned/unconditioned stimulus as follow:

> "In fear conditioning an unconditioned stimulus (typically a brief, mild footshock) is delivered at the end of the conditioned stimulus (usually a tone or light). After a few pairings, the conditioned stimulus acquires the capacity to elicit a wide variety of bodily responses." (LeDoux 1998)

My way of using the term response differs from the controlled experimental situation in behaviouristic science. The term is applicable in this research project in the process of observing video data material, but I use the concepts in a broad sense seeing the response as a physiological, behavioural, musical, emotional, verbal, and non-verbal *response* to a given environmental, intra- or interpersonal *stimulus*.

In the process of **observation** of video data it is useful to focus on responses. The focus on responses shows one way of describing what is going on in the music therapy session.

But an observation establishing that the participant is moving his arm does not tell me much about the "togetherness" in the session. Thus additional to observing responses I want to get an understanding of the **quality of the response**. Is the participant moving the arm in a certain direction? Is he/she pointing at something? Is the hand tapping the beat of the music? – or marking the ending of a phrase in a song?

My problem by "understanding" the responses of the participants is that if I do not know what the stimulus is, I do not know from which background "meaning" is generated. Is the participant responding to the music or to me as a therapist or to an inner impulse (an intra personal stimulus). Skinner (in Miller 1962) distinguished between two classes of responses; *elicited* and *emitted*: Responses elicited by known stimuli are respondents. Responses emitted without any known stimuli are operants (Miller 1962, p. 230). In this extended view of the S-R connection experimental animals are able to enter learning processes when stimuli are coupled with reinforcement or punishment.

There is a big difference from this controlled situation, or closed system, to a therapeutical setting. In the closed system (see page 67) the response can be measured and variables

controlled. In open systems where a large number of variables influence the outcome, measurements of responses seem problematic, and a hermeneutic approach considering understanding and interpretation might be valuable.

> "The problem here does not lie in measurement per se but in interpreting the meaning of what is measured. To think of human beings as variables who bear statistical values is to fall into the trap of imagining people as vessels of experience ... My argument here is *not* an attack on efforts at measurement. On the contrary, we need measurement - of morale, retirement rates, caregiver burden, and all of the other issues discussed by social gerontology. But we ought not to remain uncritical about what measurements or responses mean. A response by a subject is *both* a variable and a voice, an activity of dialogue, susceptible to interpretation as well as measurement." (Moody 1993, p. xxiv)

When the response is seen as a "voice" quantitative measurement tools are not sufficient, and subjective understanding that include a view of the open system are called for. In understanding the emitted responses we have to understand possibly very complicated processes. Sometimes there is a clear answer to a certain response. E.g. Mrs E who responds to a song by moving her foot in the rhythm and joining parts of the tune. It seems clear that she is responding to the song and that the song and the situation are the "stimuli". Another example is Mrs F; I sit on the sofa and sing. She walks towards me, stares at me. She moves her arm towards my shoulder and puts her hand on it. I cannot tell if she is responding to the song, to me as a person, or me as a kind of object. There might be more reasons leading her to this behaviour, and as I am interested in observing her responses in *this* specific setting I do not think it is possible to isolate the stimuli in different groups of variables that can be controlled, as would be possible in the Skinnerian behaviourism. It would be very difficult in an experiment to create equal situations, but excluding the song as a variable, as the whole therapy is built up with the songs as cues for the structure and the relation. The whole structure of the setting – and the therapist's way of being there – is influenced by the singing. Excluding the singing would make my behaviour as a music therapist unnatural and illogical, and many other variables, especially interpersonal variables, will be missing in the situation. The way I (in the role of music therapist) gaze or look at Mrs F, the way I use my voice, my tempo, timbre of voice, diapason, and my whole body is related to the singing, and cannot be replaced by a situation where I "just talk". I believe it is not possible to create a controlled situation where different variables illustrating the different stimuli mentioned here are isolated. My choice is therefore to observe the naturalistic setting, and as there are so many variables to include, I choose to count on subjective observations in order to understand the responses.

The observations of the single response are more or less "objective" as the chain of evidence is clear from the video data. But observations of *quality* of emitted responses are subjective and require precautions to make the observations valid. The way I organise the data observations is crucial.

In the process of defining communicative characteristics I have focussed on response and qualities of response, and I will now describe the method I have used to observe and analyse the video data material in this part of the research.

7.2 Video data material

Each of the six participants was offered 20 music therapy sessions lasting about 20-30 minutes. The sessions were video recorded which in the end gave 6 x 10 hours of video data material.

After each session I viewed the video material, and at the same time entered observations (of verbal, nonverbal and musical behaviour, and which song were song) in matrices in the computer. Start and end of songs and specific observed events were fixed with precise indication of time.

"Session-graphs" from each music therapy session showing heart rate data combined with the transcribed observations were the basis material (together with the transcriptions and music therapist's log) in the process of selecting smaller video clips meant for analysis.

As I acted both as music therapist and researcher I wanted the video clips to be analysed by external assessors. Before the clips meant for analysis were selected the following criteria were formulated.

Selection criteria for the clips for external assessors:

- To make it possible for assessors to analyse in depth, not having too much material, a minimum of clips is preferred.
- I want an answer to the question: does each of the 6 participants respond to the music? This means an inclusion of clips with each of the 6 participants. Each clip will show the participant responding to the music (according to my opinion).
- As the impression of the clinical work will later be related to these few clips, I want to choose clips representing
  - the structure songs, songs from the dialogue-part and from the regulation-part (see page 97), and one improvisation
  - a variation of session-numbers (from session 1 to session 20).
- Following aspects must be represented in one or more clips: response to a well known and an unknown song, response to tune, lyric, phrase, and rhythm, and clips with interpersonal and emotional response.

With these criteria for the selection process I ended up with 8 clips representing all 6 participants and the above-mentioned criteria, longest clip lasting 2:08 minutes, the shortest 21 seconds, and all together lasting 8:54 minutes (see table 7.1).

In this process I have reduced the video data material dramatically. I end up using only 0.25% (!) of the video data. But in the phase of analysing the clips I realised that even this small amount of data is containing nearly endless possibilities for analysing, and in this way accumulating new data again. Like in chaos theory where you magnify a very small detail, a fractal, and then realise that you can magnify this again, and again, and again still seeing new (or the same) details. These clips are not reflecting the *truth* of the session; they reflect glimpses of interaction and responding. In giving a definition of my criteria for selecting these clips I show which *meaning* of the session I want to reflect.

This does not mean that the resting 99.75% of the video material is reflecting totally different "meanings" of the session. A big part of the time the participants are responding in a meaningful way as in the 8 clips, which is reflected in the session-graphs; the graphical overviews of the single sessions (see page 121). But other criteria and other ways of selecting the clips (e.g. selecting them randomly) would give other data material for further analyses. What would the selected material show if "pauses" were the selection criteria? Pauses where neither participant nor therapist are moving or vocalizing will give ground to totally different data material, and the analyses of these clips would tell us another story of the music therapy.

Clip	Person	Sess.	Time	Duration	Song
1	**A**	19	10:40:50- 10:41:11	0:21	"Goddag" A answers by singing/ improvising to Mt. A asks: "is it today that you drive for the last time". Is aware of the ending of the music therapy course.
2	F	10	10:11:40- 10:12:51	1:10	"Det lysner over agres felt" F stands at the door. Walks towards Mt. Follows the beat? Touches Mt's shoulder. Sits down.
3	B	2	10:28.51- 10:30:30	1:40	"Kai ja, Eeh idi" Song unknown to B. Smiles at Mt, "jam-hands" from the breakfast, draws back when Mt draws back. Snaps fingers. Eeh idi-song: sobs.
4	E	1	10:44.11- 10:45:19	2:08	Roselil (3) Sings. Responds "så så" in the song. Is responding more and more in each verse
5	C	14	11:10:13- 11:11:19	1:06	"Skomagerpolka" Laughs. Sings. Sings alone while being moved by Mt in the rhythm.
6	A	16	11:21:28- 11:22:55	1:27	Improvisation Relates to the improvised song material. Follows tempo/ beat.
7	D	18	10:12:04- 10:12:38	0:34	"Lily Marleen" Sings her own words to the song. Laughs. Tries to remember the words.
8	D	8	10:28:55- 10:29:23	0:28	" Lærkereden" Talks about the meaning of the lyric. "He can keep a secret"
				8:54	

Table 7.1: 8 video clips selected for further analyses

The 8 clips are burned on CD ordered after the succession of the structure of the session, with the first clip representing the greeting song in the beginning of each session, and the last clip the ending song.

7.3 Assessment procedure

A group of five expert assessors were asked to do the big job analysing the video clips. They were informed about the project and agreed to participate. All five are meeting 3-4 times a year in a peer group of 10-12 music therapists from all parts of Denmark working in hospital psychiatry. The five assessors who were asked to participate live in the same part of the country, which made it possible to meet a couple of times to do the assessment. All five assessors are working full time as music therapists, have a master degree in music therapy, are highly experienced with many years of work in psychiatry or with adult clients, and are involved in teaching at university level, or in music therapy research. This group of expert music therapists are not experienced in working with persons suffering from dementia.

If my intention was to "prove" the effect of music therapy I could have chosen experts from other areas: nurses, OT's, gerontologists, geriatrics, neurologists, etc. Having their thorough analyses and opinions on music therapy with persons suffering from dementia could have been an important validation on music therapy. But as I am interested in assessors with a deep understanding of both nonverbal and musical interaction in the clinical setting, the choice was to use music therapy experts for this work. Music therapy in dementia care is not well established; in Europe there is very little music therapy research at PhD-level concerned with dementia clients, and even among music therapists there are doubts if music therapy is effective with this group of people. In establishing new research areas it is useful taking one step at a time. The first step is to refine clinical applicability – music therapy techniques and methods. I expect the profound knowledge and clinical experience of the five assessors, I asked to do the analyses, to be very useful here.

My motive of planning the procedure in a particular way was influenced by some experiences using video material. Firstly I realised from my supervision of students – doing their practical experience as part of the music therapy education – that even very small video clips of clinical music therapy could result in hours of interesting comments and discussion. I tried to reduce my video material to a minimum, but even with only 9 minutes of video clips I thought it necessary to give the comments from the assessors a certain direction. I did not want to use an entirely "open" method of describing the material as e.g. seen in morphology, where a panel of researchers

> "...react to an improvisation as a whole, giving their complete impressions, and write down their subjective experiences (images, stories, memories, impressions)." (Smeijsters 1997, p. 85)

Secondly I showed music therapy students some of the clips in my preparation of a method for the analyses. I had seen these clips so many times beforehand and new many of the details and the chronological sequence. It became very clear to me how important the exact order of the responses is if you are giving an interpretation of what is happening. It is important to know the order of e.g. the 3 following sequences:

1. Music therapist starts singing.

2. Participant (Pp) turns his head.

3. Pp makes a faint sound.

Or:

1. Pp turns his head.
2. Pp makes a faint sound.
3. Music therapist starts singing.

I realised that even if I show very short video clips, the chronology gets mixed up and suddenly opens up for another interpretation of what is happening. You can place the 3 sequences above in 6 different ways – each telling a different story.

In the light of this I wanted to be sure that the assessors were as confident as possible with the chronology and asked them to focus on what they saw and heard and write that down first.

The following shows each of the six steps in the assessment procedure:

Background information The first step in the assessment procedure was to give background information to the assessors about the participant on the clip. I only gave them the basic background information about age, diagnose, level of dementia, medication, and a few comments as it is written down in appendix G, page 339. If the assessors asked me a direct question in order to understand issues going on in the clip, I would answer these questions.

1. Presentation Next, one of the 8 clips was shown in its full length. Clips were shown on PC/projector on a wide screen allowing observation of smaller movements. The use of PC made it possible to review the sequences over and over with no need to spend time on reeling forwards and backwards.

2. Presentation After having seen the clip in full length assessors were given sheets of paper divided in 3 columns (ABC). See table 7.2, page 202. In the first column (A) they were asked to write down what they saw or heard after a second presentation of the video clip. This time only a smaller sequence of the clip was shown. The sequence was reviewed as many times as the assessors wanted.

3. Presentation When the assessors had seen all the sequences in the clip several times and written down their observations, they saw the whole clip in full length again. They were now asked to write comments, thoughts, and interpretations in column B. If a comment was linked to a special behaviour/response/observation they were asked to link these.

4. Presentation When this was done the clip was presented a fourth time and the assessors were asked to answer the questions in column C:

- Question: "Does the person respond to the music?"
- If yes: a) How can you see this response?"
- b) "What does this mean?"

They were asked to underline a description of the response if they had already made comments on this in the text in column A or B, and finally to add comments in column C. If wanted the clip or part of the clip was shown again.

A	B	C
○ Mt turns against C. C follows her with the eyes. Mt starts singing. C looks at Mt. Her hand rests on Mt's leg in the beginning of the song. C talks − says "yes" after the verse	Recognizes song	"Does the person respond to the music?" If "Yes": a) " "How can you see this response?" b)"What does this mean?"
○ Mt starts 2. verse/ refrain. C joins her in the singing Says "la la". Mt holds C's hands, swings them back and forth. C makes syncopes.	Starts her own tune C is leading, Mt follows C improvises	a) participates verbally Follows Mt's rhythmic movements. Sensation of period and ending.
○ C sings "la la". Solo Says "dum ba" in tone. Hands go back and forth Mt immitates her tone just before the climax. Break	Sensation of form, beginning, middle, ending.	b) experiences contact, communication, togetherness. Common / joint attention.
○ "la la" − monotonous variation. → Eye contact all the time. "Yes" Mt marks the end−riterdando.		

Table 7.2: An example of the semi-structure of assessors' notes. The four paragraphs illustrate the division in four smaller video sequences.

Discussion Finally the assessors were free to make comments in the group and discuss their considerations. This verbal discussion was recorded on video.

It was a surprise to me that the whole procedure with background information, presentation of video clips, time to write down comments, seeing the sequences several times, and the following group discussion lasted as long as it did. Spending 8 hours on the assessment, it means that a *one* minute's video clip takes nearly *one* hour of analysing!

With experience in the procedure, with just written comments and with only one assessor the time spent on analysing can be strongly reduced.

All the hand written comments on the video clips were transcribed. The group discussion and commenting on the clips were transcribed from the video material. Part of the spoken language was adjusted to written language, and after the material was transcribed it was presented to the assessors.

7.4 Processing the assessment data

Transcribing the material from the assessors left me with about 70 pages that I was going to distil to some clear essence. My supervisor introduced me to ATLAS.ti, a computer software tool intended for qualitative textinterpretation, textmanagement and Theory Building. Barry Lewis has made a comparative review of "Two leading Qualitative Data Analysis Packages": ATLAS.ti and NUD-IST, where ATLAS.ti scores over (Lewis 1998). The programme is very easy to work with, and Lewis describes it as *excellent* when estimating "ease of use" of the product.

Using a computer tool does not mean that you just feed the machine with your data, and then get a finished "result" spitted out. But in the process of coding and categorizing it is a great help getting over the ...

> "frustrations and problems of looking for valid and reliable patterns in a boxful of interview transcripts, field notes, and the like." (Lewis 1998)

The coding can be created automatically or manually, but in both cases you need to work through the text and you still have to label the codes. I will not describe the program in detail but refer to *www.atlasti.de* where extended information is given and a demo version can be downloaded. Instead I will describe how I worked with the programme and how I used the coding system.

Criteria for coding

First step before the direct work with the text data material was setting up some criteria for the coding. As mentioned before an analysis can take an endless number of directions – it depends on your creativity. I could code the material for musical terms, for observations of "change", elements of emotion, words with the vocal a, positive or negative loaded words, etc.

As described my focus was communicative signals and I coded words or sentences describing a response **R** and a quality of response **Q**. When observing responses there are two sets of responses to register: responses of the participant and responses of the music therapist. In this material I want to explore the responses of the participant. In other research studies it could be relevant to include observed responses of the music therapist as well. Research focus could then be on interaction between the two persons, and on how one response or act influences new responses and release a chain of responses/communication or even "interaction themes" (see Holck 2002).

Sometimes a participant shows signs of stereotypical movements, e.g. fumbling and fiddling with the hands. All these hand movements that could be recorded as "baseline behaviour", were not registered as a "response". They were coded with "Note", and instead responses showing a change in the baseline behaviour were coded with R or Q; in this example if the participant would let the hands rest for a period of time.

Coding process

I now had a limit for the coding; looking for response **R** and relating this code with a quality **Q** (if the assessors mentioned or observed a "quality" in the material).

Using an analysis program like ATLAS.ti made the process of coding easy and manageable. What took time and where a computer program cannot help (only in organizing the material

so that it is easy to get an idea of the material) was defining and redefining the codes. In the end the codes must represent the material in a clear and logical way. Getting there means handling lots and lots of identical jigsaw puzzles with many pieces each, not knowing to which puzzle the pieces belong and still having to put them correctly together. In the following I will describe how I use *open coding* and *code families*.

Open coding

Open coding is the first step in "sorting the jigsaws". In the example, shown in table 7.2 page 202, assessor Ø writes:

> "Mt turns against C.
> C follows her with the eyes.
> Mt starts singing.
> C looks at Mt.
> Her hand rests on Mt's leg in the beginning of the song.
> C talks – says "yes" after the verse."

The quotation <C follows her with the eyes> is marked as a response **R**. As Mrs C responds with her eyes this is marked a **vi**sual response, **Rvi**. This response has a quality; Mrs C's response is **or**ientated towards a **per**son. Thus this code ends up saying: **Rvi-Qor-per**.

The next quotation to be marked is: <C looks at Mt.> and is coded with exactly the same code as before: **Rvi-Qor-per**. As I have already used this code I employ **code by list** instead of open coding. In the ATLAS.ti programme a list is automatically made of all the employed codes, and coding by list gradually replaces the open coding.

The quotation <Her hand rests on Mt's leg in the beginning of the song> is coded as a response, as it is not a "natural" act to do in all situations. Here this act is part of the situation and tells us something about Mrs C's relation to the therapist. It is an act observed by the assessors and as a response with the **ha**nd it is marked: **Rha**. This response is equally orientated towards a person, but even more, as she is **to**uching the music therapist. Thus this response is coded: **Rha-Qto**.

The last observation in this sequence is: <C talks – says "yes" after the verse>. Mrs C is making a vocal comment; **Rvo/co**. The emotional valance of the word yes is positive and Q+ is added: **Rvo/co-Q+**. In column B the quotation <Recognizes song> is linked to these observations. Recognizing is coded as a quality: **Qre**.

Code families

When I had analysed all the five assessors' observations from all eight video clips I ended up with two long lists of Rs and Qs. Sometimes I had used two different terms describing the same quality of response and these were adjusted and put together in order to reduce the number of codes as much as possible.

The **R-codes** were now ordered in succession starting with gross motor responses followed by finer motor responses, and facial, visual and vocal responses.

Response

Rfo, Rha and Rhe are subgroups of gestural responses (Rge), and Rge is only used when assessors are not specifying the responses but mentioning gestures in general, which only happens three times. In return Rpo/ge <walking, moving around> is often used with one participant.

Postural	*Gestural*	*Foot*	*Hand*	*Head*	*Facial*	*Visual*	*Vocal*	*/comment*	*/text*	*/singing*	*/improvising*
po	/ge	fo	ha	he	fa	vi	vo	/co	/tx	/si	/imp

Table 7.3: Categories of response

Quality of response

The Q-codes were organised in *code families*, a term used in the ATLAS.ti programme for categories of codes. Based on the observations from the assessors I ended up with the following Q-codes:

Abbreviations

br	Break
se	Sedative
+	Positive
pa	Participation
or	Orientation
or-obj	Orientation towards an object
re	Recognition
rem	Reminiscence
cl	Being close
to	Touching
or-per	Orientation towards a person
im	Imitating
ini	Initiative
int	Intentionality
be	Beat
ph	Phrase
pi	Pitch
inti	Intimacy
em	Emotionality
di	Dialogue
aw	Awareness of relation

I used the *network view* in the computer programme as a tool to organize the codes in different categories/families. Some of the codes obviously fitted together, others were moved and removed several times – e.g. Rfa/vo-Qem+ (laughing) – before I ended with this suggestion of 6 code families:

Emotional valence
Receptive participation
Sociality
Active participation
Communicative musicality
Dialogue

7.5 The coding tool

By coding the material like this I, in the first place, ended up with the matrix seen at page 314, where codes of response and quality of response are organised and systematised. Later in this work I use this matrix – that is based on the analysing procedure – as a coding tool. In this sense it changes from being a product of my analysis, to be an instrument in the further process. It is then applied as a coding tool giving me a systematic overview of codes of response and quality of response.

Where the matrix a page 314 gives an overview of the labels used in the coding process, based on the text material from the five assessors, the list at page 315 shows the quotations from the text. Here the labels are linked with the original quotations that are translated from Danish into English and are modified. Instead of writing all the quotations they are reduced when possible. E.g.

Rfa-Q+: she smiles, a smile, smiling, grin from ear to ear, gives Mt a smile, etc

is abridged to

Rfa-Q+: smile

Validity and generalizability

Before I describe the 6 categories with their underlining qualities in detail I have some final comments on the procedure and on validity and generalizability.

The open coding seemed more complicated than the coding by list. After having structured the codes in code families I went through all the text material again, coding it anew. I put the first coding aside and handled the material as new hermeneutic units (projects) in the computer programme. This time the process went quickly as I could use already defined codes, but it also gave me the possibility to refine the code material once again. By implementing this whole assessment and systematizing procedure I have ended up with a specific way to carry out observations of response, and the question is if this way of handling the data is generalizable to observations with other participants and in other settings.

Systematizing material is simply cleaning up; organizing a jumble of data. Some more or less logical or obvious characteristics are determining why some data is put in one box or cupboard and not the other. Exactly which boxes or cupboards are utilized depends entirely on the data in the heap. This means that the "boxes"/codes I have used and the way I have decided to order the material in 6 different cupboards/families/categories is not the only truth about which way to organize another jumble of data. If the material is used in other contexts reservations are to be made. But the boxes and the way they are organised in this work – as a cleaning up tool helping to get a clear impression of what the jumble of data consists of – might be usable in other works as there might be similarities with the 8 situations observed here and other situations/settings, and there might be similarities between the participants suffering from dementia in this work and other persons suffering from severe

dementia with some of the same symptoms. But I will not eliminate the idea that more boxes and other boxes/codes might be needed, – or even a whole extra cupboard/category. This way of organizing responses observed in a therapeutical relation is not the true or definitive way to do it; it is what I suggest being the most meaningful and useful in *this* context based on *this* present data, and I note that induction and generalization is not possible.

7.6 Details of code families

In the following I will give a more detailed description of the organization of the codes in 6 different code families. It might be helpful to have the table at page 314 at hand as I follow the way it is build up starting with emotional valence as the first category. In order to explain the codes I add examples of responses in <brackets>. These are examples of quotations (and here translated into English) from the material written by the five assessors.

Emotional valence

When I start with this category, emotional valence, I start with the code-leftovers. In the process of fitting groups of similar codes together these were the codes, which did not seem to match other codes. But they have features in common. They seem to cover very basic responses to the music therapy. The first code in the category is R (response). As can be seen on table at page 314 the responses at this first row are not linked to a quality. Examples of responses are: Rpo: <leans forward>, Rfo: <bobbing foot up and down>, Rvo: <making a sound>. If a response is not linked to a quality it belongs to this group – except Rvo/co, Rvo/tx, Rvo/si, Rvo/imp, as these codes are registered as active participation. But as soon as a response is linked to a quality it is registered in some of the other categories of response. E.g. Rpo-Qor-obj: <leans forward towards the sound>, is registered in the next category of response: Participation.

Qbr

If "not responding" is more or less baseline behaviour I do not register assessors comments on the participants "not being present" as a response. But some way of not responding can also be seen as a kind of response or be part of the response. If a person is looking away and the assessors observe this, this act can be a way of having a break from the stimulation or to refocus before interacting again. Examples of this response are Rpo-Qbr: <stands still>, Rha-Qbr: <releases Mt's hand>, Rhe-Qbr: <turns head away>.

Qse

The ability to relax to music or in a certain routine or situation is an important and basic quality, here called the quality of sedation. The two first responses are not telling much about the emotional valence, but this response expresses a basic emotional quality as the ability to be sedated leads to the ability to be present, to enjoy and to show compliance. Examples of this code is: Rpo-Qse: <sits calm in sofa>, Rha-Qse: <hand rests>.

Q+/Q÷

The last group of codes in this category is Q+; responses which can be seen as having a positive quality. Responses of negative quality, Q÷, could be registered as well, but does not occur in these 8 examples. Examples here are: <having fun, seems comfortable, pleased, happy>.

Q+ tells us much more about the emotional valence, than "neutral" qualities of emitted responses do where you do not know the reason for the act. But an act is observed, and in some occasions this might tell us something about the emotional valence, or at least about a very, very basic way of responding to something/an unknown stimulus in the situation. With some client groups the category of emotional valence might be the only category of reflecting response. This reflects a very basic way of responding as the person does not "participate" obviously in the therapy – but still the person reacts (and might even interact) at a basic level.

Receptive Participation

Receptive participation is the next category. As an example the assessors describe that the person is "listening" or seems to recognize a song. Notable here is that most of the codes in this category consist of pure Q-codes/qualities and are not based on R-codes, e.g. a movement with the hand. It seems to be a judgement of the assessors based on more intuitive understanding of the context. A way to make these interpretative/subjective observations valid is to count on interrater reliability. In this material I could ensure reliability by only including codes where at least three observations are made. But in the work of developing codes I am interested in as many different views and observations of the contexts as possible, and here I want to include all comments.

> "It is the participative element, that appears to be valuable for communication, and the intention to participate that is at the core of the music therapy activity." (Aldridge 1998, p. 22)

Qpa

The first code in this category is Qpa, participation. It covers quotations as: <is taking part, is present, is caught by the song, is moved by the music, listens, the song goes in, the text has a meaning>.

Qor

There is a difference in being present and being orientated. The next code represents quotations as: <attentive, watchful, observant, aware, engaged, concentrated, focused, curious>. When a person is *orientated* he or she is more or less orientated in time and space and has some understanding of what is going on. Whereas when a person is *participating* he or she can still be in his/her "own world" but is aware at some basic level of what is going on.

Qor-obj

Qpa and Qor are two qualities that seem to be difficult to relate to direct action. In return Qor-obj: orientation towards an object seems more obvious to relate to a response. Rpo/ge-

Qor-obj: <moving towards the sound>, Rha-Qor-obj: <reach out for the sound-source, reach out for Mt's shoulder> and Rvi-Qor-obj: <looks in direction of the sound, looks at Mt's shoulder> are observations related to R-codes. The orientation is not directed towards a person but a sound or a part of a person.

In this category (receptive participation) orientation towards an object is the only quality related to observable responses. Being related to a response makes this part of the code directly observable and therefore the whole code as such more precise in its definition. When assessors' comments are related to direct observations it makes them more reliable – still it is important for the understanding of the context if the more intuitive observations are included; as the two first Q-codes in this group and as the two next: Qre and Qrem.

Qre

Recognizing is related to quotations as: <recognize the melody/song/text, remember the words, react to the word>.

Qrem

Reminiscence covers quotations as: <is listening with longing>, <Memories, longing, associations, memories are elicited>. Recognizing has to do with the fact of remembering, where reminiscence also involves emotional aspects, but at an intra-personal level.

Relying on Q-codes that are not related to an observable response is questionable. How do we know that the person e.g. really recognizes a song? It is clear to me that these observations are subjective interpretations. By letting external professional assessors doing these observations and being aware of the way I handle the material I can add these qualitative observations. They can be valuable in the process of understanding and recognizing basic interactional aspects with little responsive clients.

Sociality

This category was more or less making itself. It was clear that sitting close together, touching, directing movements towards the therapist and even imitating the therapist belonged together in one group, and that this group of responses has to do with sociality.

Qcl

Gesture directed towards other persons reveal a specific meaning if the observation focus is on spatial aspects, on distance and proximity. The anthropologist E.T. Hall, 1959 and 1966, defined 4 proxemic rules, where the distance is labelled as: intimate, casual-personal, social-consultative, and public. In the present material assessors have not observed a given distance between Pp and Mt. But they have noted proximity. I suggest that "sitting close together" is closer than one metre or even closer than half a metre. The latter distance (0-18 inches) is reserved for our most intimate relationships and a distance between $1\frac{1}{2}$ feet – 4 feet "is the distance in which we usually interact with close friends, trusted acquaintances, at parties, or with those who share special interests with us". (Gross 1992, p. 501 referring to Hall)

If a person sits in a sofa and you sit down very close to the person you easily go beyond the boundaries of what this person finds appropriate. The person might not like the closeness and feels overwhelmed which he or she expresses in verbal or non-verbal language, e.g. by

leaving the place. If the person seems to accept or even seems to feel at ease with the closeness I see it as a response to the relation. Thus <sitting close, being close> is included as a quality of response and here linked to the response: Rhe-Qcl: <heads are close together, faces are close>. Being close is more a state whereas an orientation towards a person, which later will be described, is more an act or a movement.

Qto

Touching as well as being close are states, e.g. the quotation <physical contact> and the codes: Rha-Qto: <holding hands, resting a hand on Mt's leg>. But touching is also an act: Rha-Qto: <touching Mt's cheek or face, putting an arm around Mt's neck, touching Mt's shoulder>. These acts are close to Qor-per as they are orientated towards a person but differ as they result in physical contact. According to Hall's 4 zones of personal space Qcl (less than half a metre) and Qto reveals that the persons, Pp and Mt, have an intimate relationship. – Or it means that persons suffering from dementia do not follow the learned proxemic rules, or that their "patient-identity" push aside these rules. As gestures Qcl and Qto belongs in the category of sociality and not in the same category as quality of intimacy, which is described later. In this category they belong when assessors describe closeness and nearness metaphorically and not physically as gesture.

Qor-per

Being orientated towards a person means being aware of another person at some level. Quotations to this quality of response are: <focused at Mt, attentive to Mt, attention focused on Mt, aware of where Mt is>. This quality is linked to many observations of response; e.g. Rpo-Qor-per: <turns against Mt, stops in front of Mt, sits down close to Mt, approaches Mt>, Rpo/ge-Qor-per: <walks directly towards Mt> and Rvi-Qor-per: <eye contact, they look at each other, follows Mt with his eyes, looks directly at Mt>.

Qim

Imitating movements of another person is mostly an act we do unconsciously. We often see two persons in deep conversation take up the same posture, and smaller children showing the same facial expressions as the person they listen to. If a participant imitates the music therapist it shows that at some level he or she is aware of this other person. Following quotations reflects imitating: Qim: <together they make a break, they follow the music together>, Rpo-Qim: <both straightened themselves up, Mt moves head back which participant also does subsequently>, Rge-Qim:<Participant's soft movements are influenced by Mt's soft singing>.

Rfa-Q+

I see smiling as a facial response and label it with a positive quality. Actually it belongs to the category: emotional valence, but apart from being an expression of satisfaction, smiling is a social act too (Stern 1977, p. 54). Smiling shows compliance and acceptance of a situation and thus is an expressional act directed towards another person. By smiling a person might express positive feelings towards others and might even use the smile as an instrumental behaviour.

> "To summarize this developmental history: the smile moves from a reflexive activity (internally triggered) to a social response (externally elicited by human and other stimulation) to an instrumental behaviour (produced to elicit social response

> from others) to a sufficiently co-ordinated behaviour to combine with other facial expression." (Stern 1977, p. 55)

Some smiles do not reach the eyes and do not express an emotional positive feeling, but e.g. irony or sarcasm. In this case I assume that the assessors do not categorize the grimace as a smile, or they add a descriptive quality (Q) to their observation.

In the category of sociality the responses are directed towards another person. In therapeutical settings with little responsive persons it is important to be aware of these basic ways of communicating with others. We are mostly aware of the direct verbal communication between two persons but not of the indirect, social communication going on at this level – even though it is part of all communication that we are orientated towards the person we communicate with. In verbal conversations, where persons do not see each other (e.g. in phone calls) and cannot visually be prompted to bodily imitate one another, we see that persons communicate an orientation towards the other person with the use of para-linguistic expressions. They imitate vocal pitch and show closeness or presence with sounds instead of (or together with) bodily movements.

Active Participation

An above-mentioned category already deals with *participation* (Qpa) but at a receptive level, whereas this category reflects active involvement. First of all responses such as vocal comments (Rvo/co), recitation (Rvo/tx), singing (Rvo/si), and improvising (Rvo/imp) are estimated as active involvement in the music therapy. Next, responses where the participant shows initiative or intentionality are included.

Rvo/co

A vocal comment (Rvo/co) is more seen as an elicited answer to a certain input, where a vocal response (Rvo, belonging to the category of receptive participation) is seen as an emitted response. Following quotations are labelled Rvo/co: <says " ... words...", says a sentence, expresses some words, talks about ...>. If the comment reflects a positive quality it is labelled: Rvo/co-Q+: <says "Yes", "This was a good song">.

Rvo/si

When the participant <sings, hums, joins the song, sings solo> it is labelled Rvo/si, and Rvo/si-Q+ when it is observed that there is sound/timbre on the voice. When observed that the participant <sings more and more, uses more and more words in the song, is more certain of the tune, answers more quickly in the refrain, words are clearer> this is labelled Rvo/si-Qor but arranged in this category of active participation.

Qini

Showing initiative or being the "leader" as formulated in Bruscias IAP-autonomy profile (Bruscia 1987) is indeed a way of showing engagement in the setting. Qini reflects: <participant is active, is taking over, is performing, is taking initiative, is leading>, <the roles have changed: Pp interrupts and changes the text>.

When singing Rvo/si-Qini the observations cover quotations as: <starts on her own singing> and when improvising, Rvo/imp-Qini: <puts her "own world" in a musical form, participant leads: makes syncopes, dotted rhythms, finishes the descending tune, seems to fall out of the musical frame but creates one on her own>.

Qint

Showing intentionality is a more conscious act than the term being orientated from the category of receptive participation. Intention stems from the Latin word intentio: purpose or effort.

According to Husserl (Edmund Husserl, 1859-1938, German philosopher and founder of the modern phenomenology) intentionality is the dogma that consciousness always is directed towards an object; consciousness is goal-directed or goal-orientated. Thus I distinguish here between *being* orientated towards some diffuse object (Qor), and showing a conscious act (Qint). Reber among other definitions gives this on intention:

> "Generally, any desire, plan, purpose, aim or belief that is orientated toward some goal, some end state. Used by most with the connotation that such striving is *conscious*, although the term occasionally creeps into psychoanalytic writings without the requirement." (Reber 1995, p. 381)

Following quotations are labelled Qint: <decides to stop, takes eye contact to Mt in order to signify that he is aware of the song being over, prepares himself when the song is going to end, does it clearly and with accent, engaged and convincing, interrupts himself and gives an explanation, corrects and shows that she knows something about it, forms her own meaning about the song text and underlines the meaning of the text>.

Intentionality is related to R-codes too: Rpo/ge-Qint: <walks purposively towards Mt searching for the song/the sound>. Rhe-Qint: <bends down her head with expectation, approaches to interfere: bends back her head and then breaks into the song>. Rvo/co-Qint: <answers adequate/appropriately>.

Gestural and vocal responses can indicate if a participant takes part and is engaged in an activity or therapy. Showing signs of initiative or even awareness of what is going on is a big step if we consider persons being little responsive. Focussing on aspects of active participation is focussing on basic cognitive capacities – but in a naturalistic setting, instead of an experimental setting in a closed system.

Communicative musicality

In music therapy research a great number of studies deal with assessment of musical expression and with transcripts of musical improvisations (Bruscia 1987, Alvin 1975, Nordoff & Robbins 1977). In this study data are based on persons suffering from severe dementia, and persons not engaged in instrument playing. The observations of responses of musical character based on this material can be divided in 3 subgroups concerning: beat, phrase and pitch.

Qbe

In an article about motion in music from a neurobiological perspective, Todd gives a distinction between *gestural form* and *locomotive motion* (Todd 1999). The latter can here be seen

as the response quality of beat; Qbe, and the gestural form as the quality of phrase; Qph, described later. None of the participants are rapping (!) (Rvo/tx-Qbe) or marking the beat with the face or the eyes (this seems not to be so common!!), but they express a pulse, beat, tempo, rhythm of tune, etc. with the body, feet, hands, head, and with the voice as can be seen from the following quotations: Rpo-Qbe: <leans back and forth in the rhythm, indicate the rhythm with the body, they agree on tempo with the body>. Rpo/ge-Qbe: <walks a few steps to and fro in a metre according to the song, bodily very synchronous with the rhythm>. Rfo-Qbe: <moves feet rhythmically according to the song, rock feet in tempo, same food-rhythm as the song>. Rvo/co-Qbe: <talks now (instead of singing) but still in the same rhythm>. Rvo/imp-Qbe: <in her own song she follows the rhythm of Mt, her voice reflects the accentuation of tempo in the tune>.

Qph

"We link sounds together into phrases, and this is the basis of musical meaning" (Aldridge 2001). Quality of response labelled *phrase* has to do with gestural and musical form. This deals with time intervals and conception of structure, and demands the ability to predict form or structure which can be illustrated with the quotations: Qph: <they agree on the ending of the music, he is attentive and reacts when the song is over, follows Mt's ritardando>. This way of *understanding* the music is connected with observable responses: Rpo-Qph: <sways back when the music stops, moves her body in accordance with the phrasing of the song, leans back on the last tone>. Rha-Qph: <moves her hands in accordance with the movements of the tones, clearly follows the phrasing with gestures>. Rvi-Qph: <eye contact when verse is over, looks at Mt when song stops>. Rvo/si-Qph: <follows Mt in the ending of the song, breaks in at a suitable interval between two stanzas>. Rvo/imp-Qph: <the key note is clearly marked, feeling of form, period, ending, dynamic, phrasing>, <is capable of returning and ending in form>.

There is one problem with assessing Qph. An essential feature of this quality is that the participant is able to predict the form of a phrase and as such understands general and recognizable musical gestalts. The listener has an ability to anticipate and expect e.g. the ending of a song, because the person knows the song or because the song – even if it is unknown or an improvisation – consists of distinct gestalts determining the ending, e.g. a ritardando. There is a recognizable pattern – a form – that combines the time now with time events to come. Thus the problem with assessing Qph is that the participant might respond when the music therapist stops singing; the discontinuance of sound becomes a stimulus that the person responds to; Qor-obj or Qor-per. This response is different from quality of phrase and does not include a feeling of time pattern. Especially visual response (Rvi-Qph: <eye contact when verse is over, looks at Mt when song stops>) seems to include quotations where it is difficult to distinguish between Qph and Qor-per. A way to distinguish these two qualities is that the response is timed and reflects synchronicity when we deal with Qph, and that there is a "delay" with Qor-per where a quotation could be imagined as <eye contact (some time) after verse is over> and not "just after" or "when" the verse is over.

With this exception most of the quotations concerning Qph are clear and obvious to determine.

Qpi

Musical discriminatory perception including discrimination of intervals, pitches, timbres or chords seems to persist until advanced stages of dementia of Alzheimer's type (Swartz 1989) (see page 18), and as a quality of response Qpi is dealing with the ability to sing in pitch: <in

same tone, hits a kind of key note, she strikes the right note>. Obviously this quality cannot be characterized with e.g. gestural responses as it is related to using the voice or singing, Rvo/si-Qpi: <hums the tune in pitch most of the time, sings in pitch, catches the tune, adds melody>.

Being able to tip the beat with the foot, mark the phrase of a tune and sing in pitch as a response to music or a musical setting is both active and social participation, and on top of this it is revealing an ability to deal with musical features. This category, communicative musicality, is interpersonal musical participation.

Dialogue

The word dialogue (see page 52) stems from Greek and means *words/thought/reason* (logos) *between* (dia). This implies an understanding and exchange of "logos" between two individuals. *Logos's* counterpart is *psyche*, in Greek mythology the personification of the soul; of mind and spirit. When I call this last category *dialogue* I see dialogue as an understanding and exchange between two individuals of both psyche and logos – of both reason and feelings. Seen from a dialectical or rational viewpoint emotions are illogical and does not belong to logos. Seen from modern Neuropsychology (Damasio 1994), or in a social-pragmatic understanding, feelings are essential in human ability to judge and make decisions.

Qinti

Being able to become intimate is an ability to "trust others or to make a commitment to a stable, lasting relationship" (see Reber 1995: intimacy disorder p. 386). In intimacy *psyche*, the spiritual aspects of mind, plays a part in the interpersonal exchange but at a receptive level in contrast to an active exchange. Quotations reflecting intimacy, Qinti, are: <nearness, a special connection, common focus, sharing a "secret", fellowship of intimate and concentrated quality, the familiarity and confidence is large and warm, emotional involvement, a feeling of sharing, humour>.

This quality of the relation is additionally related to two responses; Rha-Qinti and Rfa-Qinti: <hand movements/facial expression reflected intimacy in the contact>

Qem

The ability to respond with emotions and to express emotions within certain delimiting frames is essential in interpersonal exchange: dialogue. Thus the next code in this category includes quotations describing shared or expressed emotions. Qem: <He is sad, gloomy, has a lump in his throat. She speaks in a dynamic/intensive way, stressing the words. Power/energy/vigour/temperament/substantial timing/charisma/Affect attunement>.

In Denmark and in other Nordic countries it is seen as improper to show outbursts of emotionality with posture and gesture (with certain exceptions such as after scoring in football), and this cultural cause is reflected in the emotional responses seen in the present material, where no postural (Rpo) or gestural (Rge) responses are seen in connection with Qem. But facial responses of emotional quality are seen: Rfa-Qem: <his face shows seriousness, he blinks/tears in his eyes>, Rfa/vo-Qem+: <laughs, guffaws>, Rfa/to-Qem+: <kisses Mt's hand> and visual responses: Rvi-Qem: <tenderness is shown through eye contact>.

If the quotations <laughs> and <kisses hand> would have said <they are laughing *together*> and <they kiss *each other*> (the latter might be cultural/ethical inappropriate in therapy) this would have been labelled with the quality of dialogue.

Qdi

We have now gone through about 20 qualities of response of which most are linked with several observed responses. Two more qualities are left, Qdi and Qaw. When you are at work or are together with other people it is expected that you are able to carry on conversation at the level of dialogue (Qdi) at a verbal level, and that you are aware of your counterpart (Qaw). These are the levels that we are more or less conscious about, and other levels (or categories) such as sociality and active participation are implicit when a person is responding by entering dialogue. Dialogue is mostly related to verbal conversation, but a mutual understanding and exchange is possible as a postural and/or gestural response, e.g. when persons dance.

In a dialogue it is possible simultaneous to signal one meaning in a linguistic message and another meaning nonverbally (see figure 3.2 page 51). For ethical reasons therapists must be conscious of their own qualities of response and their own dialogue at different levels to avoid communicative paradoxes as described in pragmatic psychotherapy (Hougaard 1996, p. 254) or what Gregory Bateson (1972) defined as double binds.

Qdi is related to following quotations: <he addresses himself directly to Mt, he thanks for the music, makes comments on the song, he tries to read Mt's response, dialogue at a conscious level, call/response situation, a feeling of being able to give something to another person.>. Connected with observable responses are; Rhe-Qdi: <gives Mt a nod, says hello by nodding>, Rvo/co-Qdi: <can ask a question, answers Mt's question, gives an explanation on the song text, makes a fairytale-like speech addressed directly towards another person>, and at last; Rvo/si-Qdi: <asks his question by singing>.

Qaw

Implicit in a dialogue is an understanding of "here and now"; a situational and contextual awareness. If this understanding is extended to include an understanding of a broader context including time perspective this means an understanding of the relation; a relational awareness or what Stern calls "relational knowing".

> "Relationships are the cumulative constructed history of interactions, a history that bears on the present in the form of expectations actualised during an ongoing interaction, and on the future in the form of expectations (conscious or not) about upcoming interactions." (Stern 1989, p. 54-55)

Qaw demands cognition: "We achieve cognition through linking together events in time; it is the achievement of memory" (Aldridge 2001). The person suffering from dementia might not know the name of the therapist, but seems to have an understanding of continuity and that the therapist or the context around the setting is not casual. Only in two situations participant's responses are interpreted as an understanding at this level. One assessor writes in clip 8 with Mrs D: <both know what is going to happen> which is labelled: Qaw. In clip 1 three assessors comment on Mr A being aware of the relation; Rvo/si-Qaw: <he sings an exceedingly relevant question about the music therapy going to stop, in singing he asks when music therapy is going to stop, he manifests to have remembered that Mt will come for the last time>.

Summary

Based on written analyses and comments from 5 expert music therapists I have selected and coded responses and qualities of responses given by the 6 participants. Organizing these codes in code families have resulted in 6 categories dealing with meaningful responses and communication at different levels; emotional valence, receptive participation, sociality, active participation, communicative musicality, and dialogue. Up till now I have looked at the material in a more general way in order to explain the procedure, the methods used and my motives. In the following I will describe each of the 8 video clips, used for the analyses, and which meaning the different levels of responding might give to our understanding of the 8 different situations.

7.7 Findings

. . . or . . .

What does the categories of response-qualities reveal about the music therapy clips?

In describing the 8 small video sequences I will give an idea of what is happening in the clip by translating one of the assessor's observations in column A into English and with my comments written in italics. Subsequently follow a few comments based on music therapist's log that are relevant in understanding the clip, and then a summing up of what the hermeneutic analysis of assessors' comments and interpretations reveal about the single person suffering from dementia in this context. The following 8 clips (for more details, see page 199) are presented:

Clip 1 – Mr A, the janitor

Clip 1 is from the 19^{th} session and lasts 21 seconds. The session is just about to start and Mt (music therapist) sings the greeting song. Assessor Y observes in column A:

- Mt holds Mr A's hand (the greeting hand)
  Mt starts with her hello song
  Mr A greets by nodding his head
  There is eye contact. Mr A gives a broad smile
  They lift hand up and down

- Hands lifted up and down in the beat

Mr A has eye contact most of the time but averts his eyes after the word "together"
Mt puts her left hand on top of their hands before 3^{rd} round of the song starts
Mt leans forward and then back in the beat

- After singing the song twice Mr A makes an approach, bends back his head and falls into the song, singing a relevant question
  Mr A *sings: "is it today ... that you ... drive for the last time right here "*

- Mt tilts her head on the side while Mr A sings
  Mt still has both hands around Mr A's hands, but they lie still on Mr A's left leg
  Mt nods a little before Mr A completes his question

- Mr A smiles in the end
  All the time while he is asking his question, they have eye contact

Music therapist's comments:

The previous day I have given the participant, Mr A, a short verbal instruction before singing the last song. I said: "Now I will sing the last song for today ... I will be back tomorrow/Thursday and Friday ... and then we shall have summer holidays". I started preparing Mr A for the ending of the sessions, but on this occasion I did not use the word "last time", as I use in the next two sessions. The occupational therapist is taking hand of new activities/therapies for Mr A, who up till now mostly has refused participating in activities, so I know other implementations are thought for, but still; we have to close our relation. When he sings his sentence (it has only happened 13 times that he has been singing during the whole therapy process) he asks if I "drive" for the last time. Even if I did not use the word last time I hear him using it being aware that these sessions are going to stop. I answer him by singing that tomorrow is the last time. After the session I ask his contact person if staff has prepared Mr A for the end of music therapy. She answers that she did not prepare him and she did not think that other staff would have done so. She thinks it is credible, but thought-provoking, that he shows this understanding.

Scores based on assessors' observations:

The table with clip one in appendix E page 321 shows assessors' observations systematically organized. Each labelled quotation in the text material is registered in the table.

Examples: First group is called "po" (**po**stural response) and this is registered one time as a response, R. Further down "po" is registered twice as a quality of beat, Qbe. Visual response orientated towards a person, "Rvi-Qor-per <eye contact> is registered 13 times. Rfa-Qcl is registered ten times. As written at page 210 the code, Rfa-Q+ <smiles>, is associated with a social act and therefore registered in the category Rfa-Qcl. This does not mean that the person smiles ten times: each assessor might have registered a smile twice, like in assessor Y's observations above.

In the following I will generally only include responses registered more than 3 times. This means that the response must have be registered by at least 3 assessors, or – on some occasions

– by 2 assessors, where one has stressed the observation by mentioning it twice. The focus of this research is not to check for interrater reliability, but with the measures taken I exclude observations that are not agreed on by a least three persons. (- Or on some occasions; two, if one assessor repeats a comment in two columns. In this material it does not occur that one assessor observes a response three times without other assessors observing it as well.)

Response

1A	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 7.5: Response and quality of response. Mr A. An explanation to this table and the following small coding tables is seen at page 219.

In this clip Mr A does not respond with lower extremities and posture (see table 7.5, and in appendix E 321). He is not moving body or feet, but he responds with upper extremities; his hands, head, and face, and he responds vocally by giving comments and by singing.

Quality of response

Emotional valence: Assessors observe that Mr A <seems to be happy>, <to feel comfortable> and <enjoys the situation> (Q+).

Participation, receptive: He is <attentive> and <listening> (Qpa).

Sociality: He shows social attention by <holding hands> (Rha-Qto), having <his face close to Mt's face> (Rhe-Qcl), by <smiling> (Rfa-Q+), and by <looking at Mt> or <having eye contact> (Rvi-Qor-per).

Participation, active: He shows active participation by <moving his head with expectation> (Rhe-Qint), by <talking> (Rvo/co), by <singing> (Rvo/si) and by <starting he himself by singing> (Rvo/si-Qini).

Communicative musicality: He is aware of the <phrasing> (Qph) in the song, <taps the beat with his hands> (Rha-Qbe) and <nods to the beat of the song> (Rhe-Qbe).

Dialogue: There is <a warm familiarity and confidence> in the relation (Qinti) and by <asking a question in singing> (Rvo/si-Qdi) he is able to enter a dialogue. In the question he is asking in singing, he seems to be aware that the music therapy sessions will stop (Rvo/si-Qaw).

Explanation of the small coding tables

	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

The small coding table is a simplification of the more detailed tables in appendix E page 321 in order to give an overall impression and to make visual comparisons with the other video clips.

In the first row is written: Q, Lower, Upper, and Vocal:

Q: are "pure" qualities of response not related to a response in the observations.

Lower: are lower extremities with posture included.

Upper: are upper extremities visual response included.

Vocal: are responses with the voice, both linguistic and para-linguistic.

In the first column are the 6 code families/categories:

Em: **Em**otional valence

Re: **Re**ceptive participation

So: **So**ciality

Ac: **Ac**tive participation

Mu: communicative **Mu**sicality

Di: **Di**alogue

Spaces are coloured grey when a response is registred. Darkest grey: where most responses are observed. Observations are only included when registred 3 times.

Summary:

Mr A is responding in all 6 categories of quality of response by using upper extremities and by vocalizing. He is even entering dialogue by singing a question, and is aware of relational aspects. This shows a very high degree of participation, involvement, social interaction, and an environmental and relational awareness.

Clip 2 – Mrs F, the traveller

Clip is from 10^{th} session and lasts 1:10 minutes. This is the 3^{rd} song in the session. Assessor Å observes in column A:

- Mrs F stands at the door – starts turning around towards Mt.
  Mt starts singing the song: *"Det lysner over agres felt"*. Mt sits in sofa.
- Mrs F walks towards Mt, while Mt continues singing.
  Mt looks up at Mrs F's face. Mrs F looks at Mt's face. Seems curious about Mt.
- Mrs F puts her head down towards Mt's face.
  Mrs F draws her head back, but remains standing.
- Mrs F trips uncertainly in front of Mt, but chooses at last to bend down over Mt.
  She first checks Mt, before she approaches further.
- Mrs F goes on leaning towards Mt while Mt continues to sing. Mrs F puts her hand on Mt's shoulder and touches it.
- Mrs F removes her hand and sits down beside Mt. Mt continues to sing. Mrs F does not look at Mt, but looks in front of herself.
- When Mt sings the last tone in the song and stops, Mrs F leans back a bit.

Music therapist's comments

During this session Mrs F comes towards the sofa and sits down, shortly after she rises again, and this happens all in all eight times. This clip shows her coming towards me and sitting down for 29 seconds.

In several clips I see that Mrs F is following the beat or somehow marking the ending of a phrase when I sing. But is it *her* adjusting her beat to my song? - or is it *me* adjusting the beat of the song to her pace? I have chosen this clip because Mrs F stumbles. I continue the song, and then, in my opinion, she finds the beat again. This example makes it clear to me that at some level she is aware of the rhythm of the song.

The song is a Danish autumn song and many persons from Mrs F's generation would know the song, but I do not know if it is familiar to her. I know that she enjoyed nature and hiking, and I think the nature descriptions in the song might appeal to her. The song has slow beat,

long tunes, a rocking feeling in the beginning, and might have a calming effect on Mrs F.

Scores based on assessors' observations

The table with clip 2 at page 322 in appendix E shows assessors' observations systematically organized. Each labelled quotation in the text material is registered in the table.

Response

2F	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 7.7: Response and quality of response. Mrs F

In this clip Mrs F is responding by posture and by moving about in the room (see table 7.7). She responds as well with her hands and head, but not with facial or vocal expression.

Quality of response

Emotional valence: As seen in the bar chart, figure 6.48 page 181, walking about seem to be Mrs F's baseline behaviour, but assessors register that she is responding by <sitting down> or <leaning back> (Rpo-Qse). The next quotations could as well reflect the baseline behaviour, but are included as they at some level might be a response (and here a response of withdrawal) to the interaction with the music therapist: <pulling back her hand>, <removing her hand from Mt's shoulder> (Rha-Qbr) and <gazing> (Rvi-Qbr).

Participation, receptive: On three occasions assessors ask the question if Mrs F is listening (Qpa?) at all, and on five occasions they register that she *is* <listening> or <is caught by the song> (Qpa). She seems to be orientated towards an object: <she examines Mt> or where the sound comes from (Qor-obj), she <walks towards the sound>(Rpo/ge-Qor-obj), <reaches out for Mt's shoulder> (Rha-Qor-obj) and <looks towards the sound/Mt's shoulder> (Rvi-Qor-obj). Even though she might not understand the song or the music she is captured by it and seems attracted to it.

Sociality: Mrs F approaches Mt and ends up being very <close> to her (Rpo/ge-Qcl) and even <touches her shoulder> (Rha-Qto). It was described before that she seemed orientated towards an object, but assessors also observe that she seems to be <aware of where Mt is>, is <curious about Mt>(Qor-per), <stops in front of Mt>, <leans towards Mt> (Rpo-Qor-per), <walks directly towards Mt> (Rpo/ge-Qor), <turns head towards Mt> (Rhe-Qor-per) and <looks at Mt> or <has eye contact with Mt> (Rvi-Qor-per). Mrs F seems to be very orientated towards music therapist showing this with both "upper" and "lower" body.

Participation, active: Mrs F is not participating actively in the music therapy session by vocal responses or by showing initiative or intentionality.

Communicative musicality: Only one assessor register that Mrs F is walking in time, so after having finished the written assessment procedure I ask assessors to watch the very short sequence again where Mrs F stumbles, and I ask them directly if they think Mrs F is walking to the beat. Two assessors agree strongly with me, but the three others are in doubt. So I leave this question open and suggest a microanalysis of the metre in her gait and in my singing.

But assessors agree on Mrs F being capable of <moving her body with the phrasing of the song>, <swaying/leaning back when tune stops> (Rpo-Qph) and that she is <following the phrasing when walking>, <movements are synchronized with the phrases> and <dancing> (Rpo/ge-Qph). Dancing could as well be registered under Qbe, but here it is more reflecting a three-dimensional moving about marking the lines in the song, not the beat. The endings in this slow, melancholic (?) song are melodically clear and moreover made distinct with voice and ritardando. This might be a form that Mrs F can rely to.

Dialogue: Mrs F does not involve in interpersonal exchange or dialogue, and does not express awareness of the relation with the music therapist.

Summary

Mrs F does not respond vocally and does not show facial expressions, but she responds with both upper and lower extremities. It is very difficult to say if she feels at ease with the music therapy but in some moments she sits down and rests. She seems to be aware of the sound, whether she hears it as music or "just" a sound, and she is aware of the other person in the room, showing this with both postural, postural/gestural and visual responses.

Clip 3 – Mr B, the accordion player

Clip is from 2^{nd} session and lasts 1:40 minutes. This is the 4^{th} song in the session; an African song which is sung with all participants. Assessor Æ observes in column A:

•	Mt sings African song. They sit close on sofa. Mr B puts arm around Mt's shoulder. Mt takes Mr B's hand and puts her hand in his.
•	Mt strokes his hand with her finger. Mr B looks sideways at Mt.
•	Mr B mumbles incomprehensive sounds (2 seconds at the maximum).
•	Mr B knocks the rhythm of the music with his hand on his leg for a short moment. At first small movements, later almost in the air.
•	Mt makes a more marked rhythm
•	Mr B puts his head straight, looks into space and says more sounds, words, 6-8 syllables: *"that is because . . . that one . . . tired"*

- Mt stops song when Mr B says more sentences. *Mt: "are you tired?".* He points in the air. Picks his ear. Touches at Mt's leg. *"come, come, come"*
- Mt starts song again with more power. Mr B takes her hand with intensity. Mr B is sad.
- He points his finger and says something. Mt softens the song. Pause.
- Mt modulates the song $\frac{1}{2}$ tone up. Mr B mumbles a little. Touches his leg, pulls up his trouser leg.
- Talks, turns his head against Mt.

Music therapist's comments:

I have chosen this clip for several reasons, but mostly because of the interaction in the beginning. Mr B looks directly at me when I start singing, gives a slight smile and then puts his hand to my cheek, caressing me. I feel that he recognizes me at some level. In my opinion this is underlined by his reaction to my response: I withdraw, and I see his face being earnest, noticing my rejection of him. The reason while I withdraw is that when I feel his hand on my cheek, I notice that he has had jam for breakfast! – Most likely strawberry jam. His hand is smeared with jam, and instinctively, feeling this sticky stuff, I turn my head away and move his hand away. I reject him. And to me it is clear that he is aware of this rejection. I see Mr B being orientated towards me as a person, reacting emotionally; – an incident that none of the assessors makes interpretations on.

Another important reason for me to include this clip is Mr B showing involvement by sobbing. This is very easy to overlook on the video, and I therefore mark his sobbing by making a sign to the camera. Without making a sign (I point with my index finger to the camera) it would be difficult to register the sobbing, that is clearly related to the breathing of Mr B. The sobbing indicates emotional involvement, which assessors agree to, but I am aware that they might not have noticed it, if I would not have lifted my index finger.

The clip exemplifies unknown music; two African songs. In this session Mr B has heard the songs in the three previous sessions.

Scores based on assessors' observations

The table with clip 3 at page 322 in appendix E shows assessors' observations systematically organized. Each labelled quotation in the text material is registered in the table.

Response

In this clip Mr B does not respond with lower extremities; with torso, by walking, or with the feet (see table 7.9). Assessors do not register facial expression, but register other responses with upper extremities; moving his hands and head, and responding vocally and visually.

Quality of response

Emotional valence: Mr B is making responses; <putting his head straight> (Rhe) and <making incomprehensible sounds> (Rvo), that are not linked to a quality of response.

3B	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 7.9: Response and quality of response. Mr B

He is <releasing Mt's hand> (Rha-Qbr) and <looking away from Mt> (Rvi-Qbr). Withdrawing and looking away may be used by Mr B in order to refocus, and is often seen before he is expressing emotions (sobbing). These first codes do not tell much about Mr B, and assessors have not been able to observe a mood-quality (Q+/-), thus it is difficult to reveal if he feels at ease with the setting. The fact that he remains seated might show an acceptance of the setting/compliance, as well as the observation that his <hands rests> (Rha-Qse).

Participation, receptive: Mr B seems to be <caught by the music> and <listens to the music/rhythm> (Qpa). A couple of times he is <pointing out into the air> and as it is not clear if he is pointing at *something* real this is labelled Rha-Qor-obj?
He is <examining where the sound comes from> (Rha-Qor-obj) and by this he is reacting to the music in an indirect way.

Sociality: Mr B is often reaching out for and touching Mt's hands, face, or leg (Rha-Qto) and is <looking at Mt> (Rvi-Qor-per). On some occasions when Mt and Mr B sit close together, he might not be aware if he is touching his own or Mt's leg (as a result of agnosia symptoms) and maybe he does not look at Mt but at the source of the sound; an object. What is decisive to which category the codes belong, is assessors' use of the words. If they write that Mr B looks in the direction of the sound the label is: Rvi-Qor-obj. If they write that Mr B looks at Mt the quotation is labelled; Rvi-Qor-per. According to this Mr B is socially engaged in the music therapy.

Participation, active: Mr B is showing active participation in the session only by the use of his voice. He is <using different words>, <speaking> several times, and <speaking in whole sentences> (Rvo/co). Mr B does not speak often, and music therapy seems to elicit language responses in Mr B.

Communicative musicality: Mr B seems to relate to the rhythm in the songs. He is <in synchrony with the rhythm>, <follows the beat> (Qbe) and <taps the beat with his left hand> and <has the rhythm in his hand> (Rha-Qbe).

Dialogue: Mr B reacts to the song by sobbing. Sitting near by him it is clear on his facial expression and on his breathing when he sobs, but with the video material it does not seem that convincing as only 3 assessors have registered him <being sad>, <having a lump in his throat> (Qem). Their observations are not linked to clear responses, but as at least three assessors agree on him being sad, I conclude that he seems to express emotions in connection with the music therapy.

Summary

Mr B is showing his involvement and participation in the music therapy by using his hands and by visual and vocal responses.

He is responding in all 6 categories of quality of response listening to the music/rhythm, being orientated towards the music therapist and by using fragments of language. He is able to mark the beat with his hand and seems to be involved emotionally in the song, but does not engage himself in conscious dialogue. This shows a certain degree of participation and interaction, together with environmental attention and emotional exchange.

Clip 4– Mrs E, the choral singer

Clip is from 1^{st} session and lasts 2:08 minutes. This is the 7^{th} song in the session, a Danish folksong, sung with all participants.

Assessor Z observes in column A:

- Mrs E bobs her foot/feet up and down in time with the rhythm of the tune. Mrs E sings a little with indistinct text.
  Mt moves head and upper part of the body more or less in the rhythm of the melody.
- At the refrain: Mt vigorously calls to Mrs E via movements of head and *ff* with stress on the text.
- Mrs E answers in the rhythm of the melody.
  Is repeated. Mrs E laughs the second time.
- Mrs E is here moving her left foot a little and sings "la la la" (tries to imitate). Here the answers in the refrain are quicker.
- Mrs E joins in, humming – this time feet rest.
  Sings the text *in the last verse*: "he who laughs last laughs longest"
  When the song is over she turns her head against Mt and says: "this is a good song".
  Hands are not moving during the whole song. Right hand on top of left hand.

Music therapist's comments

After having sung this song; "Roselil", I ask Mrs E if there is a special song she wants me to sing. She answers:

> "Well . . . I think it has left me, with those songs". . . .
> Mt: "After all you know so many songs".
> Mrs E: "Yes I do. They are too good to drive away from".

To some extent Mrs E is aware that she is losing the capability to sing. The capability "has left her". What I think is important with this video clip is that it shows that Mrs E very slowly, verse after verse, gets more and more involved in text and tune. The song stimulates her to participate and stimulates her language, and in a setting that she clearly likes.

The song "Roselil" is known by nearly everybody in Mrs E's generation. It is used here as part of the structure in the middle of the session. The refrain is very simple and invites to pose a question with the "ha ha ha" and expecting an answer with "så så så" (which could be translated as: "now now"/take care what you are saying).

Scores based on assessors' observations

The table with clip 4 in appendix E page 323 shows assessors' observations systematically organized. Each labelled quotation in the text material is registered in the table.

Response

4E	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 7.11: Response and quality of response. Mrs E

Mrs E responds in only three manners; with her feet, by laughing and by using her voice (see table 7.11). The only thing she moves in this clip is her feet; otherwise she remains motionless.

Quality of response

Emotional valence: Mrs E moves her foot (Rfo) some times where the movement is not related to a quality; such as tapping the beat. As she moves very little, Qbr and Qse is not observed, whereas assessors seem to agree on the following: <clear that Mrs E likes singing together>, <she seems to feel at ease and to have fun> (Q+).

Participation, receptive: Mrs E is <evidently "in" the song all the way through> (Qpa) and <keeps focus>, <is concentrated on the song and the refrain> and <is listening with concentration> (Qor).

Sociality: Mrs E does not express sociality by touching, imitating or being orientated towards Mt. Only one assessor notices that in the very end of the clip <Mrs E looks at Mt> (Rvi-Qor-per), but the other assessors do not support/notice this.

Participation, active: The only manner Mrs E shows active participation in this setting is by using her voice (and tapping the beat which is included in the next category). She makes a positive comment on the song; <"this is a good song"> (Rvo/co-Q+) and she <sings> (Rvo/si). During the singing <she sings more and more>, <uses more and more words>, <has more confidence with the tune>, and <words are pronounced more clearly> (Rvo/si-Qor). This shows that the whole process of singing seems to engage her more and more and improve her abilities.

Communicative musicality: Mrs E <bops feet up and down in time with the rhythm> (Rfo-Qbe), <stops moving feet when verse stops> (Rfo-Qph), <answers in the rhythm of the song> and <keeps the beat> in the refrain (Rvo/si-Qbe).

Dialogue: Intimacy (Qinti) appears in the <game (humour) between Mrs E and Mt in the refrain> and in the quotation; <interaffectivity>. Emotions are expressed by laughing (Rfa/vo-Q+) in the refrain, answering the "ha ha ha" with "så så så", and assessors seem to agree on Mrs E being able to <enter dialogue>, <dialogue at a conscious level>, and <answers are adequate> (Qdi).

Summary

Three clear responses – moving the foot, laughing and vocalizing – reveal that Mrs E is engaged in the song. If she had not communicated her engagement by these responses we could not be sure of her engagement as she shows no social orientation or other forms of active participation. This is thought-provoking, as observations on emotional valence and receptive participation are based on subjective interpretations. We would then have to rely on these observations if Mrs E in the course of the disease would not replace her responses with other kinds of responses. By using her voice and her foot Mrs E reaches high levels of participating and communication in the music therapy.

Clip 5 – Mrs C, the folk dancer

Clip is from 14^{th} session and lasts 1:06 minutes. This is the 12^{th} song in the session. Assessor Ø observes in column A:

- Mt turns against C.
  C follows her with her eyes.
  Mt starts singing *"Først den ene vej og så den anden vej…"*.
  C looks at Mt.
  Her hand rests on Mt's leg in the beginning of the song.
  C talks – says "yes" after the verse.

- Mt starts 2^{nd} verse/refrain.
  C joins her in the singing.
  Says "la la".
  Mt holds C's hands, swings them back and forth.
  C makes syncopes.

- C sings "la la". Solo
  Says "dum ba" in tune.
  Hands go back and forth.
  Mt reflects her tone just before the climax.
  Break.

- "la la" – monotonous variation.
  Eye contact all the time.
  "Yes"
  Mt marks the end-ritardando.

Music therapist's comments

The tune I sing is an old Danish folksong with some special hand movements related to the song. In the refrain I take Mrs C's hands and pull them vigorously to the sides; like making a sitting dance. I often do this with Mrs C and she responds by joining the singing. In this example she goes even further and sings her own little song. I join her in the song by keeping the rhythm in our "dancing". Mrs C is a former enthusiastic folk dancer and this rhythmic stimulation/dancing seems to be important in eliciting responses from her.

Scores based on assessors' observations

The table with clip 5 in appendix E page 323 shows assessors' observations systematically organized. Each labelled quotation in the text material is registered in the table.

Response

5C	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 7.13: Response and quality of response. Mrs C

Mrs C is sitting comfortably leaned back in the sofa and is not responding with torso or feet (see table 7.13). Thus she is not responding with lower extremities, but related to upper extremities she responds with her hands, face and eyes. - And she uses her voice; she is commenting, singing and improvising.

Quality of response

Emotional valence: No observations are registered in this category, but her smiles (Rfa-Q+) and her positive comments after the singing (Rvo/co-Q+) being registred further down the table, reveals that she feels at ease.

Participation, receptive: Mrs C is <present>, <participates> and <is taking part in the song> (Qpa), but seems not to be orientated towards an object or recognising the song.

Sociality: She shows social orientation by <smiling> (Rfa-Q+), by <putting her hand on Mt's leg> (Rha-Qto) and by <following Mt with her eyes>, <looking at Mt> or by having <eye contact all the time> (Rvi-Qor-per)

Participation, active: In this category all the responses are localized to vocal responses; she <says "yes"> and <"well"> (Rvo-Q+), she <sings>, <hums>, <sings la la>, <sings ba dum ba dum> (Rvo/si), she <improvises>, <makes a solo>, <moves upwards in tonality>, <carries on in her own tune>, <sings her own music> (Rvo/imp), and she shows initiative by <putting her own world into the musical form>, <making dotted notes/syncope> and by <leading> (Rvo/imp-Qini).

Communicative musicality: Mrs C is showing musical communication by <being in the rhythm> (Qbe), <following Mt's rhythm in song> (Rvo/imp-Qbe), <marking the keynote clearly/longer> and having a <feeling of form, period, ending, phrasing> (Rvo/imp-Qph). Quality of pitch is mentioned and she seems to <end on a kind of keynote> (Qpi).

Dialogue: No quotations point towards Mrs C creating a sphere of intimacy with Mt, expressing emotions, entering dialogue or being aware of the relation to Mt.

Summary

Mrs C communicates sociality, active participation and musicality using the upper part of her body; using her hands, by smiling, having eye contact, and by using her voice. Her singing and improvising show initiative and she follows musical rules. The improvisation reflects her "own world" and is not an exchange at a dialogical level, but still shows a certain degree of participation and interaction.

Clip 6 – Mr A, the janitor

Clip is from 16^{th} session and lasts 1:27 minutes. This is the 10^{th} song in the session. Assessor Å observes in column A:

- Mt sings (*last part of "Brother Jacob"*) and comes to "Bim bam bum". Mr A's left foot hits the rhythm with "B-B-B". First in quaver (1/8) time and then in crotchet (1/4) time.
  Mr A is aware of the ending of Mt's song – the foot moves more slowly in the end (1/4).
  Looks at Mt in the end. Mr A smiles.

- New song.
  Mt and Mr A lean heads against each other. Mr A starts and Mt responds by leaning her head towards Mr A.
  Mr A smiles and starts moving both feet. The song is more strophic.

- Mt draws back her head, which Mr A does subsequently.
  Mr A's foot is slow in the beginning, but is moving faster in the end.
  Mr A gives Mt a nod.
  Mr A kisses Mt's hand, looks at Mt.
  Smiles.

- Car passes by outside. Mr A leans forward and looks out. ? leans back again.
  Mt stops song and starts another one. Mr A responds by letting both feet move up and down in the same rhythm as Mt's song.
  When Mt makes a break in the song, Mr A stops his movements.

Music therapist's comments

Mr A is not wearing his hearing aid this day, but seems to be able to hear the singing anyway. I have sung "Brother Jacob" to him and then continue in an improvisation, which means that he does not know the song material. But he seems to know the framing musical rules and relates to the music and the musical features. Like this, the clip is an example of unfamiliar music song in well-known musical frames.

Scores based on assessors' observations

The table with clip 6 in appendix E page 324 shows assessors' observations systematically organized. Each labelled quotation in the text material is registered in the table.

Response

6A	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 7.15: Response and quality of response. Mr A

In this clip Mr A responds with both lower and upper part of the body (see table 7.15). Except from walking around he is using all the different R-categories connected with the body; postural, gestural, facial and visual responses. But he does not respond vocally at all.

Quality of response

Emotional valence: Mr A is in motion; he is <leaning back>, <sitting right up again>(Rpo), <moving his foot> (Rfo), <lifting his head> and <nodding> (Rhe). None of these responses are related to a quality indicating a direction or a meaning of the movement – but at least show that Mr A is in motion. As we will see in the category of sociality, Mr A is looking at Mt several times, but in this category we also see that he often <looks away for a short period>, <looks sideways down to his left without changing the direction of his gaze>, and has an <absent look> (Rvi-Qbr). This might be seen as a way of refocusing. In the incident where Mr A and Mt sit with their foreheads close together he <remains in the position> and <sits still> (Rpo-Qse).
According to assessors it seems to be a very nice situation to Mr A. He <enjoys being together>, <looks blissful>, <seems to enjoy the music>, <becomes more alive> etc. (Q+)

Participation, receptive: Mr A is <listening>, <is moved by the quality of voice> and <is able to turn back to the situation/relation after being distracted by sounds from outside> (Qpa). He seems more or less orientated in time and space by being <concentrated>, <focused> and <attentive> (Qor).

Sociality: The social aspect is of relevance in this clip. Mr A and Mt <hold hands> (Rha-Qto), <lean foreheads against each other> (Rhe-Qto), <Mr A smiles> (Rfa-Q+) and

they imitate posture; <both sitting up at the same time>, and <Mt pulls back her head followed by Mr A> (Rpo-Qim).

Participation, active: Mr A's active participation is seen in later categories, e.g. in his way of being involved in the music, and is here only described as showing <initiative> and <following an impulse, and kissing Mt's hand> (Qini).

Communicative musicality: Although he is without his hearing aid Mr A <responds to the change in tempo> (Qbe), <bobs foot up and down in metre of the music> (Rfo-Qbe), <moves hand in the rhythm of the song> (Rha-Qph), <nods in the rhythm of the pulse> (Rhe-Qbe), <smiles when song ends>, <is aware of the ending of the song> (Qph), <feet follow the phrasing> (Rfo-Qph), <marks the phrasing with his head>, <nods at the ending of a phrase> (Rhe-Qph), <looks at Mt when verse is over> and <eyes show that he is aware of the phrasing> (Rvi-Qph). Mr A clearly communicates involvement in the music.

Dialogue: The quotations: <the being together is of an intimate and concentrated quality>, <they nod as if they have a common understanding>, and <there is a special connection> (Qinti), point at intimacy in the relation. The expression of emotions is illustrated by <his face becomes serious>, <he blinks> (Rfa-Qem) and by Mr A <kissing Mt's hand> (Rfa/to-Qem+). At last he seems to enter the level of dialogue as he <tries to read her response> and as he <thanks for the music (by kissing her hand)> (Qdi).

Summary

Like in clip 1 Mr A shows participation, sociality, communicative musicality and ability to enter a relation. This time he does not use his voice, but communicates persistently with gestures and mimic. He shows a very high degree of involvement at all levels, although it is not clear if he is aware of the continuity in the relation to Mt.

Clip 7 – Mrs D, the ballad singer

Clip is from 18^{th} session and lasts 0:34 minutes. This is the 10^{th} song in the session. Assessor Y observes in column A:

- Mt passes her hand over her *(own)* hair. Mt starts with a song: "Lily Marleen".
  Mrs D looks out into space – is listening – breaks into the song and changes the text while gazing out of the window. She catches the tune and increases the dynamic (a bit aggressively in the text line: "and isn't worth his salt").
  Mt looks in the songbook – stops when Mrs D breaks in. Looks at Mrs D.

- Mrs D carries on with the song, looks in front of her. Mt smiles at her. Mrs D explains by talking about the seaman – sings again. Mt puts her head close to Mrs D's head, as if she wants to catch her attention. Mt laughs a bit.

- Mrs D remembers the rhyme – looks at Mt. Eye/face contact is close.

She says intentionally: "we will kick him out".
Good phrasing *in the syntax* - Mrs D laughs to herself at the last text line.
In the last line the rhythm of the tune is heard in the phrasing of the text.

Music therapist's comments

I start singing the song; "Lili Marleen", which people from Mrs D's generation in the western world very likely would know. I am not certain about the text and use a songbook. I only complete the first verse before Mrs D joins me in the song. She sings with vigour and confidence and I realise that she sings another text than in my songbook. Her text is a lampoon against German Nazis, sung during and after Second World War.

She repeats the song shortly after, and even remembers part of the second verse where Hitler, G´oring and von Ribbentrop are mentioned. The first verse is as follows:

På en stjålen skude	On a stolen old tub
midt i Århus havn	in the harbour of Århus
står den tyske sømand	stands the German sailor
og gør slet ingen gavn.	and isn't worth his salt.
Han æder kun af det danske brød	He only eats the Danish bread
men det skal bli' hans egen død.	but surely he will end up dead.
|| : For han skal smides ud : ||	|| : As we will kick him out : ||

Singing a lampoon allows expression of feelings of defiance, hatred and malicious pleasure, but also expresses a feeling of "us" against "them" when singing the song together. I imagine that the feelings expressed in this song are relevant in Mrs D's situation of life here and now.

In this clip the text of the song is of great importance. Even though Mrs D mixes up the words and e.g. sings Swedish sailor instead of German sailor, the meaning of the song, and the emotions loaded in it, are clear. The emotions related to the song might have an effect of facilitating reminiscence and memory.

Scores based on assessors' observations

The table with clip 7 in appendix E page 324 shows assessors' observations systematically organized. Each labelled quotation in the text material is registered in the table.

Response

Mrs D mostly uses vocal responses in this clip. In only 3 examples she uses postural, facial and visual response. In the others she comments, words the text and sings (see table 7.17).

Quality of response

Emotional valence: All Mrs D's responses are related to other qualities than in the first category of emotional valence and will be reflected upon further down in the table.

Participation, receptive: In the very first stanza of the song Mrs D seems to <listen> and <is present> (Qpa). She <remembers the rhyme> and <remembers the text> (Qre), and

7D	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 7.17: Response and quality of response. Mrs D

she reminisces which is reflected in the quotations: <gives her good memories>, <a chain of associations of memories> and <song elicits associations> (Qrem).

Sociality: The communication of sociality is reflected in an orientation towards the other person in the room: <leaning towards Mt> (Rpo-Qor-per), <looking at Mt>, and <eye contact> (Rvi-Qor-per)

Participation, active: The way Mrs D vocalizes shows active participation. She <quotes the text> and <changes the text> (Rvo/tx). She <sings> (Rvo/si) and she even sings the text (Rsi/tx). When she does this she shows initiative (Qini): <she totally takes over>, <breaks into the song>, <they swop roles>, <she gets inspired from Mt's tune to use another text> and <she is the centre of events>. Additionally she indicates intentionality (Qint): <she interrupts herself (and gives an explanation)>, <she is engaged and convincing> and <she knows something about this subject>.

Communicative musicality: Mrs D shows her involvement in the music by singing, and her feeling for musical form is clear while she <breaks into the song at an adequate point of time between two stanzas>, <she stops at the "right time">, <the last word is on a descending tone>, and she <makes a ritardando> (Rvo/si-Qph). Additionally she has tonal feeling. She <sings in pitch> and she <catches the key> (Rvo/si-Qpi).

Dialogue: In the clip Mrs D shows <humour>, which is labelled with a quality of intimacy (Qinti). She expresses emotions by <stressing the words>, by being <dynamic>, <intensive> and by showing <energy>, <power>, <temper>, <aggression> (Qem) and at last by <laughing> (Rfa/vo-Qem+). She enters dialogue as she <gives an explanation> and <explains about German sailors> (Rvo/co-Qdi).

Summary

With her face, eyes and voice Mrs D is capable of showing sociality, active participation, communicative musicality, and to enter dialogue. She shows a very high degree of involvement, although it is not clear if she is aware of relational aspects to her counter partner.

Clip 8 – Mrs D

Clip is from 8^{th} session and lasts 0:28 minutes. This is the 14^{th} and last song in the session. Assessor Z observes in column A:

- Mrs D is nodding her head in time with the music. Gazes.
  Follows Mt's slowing down of tempo without any problems.
  When Mt starts singing Mrs D turns her head against Mt, where the sound comes from. Turns head back again.
  In the end of the song Mrs D starts smiling and makes herself ready ...

- ...then she turns directly at Mt and says: "Whether with good or evil. They are not told where the larks' nest is. He can keep a secret."
  Mt moves Mrs D's arm back and forth, like a rhythmic emphasis on the syllables that have just been said by Mrs D.
  Mrs D expresses herself vividly with facial expressions and accent. (Affect attunement)

Music therapist's comments

In every session I sing "Jeg ved en lærkerede" (*I know where there is a larks' nest*) to signal that we are going to stop. In the clip I sing the 4^{th} and last verse. The song is about a boy who has spotted a larks nest, and he watches the birds fly about looking for food for the young birds. The boy does not want to disturb the birds, and will not tell the other boys where the nest is. I cannot tell if Mrs D is involved in the process interpreting the text, as her interpretation here shows abstract cognitive functioning at a very high level. Her interpretation and combination of proverbs (good and evil) might be a recollection elicited when she hears the song. In session 11 she makes a comment on the boy in the song being faithful and that he does not harm anybody. In session 4, 10 and 20 she makes comments on the boy being able to keep a secret. The boy's good qualities seem important to her, and I imagine she has made these comments to her children, after having sung the song, in order to give them good ideals. She even might have heard these comments when she herself was a child and listened to the song. Mrs D does not sing with me, she "only" listens, but she relates to the text. She might not relate to the meaning of the text here and now, but relates to former shaped meanings. When these more or less emotionally loaded meanings are presented, a part of her identity is shown in our shared reality.

This clip differs from the last clip, clip 7, where Mrs D herself is actively performing. Here, in clip 8, she is an active listener.

Scores based on assessors' observations

The table with clip 8 (appendix E, page 325) shows assessors' observations systematically organized. Each labelled quotation in the text material is registered in the table.

Response

Mrs D does not communicate with posture and feet: lower part of her body (see table 7.19). Her communicative signals are limited to head, face, visual responses, and to vocal comments.

Quality of response

Emotional valence: Responses revealing aspects of emotional valence will turn up in later categories.

8D	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 7.19: Response and quality of response. Mrs D

Participation, receptive: Mrs D shows receptive participation by <listening>, <taking in the song>, as if <the text has a meaning to her> (Qpa). In Qor she shows a little more cognition by <being present> and as she <seems to confirm that Mt sings correctly>.

Sociality: Mrs D responds socially by <smiling> (Rfa-Q+) and <looking at Mt> (Qor-per).

Participation, active: During the singing the only active participation is Mrs D moving her head to the beat, which is described in the next category. But her vocal comments (Rvo/co) after the singing makes her engagement and text interpretation explicit and shows intentionality (Qint): <when the song is to stop she makes herself ready> and <she forms an opinion about the text>.

Communicative musicality: By <nodding her head in the beat of the song> (Rhe-Qbe) Mrs D communicates her active participation. Additionally she <follows Mt's ritardando> and <does not start talking until Mt stops singing> (Qph). Assessors even assess her vocal comments to follow certain musical rules as the prosody has <clear phrasing> and <structure, melody – pause – ascending tone of voice and at last a conclusion> (Rvo/co-Qph).

Dialogue: The way Mrs D talks – her prosody – is emotionally loaded: <Mrs D expresses herself vividly with facial expressions and accent>, <her talk is like an oration; with moral and emotions>, <she becomes lively and energetic with charisma> and <she becomes alive when having somebody to entertain> (Qem). When she talks <she talks directly to Mt> and she <says something relevant> (Rvo/co-Qdi). She enters dialogue. (After a small break Mrs D thanks me for coming and she asks which song we shall sing tomorrow. By doing this it is clear that she is aware of relational aspects (Qaw), but this does not appear in the clip.)

Summary

Mrs D is able to express her thoughts about the song in vocal language, but had she not had this capability we would not have known that the text had a meaning to her. At least we would have to rely on "subjective" understanding. Listening attitudes are very difficult to transform to observable elements, but listening to a song and having an understanding of a song – whether this understanding is at a high abstract level or as an implicit emotional sensation – could be a very important part of the music therapy. - But a part that is difficult to document.

In this clip Mrs D shows involvement and participation at a very high level as she vocally expresses her thoughts. She does not ransack her memory for words; what she expresses is clear and precise and with no hesitation. Mrs D scores 5 (out of 30) on the MMSE,

which indicates low cognitive functioning, but in this situation she seems very relevant and present, and her cognitive deficits do not influence her appearance. Normann defines these incidents of clarity as *lucid intervals* (Normann 2002), and attention on lucid intervals, and the situations in which they arise, would give persons suffering from dementia more opportunities to experience these lucid moments, and not the least: would give us - relatives and carers – opportunities to meet the resourceful person behind the dementia disease.

Conclusion

In 8 small video clips 6 persons are engaged in music therapy in very different ways. Different – as the participants are different personalities with different backgrounds, and as the way we interact are influenced by many different variables – although there might be some overall similarities in the setting and the music therapeutical approach.

In all 8 situations the persons respond to the music or to the music therapist. They have in common that responses by upper extremities are seen. Some respond by moving hands as well as head, showing facial expression and having eye contact. In other situations only a single component is seen. In just two situations a person responds by using both lower and upper part of the body and at the same time uses the voice. In four situations no responding with lower extremities is seen, and in two situations the person does not use vocal response at all.

It is possible to define some general categories of engagement or levels of response the participants revealed, defining responses on a five point scale: no response - little response - medium response - high response - very high response. The allocation of the selected examples into these categories is based on the degree and type of response found after the above analysis.

Only one person (Mrs F, clip 2) seems to show *little* attendance to the music. But even though she shows *little* response, she is orientated towards the sound and towards the other person (Mt) in the room. Mrs F is the person with the most cognitive deficits of all six participants. If she had had the possibility to take part in individual music therapy at an earlier stage of the disease, the regulative effects of the music might have had more effect, as her possibility to recognise the setting, the therapist, and the music would have been more optimal.

Mrs C (clip 5) and Mr B (clip 3) show *medium* response by showing participation and interaction, together with environmental attention, but no or only little emotional exchange or dialogue.

Mrs E (clip 4) and Mr A (clip 6) show a *high* degree of response and involvement at all levels. Although Mrs E does not show sociality she enters dialogue, and Mr A communicates actively by many different means – but only in one occasion he uses his voice.

Mrs D (clip 7 and 8) and Mr A (clip 1) show a *very high* degree of participation, involvement, social interaction and an environmental awareness. They use their voices and expresses themselves in dialogue, and Mr A even shows relational awareness.

It is important to notice here that none of the participants in this study, although suffering from dementia in advanced stages or a dialogic degenerative disease, show *no* response to the music therapy. By this I can conclude that none of these persons are non-responsive or uncommunicative, although persons suffering from advanced dementia often might be described as being both non-responsive and uncommunicative. They 6 participants benefit from the setting in different ways depending on their needs.

- They seem to be stimulated or sedated by the music.

- The 6 persons participate either receptively or actively in the setting.
- They respond to the music therapist, the music and/or the text in the song.
- In some situations they express emotions,
- enter dialogue,
- experience lucid intervals,
- and even seem to recognise and enter a relation with the therapist.

These 6 persons suffering from severe dementia show ability to communicate, to listen and to respond appropriately.

Chapter 8

Analysis of case material based on chapter 7's coding tool

Communicative signals

Chapter 6 consists of six case descriptions with focus on both physiological data and events. In chapter 7 external assessors have analysed 8 video clips representing the six participants. By means of analytic computer software and transcripts of the assessors' observations, I coded responses given by the participants, and filtered the codes in categories. They illustrate different levels of communication, starting with basic communication consisting of emotional valence, continuing with receptive participation, sociality, active participation, communicative musicality, and ending with different levels of dialogue. In order to communicate with another person we see an orientation towards that person, we see aspects of initiative and intentionality, of linguistic rules (e.g., rhythmic turn taking or imitation of tone of voice), of intimacy, emotionality, and sometimes even an awareness of the relation to the counter partner.

In chapter 7 I have organised the different responses or communicative signals that external assessors have described in their analyses. I have tried to compress the material as much as possible, in order to reduce it to an amount of information where it is manageable. The purpose of compressing data is not to get a complete theory about communication in persons suffering from dementia, but to get a tool that might be helpful in sorting out understandings of the process in the music therapy.

As in the previous chapters my focus in this chapter is on communicative signals. Illustrated in session-graphs I have described communicative signals such as sobbing, verbalizing, singing, leaving the room, or tapping the beat. By analysing responses, as we saw in chapter 7, the focus is on more sensitive nuances in the communicative signals and of different qualities. Referring to pragmatic communication theory (see page 49) all behaviour is communication, and the different qualities of response lined up in chapter 7 illustrates some of the nuances in communication. Describing communicative signals in other client groups in music therapy (e.g. coma patients or patients with anorexia nervosa) the focus might be on very different nuances in the communication. Using the same coding tool as in chapter 7 might here, with the same group of persons, give me an understanding of more nuances in the communication and interaction than was described in chapter 6.

My data material in chapter 8 is transcripts of the video recordings, and is done at the

same day as the music therapy session took part. The transcripts do certainly not contain all possible observations as they are not done on micro level, but it is my hope that they contain information enough to provide background for handling the data for this purpose. Again I use the computer software, ATLAS.ti, in the process of doing the coding. In order to reduce the data material the 3 sessions, that were used as examples in each case in chapter 6 and illustrated with session-graphs, will be used for analyses in this chapter. As I started the case studies with Mr B, he will be the first to be described again. I will work through the 3 examples and show the findings from the coding. Together with the case descriptions and the physiological data I will discuss each of the examples in relation to regulation and communication.

8.1 Mr B

Example 1

In example 1 from session 6 (see figure 6.10, page 120) we see a session where Mr B, the accordion player, is walking about 91% of the time during the session. His mean heart rate level in the session is *very high* and the regulation-category is: inc-dec.

Using the same coding as in the previous chapter and written data from the video-transcriptions (only) three different types of communicative signals are observed in this session:

Sociality	
Rha-Qor-per	<Mr B gives me a cushion>
Rha-Qor-per	<Mr B tries to pull me up from the sofa>
Rvi-Qor-per	<Often eye-contact when he passes by>

A detailed matrix, where it is registred how many times the single code occur, is found at page 329. 3 times in the session Mr B sits down, but I guide him to sit down, and therefore this is not registered as a response. The only responses observed in this session are responses with the quality of sociality. Now and then Mr B contacts me by taking my hand and pulling me with him so we can walk about together, by giving me a cushion or by looking at me. In this session it is not observed that Mr B responds to the music.

Example 2

In session 11 (see page 120) heart rate is *moderate* and Mr B is sitting during the whole session. The following communicative signals are observed (see matrix at page 329):

Emotional valence	
Rvo	<verbalizes>
Rha	<snaps his fingers>
Rhe	<nods>
Rpo-Qse	<sits calmly>
Rha-Qse	<hands rest>

Receptive participation	
Rha-Qor-obj	<takes the songbook>

Sociality	
Rfa-Q+	<smiles>
Rpo-Qto	<leans against me>
Rpo-Qor-per	<turns towards me>
Rha-Qto	<touches me>
Rvi-Qor-per	<eye-contact>
Rhe-Qim (or Rhe-Qph)	<nods simultaneously with me at the end of the song>

Communicative musicality	
Rha-Qbe?	<taps the beat?>
Rhe-Qbe?	<nods in beat?>

Dialogue	
Rfa-Qem	<looks sad>
Rfa/vo-Qem	<sobs>
Rvo/co-Qdi	<says "thanks">

In this session Mr B responds in a much broader way than in session 6. He responds by posture and gesture (hands and head), and with facial, visual and vocal expressions. He verbalizes several times, which is unusual, for periods he is calm, perhaps sleeping, and he is orientated towards me. He does not participate actively in the music therapy by singing or taking initiative, so from that point of view he seems not to be "suitable" for music therapy. But when the other levels of communication (or quality of response) are considered it is clear that the music has a meaning to Mr B. In this session it is interesting that codes are noted at the level of dialogue. 3 times Mr B sobs to the third and second last song in the session, and once he shows a sad facial expression. Twice Mr B says "thanks", the first time when I start the second last song, and the second time - with certain response latency - when I say "thanks for today" (which is a polite and very common remark in Denmark when you say good-bye to somebody) after the last song. His thanks are clear and relevant and therefore interpreted as not only a vocal comment, but as a response with the quality of dialogue.

Three times it might be a question if Mr B marks the beat with his hand or head; if he communicates musically. When it is unclear whether a response is in synchrony with the music or not, more objective methods are needed, e.g. computer software with precise time scale notations that indicate synchrony, or methods with more observers where inter-observer agreement is ensured. In this material I do not carry out analyses of synchrony, but leave the observed responses that *seem* to be musical with a question mark. It might be that Mr B follows an impulse to snap the beat with his fingers when he hears a certain song, but only manages to keep the beat in the very beginning.

Example 3:

Example 3 (see the session-graph at page 120) is from the last session, session 20. Mean heart rate is *moderate* and Mr B sits down during the first song and remains seated. He has some naps, but then wakes up again, and on these occasions he seems more attentive.

The coding of transcript material shows the following communicative signals (see matrix at page 330):

Emotional valence	
Rha	<snaps his fingers>
Rhe	<nods>
Rvo	<verbalizes>
Rpo-Qse	<sits without moving> <sleeps>
Rha-Qse	<hands rest>
Receptive participation	
Qpa	<listens>
Rha-Qor-obj	<points at flower>
Sociality	
Rfa-Q+	<smiles>
Rha-Qto	<touches me>,<takes my hand>
Rpo-Qor-per	<leans towards me>
Rhe-Qor-per	<turns his head against me at the end of the song>
Rvi-Qor-per	<looks at me> <eye contact>
Active participation	
Rvo/co	<says "ye-e-es" just after end of verse>
Communicative musicality	
Rha-Qbe	<taps beat>
Rha-Qbe?	<taps beat?>
Dialogue	
Rfa/vo-Qem	<sobs>
Rfa/vo-Qem+	<laughs>

As in example 2 Mr B in this session is very active expressing himself by posture, gesture, mimic, and voice. He verbalizes several times – especially at the end of the session. In periods he stops the constant activity with his hands and seems to rest. A couple of times he even takes a small nap. He shows sociality by smiling and by being orientated towards me, and active participation by commenting a song positively with a "yes" just after the end of the last verse. Once Mr B clearly taps the beat, another time he *seems* to tap the beat, but at least it shows that he relates to the music. During the first song, the greeting song, Mr B laughs, and during 3 songs in the last part of the session Mr B sobs. These responses are related to the level of dialogue, as Mr B reacts emotionally to the music. When Mr B responds by sobbing it happens for a major part in the dialogue-part of the session (see figure 6.15 page 124).

Process

The 3 small matrices show how the codes and categories are clustered as in chapter 7, and are simplifications of the more detailed code-matrices in appendix F, page 329. Each small matrix represents the sessions described in the examples above, and details about the matrices are described at page 219. Spaces in the matrices are coloured grey when a response i registred. Light grey: when a response is registred less than three times. Grey: when a response is registred more than three times. One field in each matrix is coloured dark grey. This is where

B06	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

B11	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

B20	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 8.1: Response and quality of response in example 1 (B06), 2 (B11), and 3 (B20)

the highest number of responses are registred.

There are clear differences in response and quality of response in the 3 examples of music therapy sessions. In the first example where Mr B seems to be aroused, a very little number of responses are observed, and the quality of the responses is at a basic level, not showing active participation or communication. In the second example Mr B uses a wider spectrum of responses, e.g. using his voice. He is able to calm down and is orientated towards me. He does not show any active or musical participation, but he shows an emotional reaction to the songs. In the last example Mr B shows active participation and at least once reacts musically by tapping the beat. Here he moreover enters dialogue with the music therapist by reacting emotionally to the music and by laughing.

Findings

It seems to be possible to catch Mr B's attention with the songs and with the structure of the setting. When restless and presumably aroused Mr B responds very little. When familiar with the setting and after having had the possibility to calm down, Mr B responds actively, musically and in dialogue at single events. When Mr B sobs (Rfa/vo-Qem) in relation to the songs he is engaged in the music at a high communicative level; he responds to the music with his memories and feelings. As described in chapter 6 (page 124) this happens in the dialogue-part of the sessions. This means that *both* the personal song material *and* the regulative effects are determinant on Mr B's ability to receive environmental stimuli and to express inner feelings.

8.2 Mr A

Example 1

In session 13 (see page 135) Mr A, the janitor, is lying in his bed. Heart rate is *low*, and regulation category is inc-dec. Mr A hardly responds with posture or feet, but responds vocally and with hands and head.

The coding of transcript material shows following communicative signals (see matrix in appendix F page 327):

Emotional valence	
Rpo	<moves to sitting position for a short while>
Rfo	<moves leg>
Rha	<lifts arm>
Rhe	<lifts head>
Rvo	<whispers something incomprehensible>
Rvo-Q÷	<ouch, ow> <groans>

Receptive participation	
Rha-Qor-obj	<points at window/camera>
Rvi-Qor-obj	<looks at camera>

Sociality	
Rha-Qto	<strokes my hand>
Rha-Qor-per	<points at my face> <gives me the hearing aids>

Active participation	
Rvo/co	<well> <here you are> <that's good>

Communicative musicality
-

Dialogue	
Rha-Qinti	<strokes my cheek> <pats my hair>
Rvo-Qem	<whines>
Rha-Qdi	<waves goodbye from the bed>
Rvo-Qdi	<"I'm sorry that I spoiled your. . . ">
	<"I am sorry for you">
	<. . . such an old gnome like me>
	<"oh, yes">
	<"I will pray to the Lord to take care of you now">

It is clear that Mr A does not feel well in this session that is carried through at his bedside. The session (like the session the previous day) contrasts very much with all the first sessions, where Mr A was smiling and laughing and seemed to feel very much at ease. What is interesting in this session is the high amount of communicative signals at the level of dialogue. Sitting at the bedside of a person who is ill is an intimate situation, and Mr A responds to this e.g. by patting my hair; an intimate gesture. In his verbal comments Mr A expresses deep concern about the thought that I am wasting my time, and he seems to feel ashamed of himself. The dialogue (taking place in the dialogue-part of the session) is centred about me seeing and accepting another part of Mr A, where he appears in a negative manner: old, angry – and losing his cognitive capabilities. In this session Mr A is not actively engaged in the music except from a few comments when the songs are over, but all the same, the songs have a central function. This is session 13 so Mr A already knows the structure of the setting, where the function of the songs is to create natural frames for the relationship with me as the music therapist. The songs define the relationship, and Mr A does not question my presence, he seems to feel secure and at ease, and at some level recognises me as a person who cares for him. The songs offer a way of spending time together as two equal persons - which in other situations seems so difficult for Mr A - and forms a basis for dialogues, dealing with personal

and emotional matters.

Example 2

The next example is from session 15 (se page 135) which is the only session, with a *very high* mean heart rate level. Mr A sits down during the session and the high heart rate level might indicate a high arousal level. The session is in regulation-category dec-dec, which means that bpm decreases at the beginning of the session, and continues decreasing.

The coding of transcript material shows the following communicative signals (see matrix in appendix F page 328):

Emotional valence	
Rfo	<bobs foot up and down>
Rha	<moves hand back and forth>
Rhe	<nods>
Rfa	<moves lips>
Rvo	<verbalizes>
Rvo-Q+	<“ye-e-es”> <“yes, it is wonderful”>
Rvi-Qbr	<looks away> <closes eyes>
Rpo-Qse	<sleeps> <sits calmly> <leans back>
Rvi-Qse	<is lost in reverie>

Receptive participation
-

Sociality	
Rfa-Q+	<smiles>
Rpo-Qor-per	<leans in the direction of me>
Rvi-Qor-per	<looks at me> <eye-contact>

Active participation	
Rvo/co	<asks the time in the beginning and at the end of the session>

Communicative musicality	
Rha-Qbe	<taps the beat>

Dialogue	
Rpo-Qinti	<I say thanks for today. Mr A leans forward and gives me a hug>
Rha-Qinti	<strokes my arm>
Rvi-Qinti	<looks at me with a twinkle in his eyes>
Rfa/vo-Qem+	<laughs>

In contrast to the previous example Mr A is very fit and alert in this session – to a degree where he seems quite aroused. But heart rate decreases and already at the end of the third song Mr A closes his eyes, and seems to have a small nap. More smaller naps follow and heart rate decreases further. Mr A smiles and laughs from the beginning of the session, but the responses representing Qbe (beat) and Qinti (intimacy) occur only in the last part of the session; the dialogue-part.

Example 3

Example 3 is from session 17 (see page 135), where heart rate is *moderate* and the regulation category inc-dec.
The coding of transcript material shows the following communicative signals (see matrix at page 328, appendix F):

Emotional valence	
Rfo	<bobs foot up and down>
Rha	<moves hand from side to side>
Rhe	<nods>
Rfa	<mouth is shut>
Rvi-Qbr	<closes eyes>
Rpo-Qse	<sleeps> <sits calmly>
Rvi-Q+	<looks happily out of the window>
Receptive participation	
Qpa	<seems to be listening>
Sociality	
Rfa-Q+	<smiles>
Rpo-Qor-per	<leans in the direction of me>
Rvi-Qor-per	<eye contact>
Active participation	
Rvo/si	<sings last line of the song>
Communicative musicality	
Rha-Qbe	<taps the beat>
Dialogue	
Rfa/vo-Qem+	<laughs>

In this session Mr A seems less outgoing and active, compared to the first two examples, but he often smiles, laughs and looks at me. Mr A shows active participation once by singing most of the words in the last line of the third song. This is in the regulation-part and generally there seems to be no relationship between dialogue-part of the session and Mr A's singing (he sings 13 times during all 20 session). When the codes Rfa-Q+ <smiles>, Rvi-Qor-per <eye contact>, and Rfa/vo-Qem+ <laughs> are left out, as they occur during the whole course of the session, two events are left among the "higher" levels of communication: Rpo-Qor-per <leans in the direction of Mt> and Rha-Qbe <taps the beat>. Both of these events occur during the dialogue part.

Process

From the very first session Mr A shows a high degree of compliance and seems to enjoy the music therapy sessions, although he does not often take part in the singing. He improvises and taps the beat. In the three examples shown here Mr A shows positive emotional valence in the music therapy, and he gives many responses where he shows an orientation towards the music therapist. Mr A relates to the songs by listening, which is clear from his vocal

B06	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

B11	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

B20	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 8.2: Response and quality of response in example 1 (A13), 2 (A15), and 3 (A17)

comments about the songs, and when he e.g. taps the beat. In session 13 and 15 intense dialogues occur where Mr A in a few words and with posture and gesture expresses himself. He expresses and relates to both very negative and very positive feelings and is able to share them with another person. In these situations he is present, relevant, and clear, which gives the possibility to convey to him what Normann refers to as meta-messages: "To me, you exist", "We are relating", "To me you are significant" and "Your way of experiencing your world is valid" (Normann 2001, referring to Cissna & Sieburg 1981 p. 259).

Findings

Because of Mr A's very positive approach to the music therapy, sessions and interaction give a substance to Mr A's daily life and increase quality of life. Furthermore the trust that is built up gradually in the sessions make it possible for him to show other sides of himself, where he is not able to keep up appearances, but displays himself as a old and week man. This gives the music therapist a chance to meet, validate, and show acceptance of the whole person and not only the well-functioning façade.

There seems to be a connection between the dialogical meetings (e.g. intimacy and communicative musicality) and a balanced arousal level, as these meetings occur in the dialogue-part of the sessions.

8.3 Mrs C

Example 1

The first example is from session 5 (see page 146). Here mean heart rate level is *low* and the regulation-category dec-inc. Mrs C, the folk dancer, verbalizes in a flow of talk in the beginning of the session, and seems to be in a bad mood. In the end of the 5^{th} song she closes her eyes and sits with them closed during the rest of the time.

The coding of transcript material shows following communicative signals (see matrix in appendix F, page 330):

Emotional valence	
Rha-Q÷	<pushes my hand away>
Rvi-Q÷	<looks angrily at me>
Rvo-Q÷	<"belt up, such a Kurt", "that is mean", "do you really want to hear that...", "you are able to do nothing, you see, you are able to do nothing, you damned well cannot do anything, you sit there ... again..."
Rvo	<"it is mine", "it is only here while I read, thanks...", "yes, I'll do that, I'll do that, yes, yes, I'll do that, yes...", "well, it is. Well. Yes, yes"...>
Rvi-Qbr	<closes her eyes>
Rpo-Qse	<sits down>
Receptive participation	
Rha-Qor-obj	<takes songbooks>
Rvi-Qor-obj	<follows me with her eyes, when I take another songbook>
Sociality	
Rfa-Q+	<smiles>
Rpo-Qor-per	<turns against me>
Rhe-Qor-per	<turns head towards me>
Rvi-Qor-per	<looks at me> <looks in the direction of me> <eye-contact>
Rpo-Qim	<47:13 I take a deep breath. 47:16 Mrs C takes a deep breath>
Active participation	
	-
Communicative musicality	
	-
Dialogue	
Rfa/vo-Qem+	<laughs>

In the session Mrs C shows no active participation and no communicative musicality. She laughs (Rfa/vo-Qem+) just once at the end of the session, just after I have finished the last song and say: "thanks for today". Mrs C answers this by saying, "Yes" and laughs. Mrs C expresses sociality visually, by posture, and by turning her head. 7 of these events occur in the regulation-part and 10 in the dialogue-part. This shows no convincing structural differences between regulation- and dialogue-part of the session.

Example 2

The next example is session 15 (see page 146). Mean heart rate level is *moderate* and the regulation-category: inc-dec, which is only seen in two sessions. Mrs C verbalizes in the first and last part of the session, and sits with her eyes closed in the middle part. From the very

beginning of the session Mrs C seems to be in a good mood, and none of her vocal comments are categorized as "negative".

The coding of transcript material shows the following communicative signals (see matrix in appendix F page 331):

Emotional valence	
Rvo	<"yes, yes", "no, that was actually nice after dog rose. So it was nice . . . at least it is beautiful", "Surely it was nicer. It was nicer, it was the nicest, surely it was, it was. He is out buying a new kitchen", "Well give her a call, then she said that she had heard it", . . . >
Rvo-Q+	<"it is definitely wonderful", "Let life take it's course, he is sweet, he was so sweet, he is so kind to me, he watered me, he washes for me, he was so sweet, he was, he was so sweet, yes he was, yes, yes, yes", "your are sweet . . . ">
Rvi-Qbr	<closes eyes>
Rpo-Qse	<sits down> <leans back>
Receptive participation	
Rha-Qor-obj	<points at flowers> <points at the window>
Sociality	
Rfa-Q+	<smiles>
Rvi-Qor-per	<looks directly at me>
Active participation	
Rvo/co-Q+	<"yes, that was surely good", "yes, that is good">
Rvo/si	<joins in the singing>
Communicative musicality	
	-
Dialogue	
Rfa/vo-Qem+	<laughs> <chuckles>
Rha-Qdi	<claps her hands and "threatens" me with the fist while laughing>
Rvo-Qdi	<"Well, that's what you give, that's what you give", "Because I'll give you one">
Rvo/co-Qdi	<"It makes me feel quite frightened, I feel quite frightened,.. oh oh oh oh oh". "You sneeze sharply" (- I sneeze, Mrs C opens her eyes and looks directly at me), "the same to you, yes, yes, yes" (- answering my "thanks for now" after the last song)>

Twice Mrs C joins in the singing. Unfortunately it is only observed that Mrs C shortly joins in the singing. It is not observed whether she sings in pitch or follows the rhythm. The

coding here is based on the video transcripts made immediately after the sessions, and I will not include new observations but stick to the raw data. This means that no observations based on this data show that Mrs C communicates musically. – But Mrs C responds at the other levels; she shows *sociality* by smiling and looking at me, *active participation* by commenting on some of the songs, and she enters *dialogue* by laughing, by playing that we are fighting, and by making some relevant comments, directed to me about things going on at the moment, e.g. the sneezing. 8 of these events happen in the very beginning or in the regulation-part of the session, and 9 happen in the dialogue-part. Among these events is the one where she joins in the singing, which here and during all twenty music therapy sessions clearly occur in the dialogue-part.

Before the session starts with the greeting song, and before we are seated, Mrs C looks directly at me and says "Well, that's what you give, that's what you give", claps her hand, laughs, and "threatens" me with her fist. We play that we fight each other while we are laughing and this small game is coded as a dialogue. The game implies a mutual understanding of the moment and of each other - as if someone is telling a joke.

Example 3

The third example with Mrs C is from session 17 (see page 146). Mean heart rate level is *moderate* and the regulation-category is dec-dec. Mrs C starts the session by singing the first song; her own improvisation. She does not join in the sofa-dancing in the first part of the session, but after a break, where she sits with her eyes closed, she then responds to the dancing and joins in the singing. She seems in a good mood from the beginning of the session.

The coding of transcript material shows following communicative signals (see matrix in appendix F page 331):

Emotional valence	
Rvo	<talks, "I believe that…", "yes, yes", "you don't hear that …", "you can't do that, no no", "she is able to do nothing", "You can't hear that … yes, yes, yes, it is … in a way it's ok … when one is tired. Yes" …>
Rvi-Qbr	<eyes closed>
Qse:	<looks very relaxed> <a deep sigh> <yawns>
Rpo-Qse	<leans back>
Receptive participation	
	-
Sociality	
Rhe-Qcl	<faces close together>
Rvi-Qor-per	<looks at me>
Active participation	
Rvo/co	<"yes, it is", "..fine.. it was.. it was good, yes..">
Rvo/si	<sings la la la, joins the song>
Rfa-Qini	<makes funny grimace>
Communicative musicality-Dialogue	
Rfa/vo-Qem+	<laughs> <chuckles>
Rvo/co-Qdi	<"boo", "boo, boo, boo", "I'll pay you back…" >

Considering the vocal comments, the smiling and the laughing it is clear that Mrs C is having a nice time. At the very "highest" level of dialogue there are labelled codes saying; <"boo">(!)

Mrs C says "boo" during the sofa-dancing in the $11^{\mathbf{th}}$ and $13^{\mathbf{th}}$ song (the $14^{\mathbf{th}}$ song is the last one). During the "dancing" I sway from side to side or back and forth. When I sway back and forth, my face comes very close to Mrs C's face when I sway towards her. When my face comes close to hers, she responds by saying "boo" and laughs. This game has the same features as one that small children play: the peek-a-boo game. In the situation with Mrs C the game has to do with distance and closeness. The rhythmic swaying and the momentary closeness stimulate Mrs C, and her responses to the game are precise and appropriate. The game is part of the "dancing" and seems natural in this setting. After our game, Mrs C joins in the song, which means that her environmental attention is stimulated. The games and Mrs C's joining in the singing happen in the dialogue-part of the session, after Mrs C has been sitting with her eyes closed for a longer period. Apart from this, Mrs C also sings in the beginning of the session, which only happened in this very session. We sit in the sofa ready to start, when Mrs C suddenly starts singing/improvising on her own. I join her in the song by nodding the rhythm. While singing Mrs C seems to be in her own world, singing the song to herself and not to an audience. She stops after one minute and does not join in the songs afterwards – not until she has had a "break" in the middle of the session.

Process

C05	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

C15	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

C17	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 8.3: Response and quality of response in example 1 (C05), 2 (C15), and 3 (C17)

Session 9 is the first session where Mrs C sings with me. Until then the sessions pass off as in session 5, the first example where she does not actively participate, but where a change in her emotional valence is seen from the beginning to the end of the session. Even if Mrs C sits still with her eyes closed, with a low or moderate heart rate level and appears to be hypo-aroused, she generally does not actively participate by singing or playing until after a regulation period. She does not respond to the stimulating sofa-dancing in the beginning of the session, not until the last part of the session, after she has had a period of rest or of refocusing. Mrs C seems to need the bodily and rhythmic stimulation of the dancing before she becomes alert and interacts. But generally she does not respond to this stimulation in the beginning of the sessions. She responds after a regulation period and is then capable of tuning in and meeting the music therapist in a game or in a song.

Findings

It is difficult to consider arousal level by outer aspects. Mrs C seems hypo-aroused when she sits with her eyes closed for long periods, although her endless verbalizations that occur

in some of the first sessions point at a state of hyper-arousal. Mrs C might react to the overstimulation by withdrawing (or by a steady flow of talk), and further stimulation, e.g. dancing, keeps her in a state of withdrawal. Mrs C needed several daily sessions to become familiar with the cues, the structure, and the setting of the music therapy. She then begins to interact more and more in the sessions at levels of active participation, communicative musicality and dialogue (communicative musicality is not observed in the 3 examples above, but observed in chapter 7 by external assessors, see page 229).

The time together in the music therapy gives Mrs C a possibility to interact and communicate with another person on her own terms. The dialogues are not only verbal exchanges, but are games and playing on her initiative. Furthermore the music therapy offers Mrs C a break, and a positive change in mood.

8.4 Mrs D

Example 1

Among all six participants Mrs D, the ballad singer, has the most intact verbal language. The first example is from session 6 (see page 159) where mean heart rate level is *low* (but starting at very high levels) and regulation-category dec-dec. Before the session Mrs D had a bad morning and her spirits are still below zero when we start.

The coding of transcript material shows the following communicative signals (see matrix in appendix F page 332):

Emotional valence	
Rhe	<moves head slightly from side to side>
Rvo	<"When do we get some tong tong flong? When do we get something to eat?", "it is the only thing you can here", "Are all of you deaf? You damn it never answer hee hee heee. ">
Rfa-Q+	<smiles>
Rvi-Qbr	<closes eyes>
Rpo-Qse	<sits without moving> <breathes deeply>
Rvi-Qse	<blinks sleepily with her eyes>

Receptive participation
-

Sociality	
Rha-Qto	<goes on holding my hand in a firm grip>
Rpo-Qor-per	<leans towards me in order to listen>
Rhe-Qor-per	<turns head slightly to see what I am doing>
Rvi-Qor-per	<follows me with her eyes>

Active participation	
Rvo/co	<"Oh, belt up, #. Is it one you know? It is one you have composed; Good morning, Mrs E. Oh, belt up", "Well, are you trying to learn singing?", "Why in # do I have to listen to that?", "Well, is this a singing lesson?", "Shouldn't we have some coffee?">
Rvo/tx	<says the song text: "rev vi marken let...", "georginer", "slutter festen...">

Communicative musicality	
	-

Dialogue	
Rvo/co-Qinti÷	<"Oh, it was so delightful (claps her hands). How nice you could sing!" (said sarcastically) >
Rvo-Qem÷	<screams> <shouts> <sneers>
Rvo/si-Qem÷	<joins in the song in a screaming voice "rev vi marken let...">
Rvo/co-Qdi	<(Mt: thanks for today) "The same to you, have we finished now. Well, where are we going then?", "We can do that. The weather is nice today.. lovely.. it seems to be fine today."

Although Mrs D is clearly aroused in the beginning of the session she participates actively and she even joins in the second song. All her verbalizations in the first two minutes of the sessions are of negative (Q÷) character, and her comments to the singing express all her anger and rage. But I do not see them as directed towards me. I hear them as monologues, and stay with her, singing my monologue. The way Mrs D screams, shouts, and sneers is very emotionally loaded – especially when she suddenly joins the song and sing with me in a very angry manner. I accept and contain her anger but I do not share or reflect her feelings in a dialogue. I start singing a new song almost without any break, and choose a "neutral" song. By singing I show her that I am present and that I keep the structure for our togetherness, although she expresses anger and verbal rejection. As she is already hyper-aroused I would stimulate her further by sharing her angry feelings, so I use the songs to regulate her arousal level, but do not choose too sedative songs, as Mrs D easily would see that as provocative. Ignoring Mrs D, reflecting or expressing her feelings, or talking and explaining to her, would make her even more aroused. Simply being with her, and offering our special kind of structured (and safe) togetherness without making demands works efficiently. After two minutes her verbal aggressions stop, she sits quietly and seems to some degree to listen to the songs. When the session is over Mrs D smiles and we talk about going out into the garden in the nice weather. The songs in this and similar situations offer a unique possibility to be present without demanding. At other times the same songs offer possibilities to be present and enter dialogues.

One of Mrs D's comments to the third song is <"Oh, it was so delightful. How nice you could sing!">. She claps her hands and is clearly sarcastic. Using sarcasm is a special form of humour. Neither humour nor sarcasm has an effect if it is not directed towards a listener, and a mutual understanding is needed to "get the point". This is her last attempt to drag me into a verbal discussion, where she normally has great success with new staff members

and with peer residents. Even if Mrs D rejects me verbally, she keeps holding my hand, does not move away from me, and does not leave the room.

Example 2

In session 18 (see page 159) mean heart rate is *high*, and this fact together with the fact that the regulation-category is inc-dec already indicates a session that might be unusual or unbalanced.

The coding of transcript material shows the following communicative signals (see matrix in appendix F page 332):

Emotional valence	
Rhe	<nods>
Rvo	<"Who else is singing?", "where are we then going?", "I don't know.. I don't remember", "was it good that I made it?", etc>
Rpo-Qse	<sits motionless>

Receptive participation	
Qpa	<listens>

Sociality	
Rfa-Q+	<smiles>

Active participation	
Rvo/co	<"Well, this is such a team song we sang", "... it was a tribute to the Danish patriots ... just because they sang, because they paid tribute to the Danish soldiers that did not give up against the Germans.", "That was from Tanzania", "He should damned well decide that; if gold rings grow on the trees... or gold trees, or what ever it was? Gold-"rik" on every tree", "That's a real love song", "That's a morning song", etc.>
Rvo/tx	<quote several verses or lines from different songs>
Rvo/si	<sings> <hums>
Rvo-Qimp	<"What is it she can? She damned well remember nothing, because she ...">
Rvo/si-Qini	<sings "rundesang ("*song on the round*"), rundesang, Mrs D sings the next song">

Communicative musicality	
Rha-Qbe	<taps shortly the rhythm on her legs>
Rvo/si-Qpi	<I sing the first line, Mrs D finishes the line>

Dialogue	
Rfa/vo-Qem+	<laughs>
Rvo/co-Qdi	<"Is it only you. Good day Mrs D, Good day Mrs D, and then we go to the Skamlingsbanken (*a place in a song*)", "You have travelled widely; in Tanzania", "Is it the second last time? Then the whole lot is over (laughs), yes, yes",>

The matrix in appendix F page 332 shows that in the category "active participation" 71 (27+13+29+1+1) responses are coded. In contrast, 11 responses were coded in this category (or code-family) in the first example of session 6. Mrs D is very dynamic in the session. She sings, hums, quotes several verses, improvises, takes initiative, laughs and talks. The extent of her engagement is very high considering the number of codes, and from that point of view this session is a successful one. But from a qualitative point of view the session is breathless and hectic, although funny, amusing, and good entertainment. We have no rest and no pauses, but rush from one event to the next. This is reflected in Mrs D's heart rate that remains at a high level and does not show the characteristic drop in the beginning of the session. Although Mrs D is aroused she is not hyper-aroused, and it is amazing what she remembers from song texts during the session. Mrs D is already aroused in the beginning of the session, and my choice of patriotic songs seems quite stimulating to her and equally stimulates her active participation and her memory. But even if her active performance is stimulated an increase in the amount of events where we enter dialogue does not take part. The events where we enter dialogue are events where we have a mutual understanding, where we play and where we interact at a personal level meeting the whole person. These events recede into the background in a session like this where Mrs D is actively *doing* not *being*.

In chapter 7 external assessors analysed a short 34-second clip from this session. They saw small parts of the clip several times and in that way they were able to observe many details. Their analyses clearly contain a rich number of details about the interaction that are not possible to include in a analyse like this, where I describe the whole session.

Example 3

Our last session, session 20 (see page 159), has a much more balanced quality than session 18. Mean heart rate level is *low* and regulation-category is dec-inc.

The coding of transcript material shows the following communicative signals (see matrix in appendix F page 332):

Emotional valence	
Rha	<makes a sweeping gesture>
Rhe	<nods>
Rvo	<"What time is it?", "I think I have slept all night", "I could sleep in 100 years", "Well", "Well, I think so">
Rvo-Q	-
Rpo-Qse	<sits still>

Receptive participation	
Qpa	<listens>

Sociality	
Rfa-Q+	<smiles>

Active participation	
Rvo/co	<"Yes, now you will sleep for 100 years, and then we do not hear more in 100 years. 100 years and then no more", "Yes, that is true (*that it is the last session*)... but I'll just ignore it and pretend this is the first time", "Yes, that was good", "Yes, that's how it was", "No, I can't sing ... I don't remember anymore, isn't it wrong?", "Did you live in Kerteminde? (the song was about the town Kerteminde)", "I don't remember all of them. I did sing a lot">
Rvo/tx	<sings the text> <quotes the text>
Rvo/si	<sings> <sings la la>

Communicative musicality	
	-

Dialogue	
Rfa/vo-Qem+	<laughs>
Rvo/co-Qaw	<"Yes, I hope it works. I'm not used to join you in the singing ... I'll just enjoy it", "Well, no there isn't (*a special song that I would like to hear*)... I'm excited to see which song you choose", "Yes. I know a lark's nest (*quoting first line of the song*). It has become our song, I think. This sounds showy. But it is nice too. And he is faithful. He will keep a secret, the guy. He, who knows where the lark's nest is. He will keep that ... as his lark's nest", "The same to you... so we won't see each other tomorrow".

Mrs D shows a great deal of active participation in the session; she joins in my singing in all the songs, except the Greeting song, the African songs, Brother Jacob and the last song about the lark's nest, and she makes small relevant comments to the songs. She shows communicative musicality too by singing the tune with me, but this is not registered in the raw data, and is understood implicit by the fact that she joins in the singing. Events where we enter dialogue happen in this session - additional to the 3 times where she laughs – at a level where she shows a quality of "awareness". She comments the greeting song verbally and reflects about her usual doings; <"I'm not used to join you in the singing">, and what she intends to do; <"I'll just enjoy it">. This shows an awareness of what is going to happen, what we are going to do together, and what her role in this is. *Her* reality is that she is not used to join me in the singing, but the fact is that she joins me in 73% of the songs during the whole therapy course. The important thing is that she does not see my singing as a demand to her about being active, but as an invitation that she is free to accept, -and that she obviously accepts. Normally I never ask her if there is a special song she wants, but this time I do and she answers, "Well, no there isn't... I'm excited to see which song you choose". From group-activities at the unit it is the experience that Mrs D is not capable of suggesting a song, but that she remembers the songs when prompted. Her answer here is expected, but her addition shows that she knows that I will sing, that I will choose a song, and what she

feels about it.

The way Mrs D comments on the very last song of this very last session has an intense quality. I hear it as a way of saying goodbye as she says, "It has become our song, I think", in past tense and then changes to talk about the good qualities of the song, "it is nice", and the good qualities of the boy in the song who can keep a secret. To keep a secret is a quality of trust and respect, which she connects to "our" song.

On the session-graph at page 159 longer breaks between the songs are seen, e.g. compared to session 18. This is consistent with notes from music therapist's log, commenting that this session was extremely calm, but that Mrs D seemed attentive and participated actively. In many respects sessions like this gives Mrs D a possibility to function and be present in a natural flow or balance, and her remaining verbal capacities make it possible to show the moments where she is clear and lucid. There seems to be a connection between the moments of lucidity and a balanced arousal level.

Process

D6	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

D18	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

D20	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 8.4: Response and quality of response in example 1 (D06), 2 (D18), and 3 (D20)

Emotionally and physiologically the music therapy sessions have perceptible effects on Mrs D. During a session she is able to calm down if she is hyper-aroused, and her emotional valence clearly changes to positive from sometimes being very negative. The structure of the session as well as the choice of the songs seem to be determinant. To staff and relatives it seems difficult to "calm down" Mrs D when she is upset; the regular music therapy sessions seem to offer a way that breaks the tendency to enter a spiral leading to more and more agitation.

Mrs D is generally very active during the sessions communicating sociality and active participation. Much of our communication is at a verbal level and does not have the same humour, intimacy, and playing as with the persons not using language that much. In the third example, session 20, Mrs D shows a high degree of awareness being able to express thoughts about 'here and now', about past and future, and about our inter-relation.

Findings

By means of the structure and with the choice of the "right" songs it seems possible to regulate Mrs D's arousal level. When Mrs D is at a balanced arousal level she communicates at a high verbal level showing awareness and lucidity. The aim of therapy is not to engage and activate the person as much as possible. It might lead to an exciting session, but keeps the person from involving in higher levels of communication. In a balanced session with a natural flow between acting, receiving and adapting Mrs D expresses an understanding of her situation.

8.5 Mrs E

Example 1

Session 12 (see page 173) is a dec-dec session at a *moderate* mean heart rate level. Mrs D, the choral singer, is very tired and at first does not want to join me to the music therapy room.

The coding of transcript material shows the following communicative signals (see matrix page 333, appendix F):

Emotional valence	
Rfo	<bobs foot up and down>
Rha	<adjusts glasses>
Rvo	<"Yes, it's awful", "I don't think so", "yes", "no, I don't know any", "I'm so tired", "Yes, it was nice", "Yes, there is nothing the matter with them">
Rpo-Qse	<seems to sleep>
Rhe-Qse	<leans her head against the back rest>

Receptive participation	
	-

Sociality	
Rfa-Q+	<smiles>
Rvi-Qor-per	<looks at me>
Rpo-Qim	<I change the way I sit. Mrs E changes the way she sits>
Rha-Qim	<I scratch my eye. Mrs E scratches her eye>

Active participation	
Rvo/co	<"It's so nice ... it surely is good", "Yes I did (*know the song)*", "Yes, that was nice ... oh yes it was", "Yes, there is nothing I can do about it (*being tired*)">
Rvo/si	<hums>

Communicative musicality	
	-

Dialogue	
	-

Not until the last part of the session Mrs E responds actively by joining me in some of the songs. In all of the first 20 minutes she sits with her eyes closed and only opens them for very short periods. The codes in the category, "Active participation" all occur in the dialogue-part of the session; 3 times she joins in the singing, and now and then she makes a direct comment on a song or on a sound. Twice in the category "Sociality" it is noted that Mrs E imitates some of my movements. Mrs E is not moving very much during the sessions and when she does it is striking that she copies exactly the same movements that I have just made. The imitation is an indirect way of showing orientation towards another person.

Mrs E is very tired and expresses this verbally a couple of times. In the regulation-part of the session I sing Danish songs that I know she likes, in the dialogue-part I sing folk songs and a kind of children's song with a stimulating rhythm. She wakes up in the dialogue-part,

joins in the songs and makes comment on them. Apart from verbal active participating and singing, Mrs E does not enter dialogue with me; she does not actively respond by expressing herself, by showing what she feels, or by playing. But she responds at other levels. She very often responds by bobbing her feet up and down. Closer analyses might reveal these responses as musical if they are in beat or mark the ending of a phrase. After the African songs Mrs E smiles, and smiles again after two of the "children's" songs. Even though Mrs E appears hypo-aroused the mean heart rate level is not *low*, and not until there is a drop from 73 bpm (that is on a *high* level) in the beginning of the session to 64 bpm (between *moderate* and *low*), she starts singing. Mrs E seems to need a period of calming down; the relatively *high* heart rate indicates that she is aroused, although she seems to be very sleepy and hypo-aroused. After a period where she "calms down" she now actively joins in, although she does not respond in the category of "Dialogue".

Example 2

Example two is from session 16 (see page 173) where Mrs E's heart rate is *very high*, and where she seems to be in a very bad mood before we start the session; one of those sessions where you would say that today it might not make any sense to carry through a therapy session. The session is in regulation-category dec-inc.

The coding of transcript material shows following communicative signals (see matrix appendix F, page 334):

Emotional valence	
Rfo	<bobs foot slightly up and down>
Rha	<adjusts glasses>
Rvo	<"What?", "Why didn't she come?", "Let's have a look">
Rvi-Qbr	<sits with her eyes closed>
Receptive participation	
	-
Sociality	
Rfa-Q+	<smiles>
Rhe-Qor-per	<turns head against me>
Rvi-Qor-per	<looks at me>
Rpo-Qim	<I move a little. Mrs E moves a little>
Active participation	
Rvo/co-Q÷	<"Such nonsense", "It isn't funny, (*(Mt: "how do you feel?")* "-rotten", "terrible nonsense", "Why are you so mad at me?">
Rvo/co	<"Oh, iiis it?", "The same to you">
Communicative musicality	
	-
Dialogue	
Rvo/co-Qdi	<"Here you are" (*gives me some sweets*)>

From the matrix with the codes it is clear that Mrs E responds very little in this session and the session-graph (page 173) shows that Mrs E sits with her eyes closed most of the

time from the 3rd song and the rest of the session. Mrs E's active participation consists of vocal comments on the songs, and in the beginning these comments are quite negatively loaded. But this changes and in the last part no more negative comments are made. She now expresses to be in a better mood by smiling and by giving me a piece of sweets that she has in her hand. It has happened before that Mrs E has "hidden" some sweets in her hand, but it is the first time she gives me this small "present". Even though this session only consists of one single event where we enter dialogue the change in emotional valence is important. The decrease in heart rate and the change in mood make it possible for Mrs E to have a nice time listening to a CD in the music therapy room after session is over.

A dec-dec regulation would have been optimal in this session and it was my expectation that the receptive listening after the session was over might have regulated Mrs E to a more *moderate* heart rate level.

Example 3

The last example with Mrs E is from session 18 (see page 173). Mean heart rate level is *moderate*, and the regulation-category: dec-dec. Mrs E has spent the morning in her room and is in a good mood.

The coding of transcript material shows the following communicative signals (see matrix page 334, appendix F):

Emotional valence	
Rfo	<bobs foot up and down>
Rha	<hands on her lap, moves hands>
Rhe	<nods>
Rvo	<"Yes, I can do that", "Well", "oh, well", "Well, I think it's time to have something done">
Rvi-Qbr	<eyes closed>

Receptive participation	
	-

Sociality	
Rfa-Q+	<smiles>
Rhe-Qcl	<we put our heads close together>
Rfo-Qim	<48:25 I cross my legs (left leg on top), 48:26 Mrs E crosses her legs (left leg on top)>
Rhe-Qor-per	<turns head against me>
Rvi-Qor-per	<looks at me> <eye contact>

Active participation	
Rvo/co	<"It really works", "Well, it is great fun now and then", "Yes, it seems to be... like it should", "That is good", "That is nice", "Yes, that is funny, it is almost ... oh help...">
Rvo/si	<sings, hums>
Rvo/tx	<sings the text>

Communicative musicality	
Rfo-Qbe	<marks the beat with her foot>
Rfo-Qph	<follows ritardando at the end with feet>
Rha-Qph	<follows ritardando at the end with hand>

Dialogue	
Rfa/vo-Qem+	<laughs>

The observations from this session show that Mrs E has a good time where she feels well and is involved in the therapy. After a steep decrease in heart rate and a period where she sits with her eyes closed, Mrs E seems to be aroused at a balanced level and is actively engaged in the session, laughs, sings, hums, sings part of the song text, and makes positive comments.

Process

D6	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

D18	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

D20	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 8.5: Response and quality of response in example 1 (E12), 2 (E16), and 3 (E18)

In the first example Mrs E shows that she needs a structured period where it becomes possible for her to calm down, before she is able to engage herself in the session. The next example illustrates that she does not involve in the session when arousal level is *very high*. The last example shows a structure that seems to elicit much response and communication at many levels; after a regulation-part Mrs E is active in the dialogue-part. In the first two examples Mrs E responds with negative comments and a negative mood in the beginning of the session, but this changes during the session and a change in emotional valence is clear. A change in emotional valence and compliance is the first step in the direction of being able to regulate arousal level. Instead of excusing Mrs E from participating in the therapy when she is not in the "right" mood, the therapy seems to be a way of being with Mrs E and of regulating her mood and her arousal level.

Findings

There seems to be a clear connection between levels of arousal and communication in the music therapy. In sessions where Mrs E shows a high arousal level she responds less actively, but after a period of regulation she communicates engagement on various levels. When Mrs E sits with her eyes closed not responding she appears hypo-aroused, but the high heart rate e.g. in example 2 indicates that she is highly aroused. She seems to need a pause or a period of rest before she is able to respond appropriately to her environment, and this makes it difficult to change her circadian rhythm, because she needs activity, *but* activity at a balanced level. To activate and stimulate her when she is at a stage where she is not able

to receive environmental stimuli would make her misunderstand the messages and intentions. When first met by familiar cues and a familiar structure it might be possible to regulate her to a balanced arousal level, and with this as a starting point, to meet her in dialogue.

8.6 Mrs F

Example 1

The first example is from our very first session (see page 188). Mean heart rate is *too high* in this session, and with a regulation-category inc-inc we see a session where Mrs F, the traveller, is being overstimulated.

The coding of transcript material shows the following communicative signals (see matrix page 335, appendix F):

Emotional valence	
Rfa	<when I raise my hand to wipe her mouth with the handkerchief, and my hand gets close to her face, she opens her mouth>
Rvo	<B > <B B B . . . > <sighs>
Rpo-Qbr	<walks towards the door> <gets up> <leaves the room> <turns away> <walks towards the window>
Rpo-Qse	<sits down>
Receptive participation	
Rha-Qor-obj	<takes the songbook>
Sociality	
Rha-Qto	<pulls me up from the sofa> <pulls my hand> <touches my shoulder> <leads me with a good grasp around my back>
Rpo/ge-Qor-per	<walks towards me>
Rvi-Qor-per	<looks at me>
Rvo-Qim	<her voice follows my movements (*I am stroking her back*)>
Active participation	
	-
Communicative musicality	
	-
Dialogue	
	-

The idea of carrying through a whole music therapy course with Mrs F sounds little realistic to me after this first session. I do not see a change in emotional valence or any responses where she seems to relate to the songs. But staff have no alternatives for activities or therapy with Mrs F and encourage me to give it a try. This and the fact that I have experienced Mrs F responding to songs in group-activities makes me continue, and I even see it as an interesting challenge. The coding above actually makes it clear that although Mrs F does not participate or respond to the singing, she shows an orientation towards me. She

walks towards the sofa, where I sit, she takes my hand, she likes to walk about with me, once she even looks at me, and in one incident where I stroke her back, her voice imitate my movements. The matrix shows that 88 times a vocal response - where she says B or even several B's - is noted. Once she makes a sigh. This happens when I sing the last song, just after she comes to sit down.

It is clear that Mrs F is overstimulated and hyper-aroused, so I sing "neutral" songs and first of all introduces cues and a structure.

Example 2

In example 2 from session 8 (see page 189) we have an inc-dec regulation-category and a *very high* mean heart rate. Although heart rate levels are much lower that in the first example, Mrs F still seems aroused and difficult to regulate to a more balanced level.

The coding of transcript material shows following communicative signals (see matrix appendix F, page 335):

Emotional valence	
Rvi	<looks up>
Rvo	<"B">
Rpo-Qbr	<gets up> <walks towards the door/window/other room>
Rpo-Qse	<sits down> <leans back>

Receptive participation	
Rha-Qor-obj	<takes the songbook>

Sociality	
Rha-Qto	<takes my hand/arm> <pulls me with her>
Rpo/ge-Qor-per	<stops up in front of me> <walks towards me>
Rvi-Qor-per	<looks at me>

Active participation
-

Communicative musicality
-

Dialogue
-

The two matrices from example 1 and 2 are very much alike. Even the high amount of vocal responses, where the number of responses seems to correspond with the level of arousal, are at the same level as in session 1, after 3 sessions with a considerable drop in Rvo. An important difference is that heart rate does not continue increasing, but slightly decreases. This small change shows that Mrs F does not get overstimulated by the session.

Example 3

Example 3 is from session 11 (see page 189) and again we see a big drop in mean heart level that here is *high*. The regulation-category is dec-dec and seems to be a good sign in the case of Mrs F as it generally shows a steady decrease during the whole session.

The coding of transcript material shows the following communicative signals (see matrix page 336, appendix F):

Emotional valence	
Rvo	<"B">
Rpo-Qbr	<stands up>
	<walks towards the door/the other room>
	<walks to her own living room>
Rpo-Qse	<sits down on sofa/chair> <leans back>

Receptive participation	
Rha-Qor-obj	<takes the handkerchief (*that is used to wipe her mouth*)>

Sociality	
Rha-Qto	<takes my hand>
	<pulls my hand>
	<touches my shoulder>
Rpo/ge-Qor-per	<stops in front of me>
Rha-Qor-per	<gives me the handkerchief>

Active participation	
	-

Communicative musicality	
	-

Dialogue	
	-

The biggest change compared to the first examples is that Mrs F hardly vocalizes. Even though she does not sit down very often or for very long, she seems calmer.

Now and then Mrs F dribbles *very* much and I have a handkerchief that I use to wipe her mouth and chin. When I sing the very last song and this session is about to end, Mrs F stops up in front of me. I wipe her mouth and she takes the handkerchief and walks away with it. Shortly after she turns back and gives me the handkerchief. Even if no communication takes place at the level of dialogue, Mrs F shows some kind of orientation towards me.

Example 4

Our last session is session 20 (see page 189), and again mean heart rate is at a *very high* level. The regulation-category is dec-inc. During the therapy course there seems to be a tendency of a decrease in mean heart levels, and it disturbs the "nice" decreasing tendency on the bar chart at page 181. It is possible that mean numbers and regulation-category would be different if heart beat data from the last 10 minutes had been included (but they were not recorded).

The coding of transcript material shows the following communicative signals (see matrix in appendix F page 336):

Emotional valence	
Rvo	<"B">
Rpo-Qbr	<walks towards the door/window/other room>
Rvi-Qbr	<closes her eyes>
Rpo-Qse	<sits down> <leans back>

Receptive participation	
	-

Sociality	
Rha-Qto	<reaches out for my hand and takes it>
	<pulls me towards the door>
Rpo/ge-Qor-per	<stops up in front of me>
Rvi-Qor-per	<eye contact>

Active participation	
	-

Communicative musicality	
	-

Dialogue	
Rha-Qinti	<reaches out and touches my chin>

Again the matrix and the coding show no big differences except for one, that I will come back to later. As in example 3 we here see a small amount of vocal responses, which suggest that Mrs F is not that aroused. It is interesting that the form of the HR curve (see page 189) in this session shows a remarkable drop in the beginning of the session. Already when I start the second song Mrs F sits down, leans back and closes her eyes. Mrs F sits with her eyes closed for 10 minutes before she gets up and walks about again. The same pattern – with a decrease in bpm and a rest – is seen in session 19. This pattern is equally seen in the regulation-part of the session with e.g. Mrs C and Mr B, and shows an "effective" regulation that further on enables environmental attention. This characteristic pattern might show that during the 20 sessions it now seems possible to regulate Mrs F's arousal level with the structure of the session to a stage where she might be more attentive and receptive. This provides a possibility for getting closer to the person Mrs F, and at least for giving her an opportunity to have a break from the chaos that she seems to live in.

At one point there is a difference in the matrices as one single response is labelled Rha-Qinti. In the dialogue-part when I sing the second last song (an evening song: "Hist, hvor vejen slår en bugt" with a text that H.C. Andersen wrote in 1829), Mrs F stops in front of the sofa where I sit singing, reaches out for me and touches my chin. She touches my face, and I see it as an intimate gesture. The gesture might be accidental, and unfortunately there is no heart rate data in the last part of the session, so that I could have looked at a pre-event curve (see figure 6.64 page 191) to establish some sort of pattern. The gestures where Mrs F contacts the music therapist – or in other words shows an orientation towards the other person - seem to be intentional. That these gestures are seen in the dialogue-part indicate that Mrs F's touching my face in this gentle and intimate way it is not accidental. I see the gestures as a way of entering dialogue with another person as she enters my personal sphere – touching my chin – in a balanced, appropriate and "relevant" way.

Process

F1	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

F8	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

F11	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

F20	Q	Lower	Upper	Vocal
Em				
Re				
So				
Ac				
Mu				
Di				

Table 8.6: Response and quality of response in example 1 (F1), 2 (F8), 3 (F11), and 4 (F20)

With Mrs F I have a feeling of starting at zero, and then very slowly in the course of time something between us is built up. Apparently she does not respond to the songs, but when I consult physiological data there seems to be reactions - but no means of maintaining her focus and keeping her "concentrated". When coding and categorizing Mrs F's responses it is clear that she communicates an orientation towards me/the other person in the room, and that the possibilities to regulate her arousal level seem to improve, thus enabling her to communicate at more levels and even entering dialogues.

As we start at zero our work is focussed on means of regulating Mrs F's arousal level, giving her a chance to be present even in very small moments as an alternative to her fluctuation between being hyper- or hypo-aroused. If we had started earlier, where her cognitive functioning was less inflicted by the dementia disease, the cues from the songs might have had a stronger effect on her making it easier for her to calm down.

Findings

At the beginning all odds are against carrying through a music therapy course with Mrs F, but never the less physiological data and communicative signals point at interesting, but *small* changes. The four examples given represent the four different regulation-categories and show great variations in heart rate levels, with a generally falling tendency. These examples show increasing possibilities to regulate arousal level during the process, and show that Mrs F communicates at basic levels, and as such responds to the music therapy in a valuable manner. A development in a positive direction – still with very small steps – seems to be established, although Mrs F's deterioration is rapid. Even if only one single, transient dialogue takes place in a whole session this short meeting might increase quality of life to a person like Mrs F – and the resulting carry-over effect of the regulation and of the dialogues might add new qualities to the whole caring for this person.

8.7 Summary and discussion

Based on transcripts of video data material I have coded responses in the music therapeutical setting in selected examples of sessions. In the coding process I have used labels and categories of response that were found in chapter 7, showing that *response* and *qualities of response* reveal information about different layers of communication. Subsequently this is connected with findings from the six case studies and the physiological data.

The analysis using the coding of communicative levels shows that all 6 participants show

- changes in emotional valence during the music therapy course, and/or in the single music therapy session (e.g. by changes in vocal responses),
- receptive participation (e.g. by orientation towards an object),
- sociality (e.g. by orientation towards the music therapist)

Furthermore:

- Mr A, the janitor, shows active participation, communicative musicality, and enters dialogue (by verbal dialogues, singing dialogues, intimate gestures, and by expressing feelings)
- Mr B, the accordion player, shows active participation, communicative musicality, and enters dialogue (by sobbing, laughing, and by one verbal dialogue saying "thanks")
- Mrs C, the folk dancer, shows active participation, communicative musicality, and enters dialogue (by laughing, by verbal dialogues, and by playing/"fighting"/peek-a-boo-game))
- Mrs D, the ballad singer, shows active participation, communicative musicality, and enters dialogue (by verbal dialogues, laughing, intimacy/humour, expressing feelings, and by awareness/lucidity)
- Mrs E, the choral singer, shows active participation, communicative musicality, and enters dialogue (by laughing, and by giving a "present")
- Mrs F, the traveller, shows no active participation and no communicative musicality as the only participant. But in few incidents she enters dialogue (in example 4 when she touches music therapist's face showing an intimate gesture).

It is clear that these six persons suffering from dementia in advanced stages, with different backgrounds, musical qualifications, and motivations, engage themselves in the music therapy, according to their possibilities and resources. They might not actively contribute with thoughts/ideas/commitments/requests or by participating by connecting to the tune/rhythm/text material, but they respond to certain cues, to the structure of the setting, to the song material, and to the music therapist. Suffering from a dialogic degenerative disease, having lost capabilities to initiate, and lost assess to short time memory the music therapy offers prompting at a non-demanding level and offers other means of communication where playing, sharing of feelings, intimacy, mutual understanding, and interaction occur at various other levels than at the verbal semantic level.

When communication occurs at an intensive level, e.g. in a dialogue, more aspects seem to further the communication. One aspect is the person's ability to perceive a "message" from the other person, in order to respond. The six participants in periods perceive and respond

at a higher degree, when their arousal level is neither too high nor too low, which enables them to enter dialogue. The first part of the session is called the regulation-part; a part of the therapy where focus is on bringing the person to a state most optimal to perceive and respond to environmental stimuli. With most of the participants there was a clear connection between communication on more intensive levels and a regulation-part, where they e.g. would take a small nap in order to "calm down". In this way a regulation-part in the beginning of the session opens up for or lays the ground for more intensive levels of communication in a dialogue-part later in the session. There is a clear pattern with all six participants showing intensive levels of communication particularly in the dialogue-part of the session. Still, this does not mean that dialogues would not take part at other times of the session. It happened several times to e.g. Mrs D and Mr A that a dialogue took part in the very beginning of the session. Mrs D and Mr A score higher on the cognitive test, which indicate that they might not be as depending on the structure, the cues and the regulation as the other participants. Nevertheless it is clear that **there exists a relationship between a balanced arousal level and communication at more intensive levels for all six participants**.

If we measure the degree of success of a music therapy session on the amount of active participation we focus on acting, performance, functions, and capacities, and we overlook the pauses, the response latency, the time for digesting stimuli, the periods of listening, and of simply being present. But it is very difficult to measure or observe experiences that are not tangible. In this chapter I have observed responses and have labelled these responses with a quality. There are no unambiguous ways of labelling a response with qualities of e.g. emotionality, intimacy, dialogue, and awareness, and during the whole process I have pulled in more data and more information about the case. Knowledge about the context has been important. With tacit knowledge about the case as a researcher as well as a therapist, the coding system/tool has been easy to administer, and has given assess to a way of handling the data material and distilling it to a usable and meaningful essence.

The use of "raw" transcripts of video data material gave me lots of very precise observations, but it did not give me analyses, interpretations and constructions, as did the external assessors' analyses with more focus and depth. This means that I missed lots of qualitative information, and I also missed information about musical features. Still, headlines of the process seem to be included and give enough information to illustrate the substance of the sessions.

As for the coding tool, there are no clear rules saying how to label the qualities of response. When a person e.g. says "thanks" this shows a vocal response, but different qualities can be added. In some situations the "thanks" is simply a vocalization (Rvo) with no other transferred meaning that is connected to time/space/other persons. In some situations the "thanks" is a vocal comment (Rvo/co) or statement that delivers a connection to a certain event or object. And then there are situations where the vocal comments occur as part of a dialogue (Rvo/co-Qdi); there is intensity or emotionality (Qem) in the message that claims a mutual understanding and a clear orientation towards the other person. It might be difficult for external assessors to determine the quality of the response and in some situations they might need additional information. When I as music therapist do the coding myself in the role of researcher there is the danger of overinterpretation and misinterpretation. When I code Rvo differently from case to case based on my tacit knowledge a possibility of controlling my interpretations is to leave the chain of evidence as clear as possible. By using the ATLAS.ti software programme it is possible to go back and check the single codes clearly connected to the written material, and in this way make it possible to check the interpretations and compare them with the video data material. The coding tool is here used as a clinical assessment tool and for the use of clinical interpretations, where these interpretations are systematised and

structured. The intentions here are not to use the coding tool as a measuring tool for clinical effect, but to use it to describe the clinical process.

Chapter 9

Discussion and conclusion

9.1 Discussion and review on hypotheses

As a red thread throughout the research process I have based the work on the hypotheses described at page 77. When I formulated the hypotheses in the initial phase, I was aware that I might need to change them during the research. In flexible designs a hypothesis does not function as a fixed beforehand-defined strategy, but rather as a guideline that may be changed when a new direction for the research is defined. Often, in flexible design research, wording a hypothesis is avoided in order to stay open to the research process. From my clinical work I had some clear expectations to the research, and in this way my "biases" in relation to the research are explicitly formulated in the hypotheses. Additionally, it has been helpful for me to "go back" and review these during the progression of the research, and refocus. Although I was open to changes in the hypotheses they remained unchanged during the process.

Focusing the research on one music therapy approach, I restricted the data to deal with singing familiar songs in individual music therapy, and theoretically related singing to a broad, but defined, range of literature. I collected data from different sources: video data, music therapist's log, heart rate data, and questionnaires/notes from staff. I had 5 assessors analyse selected video clips, and approached the entire data with different methodological strategies in the process of analysing. This means that I involved all four types of triangulation techniques listed on page 87: data -, observer -, methodological -, and theory triangulation.

In the following I work through each of the 3 points described in the hypothesis.

First hypothesis

I) Singing has a positive influence on persons with dementia and this influence can be defined by communicative characteristics.

In this first part of my hypothesis I focus on singing as a music therapy technique and relate the analyses on observations of communicative characteristics. My focus is on what happens inside the music therapy room, and especially how the music functions in connection to stimulation and regulation. From the video data and the HR measurements I can define different characteristics that illustrate the influence of singing. These communicative characteristics show a change in compliance, a change in heart rate during music therapy, and a change in communicative signals observed, as well, during music therapy.

Compliance: In the case studies in chapter 6 is described that Mr B, Mrs C, and Mrs E show increased compliance. Mr B does not walk about during the last 10 sessions after

the introduction songs were sung, and Mrs C and Mrs E's verbalizations change in character from beginning to end, showing a change in attitude towards the whole setting. Mrs D and Mr A, who have the highest scores on the MMSE and who seem to have better access to understanding what is going on in the music therapy, show a high degree of compliance right from the beginning of the music therapy course. Mrs F shows no overt signs of compliance.

When 5 of 6 persons show compliance towards the music therapy, there might be aspects in the way the session is carried out that are motivating. It might be the potential of the music with the structure offered by the songs, the sounds produced in a recognizable form, the stability, and reminiscences evoked by the tunes or the texts. It might as well be the potential of the relation offered by the music therapist; a relation where the songs are offered as a way of *being* together and *performing* together, and where the communication is adjusted to the person in a way that is not too demanding and too overwhelming. Additionally environmental factors transmitted by contextual cues might bring positive reactions expressed in compliance. The small living room, where the music therapy is carried out, might be a nice place to stay in. There is less noise, less unintelligible disturbances, and a sofa to sit in with another person in a homelike atmosphere.

The degree of compliance is dependent on the participants ability to understand what is going on and to read the cues that inform about this. Mrs F who shows the most cognitive deficits might need a long period with repetition of the structure before she gets an impression of the session and is able to relate to the session. In this sense she is not able to relate to the songs and show compliance if she is experiencing the music therapy as new and unfamiliar every time we meet. Hence, compliance is easily confused with "familiarity with treatment", as compliance is dependent on familiarity. But, apart from familiarity, compliance involves acceptance and a positive attitude towards aspects of the setting. From HR data and observations of e.g. verbalizations, it is clear that Mrs F does not show aversion or resistance to the setting or becomes overstimulated (except for the 3 first sessions). If we can speak of familiarity to the setting in the case of Mrs F, the lack of overt rejections or aggressions, and the drop in HR and in verbalizations indicates the first step towards showing compliance.

Heart rate levels: HR levels may show the influence of singing from a physiological point of view. In 5 of the case studies HR increases in 10 out of 100 sessions and decreases in 75 sessions (with no data from 15 sessions). This clearly shows that with the 5 participants there generally is a decrease in heart rate activity, either physiologically by sitting down or psychologically by calming down, during a music therapy session.

The case with Mrs F differs. Figure 6.53 at page 183 shows that HR increases in 10 sessions, decreases in 9 sessions, with no data from one session. In addition 3 of the sessions where HR increases are in category inc-inc, which means that the participant is being overstimulated with the risk of being hyper-aroused. These three sessions are the first three music therapy sessions with Mrs F. Generally it is seen in this material that sessions with initial increases in HR occur when a music therapy course is in the beginning phase, and sessions where HR decreases (and the participant relaxes) are among the later sessions in the therapy course. In the case of Mrs F the inc-inc categories in the first sessions show a negative influence of the music therapy in the first part of these sessions. Mrs F is being overstimulated. In the two last weeks a positive influence of the music therapy occurs in line with progression of the therapy course.

When heart rate data is related to the case descriptions in chapter 6 and the context of the music therapy it is clear that the music therapy has a positive influence on HR levels over time in all six cases.

In this research I want to be cautious about the result showing that music therapy entail changes in HR levels *during* therapy. This observation is not described in previous research

and I regard the HR measurements as triangulation methods rather than a direct focus of research. As an outcome aspect the HR observations are very interesting, and the results from this study suggest further research where physiological measurements are integrated.

As an answer to the question why these decreases in HR happen during the sessions, it is obvious to suggest that HR decreases simply because the participants have walked to the music therapy room, and now sit down. But in the case of Mrs D, mean HR decreases too, although she sits in a wheel chair, and in the case of Mrs F, mean HR decreases in the last half of the therapy course although she walks about most of the time. Another obvious suggestion would be that "familiarity with treatment" causes the decreases, and that the decreases as such not are related to the treatment: music therapy. To be able to assess for arguments that reject that results are due to "familiarity with treatment" it is necessary to include observations outside treatment, e.g. comparing two or more treatment conditions, or comparing treatment with baseline conditions. In this work I compared pre/post HR measurements, which is described in connection with hypothesis 3. The results in hypothesis 3, that are described later, show a drop in HR in 5 of 6 cases. This supports the result that the changes in HR are due to additional aspects than "familiarity with treatment", e.g. to the regulative and communicative function of the songs.

Communicative signals: Based on transcriptions from the video data I have registered communicative signals in session-graphs in order to create an overview. These signals are e.g. emotional reactions to the music (sobs), singing, contacting the music therapist, verbalizing, marking the beat, or leaving the music therapy room.

Three of the participants seem very dependent on the structure of the music therapy. Mr B and Mrs C react unmistakably more to songs in the dialogue-part of the sessions, and Mrs F shows a remarkable drop in verbalizations (that to a high degree express agitation) in the last sessions, where she seems to be more familiar with the overall structure and cues. These three participants all scored 0 on the MMSE, which might indicate a relationship between a higher dependence of structure and lower level of cognitive functioning with difficulties in perceiving contextual and social cues. Mrs D, Mrs E, and Mr A do not show the same degree of dependence on arousal regulation considering their active participation, but especially Mrs D and Mrs E show clear changes in mood and emotional valence as a result of the regulation in the music therapy. In addition, the analyses in chapter 8 show a relationship between a moderate arousal level and episodes where dialogues take place.

As I am not able to generalize from my research on only 6 persons I change the hypothesis slightly by changing the word "persons" to the actual participants in the study. My conclusion is that:

Results in connection with hypothesis 1

Singing has a positive influence on the 6 participants suffering from severe dementia. This influence is defined by degree of compliance, by changes in heart rate levels, and by various ways of taking part in the music therapy.

Second hypothesis

II) Persons with dementia in an advanced stage communicate musically and responsively and this musical communication can be recognised by a system of communicative signs.

In this part of the hypothesis the focus is on the process in the music therapy and on a possible communicative function of music. My analyses here are based on video observations, which I asked 5 external assessors to carry out. These observations are analysed using a

hermeneutic approach and strategies from grounded theory. The coding of gestural responses of the participants and connecting these with qualities of response gives me a catalogue of various elements that indicate different levels of communication. These elements are systematised in a matrix (see page 314) and employed as a coding tool. In the catalogue of gestural responses six head categories of communicative signals representing layers of quality of response are suggested: emotional valence, receptive participation, sociality, active participation, communicative musicality, and dialogue. The term *emotional valence* covers very basic responses to the music therapy, e.g. if the person seems to calm down or responds indirectly in a positive or negative way. *Receptive participation* is when the participant communicates participation by listening, recognizing, or reminiscing or shows an orientation towards objects. *Sociality* is when the participant is showing an orientation towards the music therapist by sitting close, touching the music therapist, looking at/or imitating the music therapist. *Active participation* is when the participant actively makes comments to the things going on in the music therapy or actively participates by singing, by taking the initiative, or by showing intentionality. When the participant shows *communicative musicality* he or she by gesture or vocal responses expresses musical elements, such as beat, phrases, or pitch. The last communicative level is *dialogue* that includes intimacy, expression of emotions, reciprocity, and sometimes even an awareness of the relation.

By employing the *coding tool* where levels of communication are systematized on eight selected video clips (analysed by external assessors) and on examples from the case studies, it is clear that the six participants communicate responsively, and some even musically. The different levels of communication make it explicit that these persons, although suffering various degrees of a dialogic degenerative disease, offer communicative signals and are able to enter into dialogue.

All six persons in the case studies show a pattern of communicating at more intensive levels in the dialogue-part of the sessions. This means that it is possible to use the songs as means of regulating the arousal level of the six persons to a state where they are more attentive, open, and even lucid, which facilitates entering dialogue. This issue is not directly addressed in the hypotheses, but is closely related to this second hypothesis, and show that these persons communicate responsively *under certain conditions*. These conditions has to do with regulation, and this finding will be included as a result.

One person, Mrs F, did not show active participation in the music therapy, and it is doubtful if her walking to the beat or marking of phrases to the music happened by chance. The ability to communicate musically – showing musical gestural responses that mark rhythm or phrasing, making rhythmic turn-takings in the interaction, and imitating tonal qualities – might be lost as a consequence of the neurological degeneration caused by dementia. In this sense the ability to respond musically is at a higher communicative level than showing receptive participation or sociality, or changes in emotional valence. On these three communicative levels Mrs F shows responses to the music therapy. This theme needs more research, and assessment of communicative musicality might be related to more nuanced and differentiated cognitive or functional assessment procedures. This might give possibilities to develop assessment tools that are sensitive to communicative aspects, not incorporated in existing tests. When I review the hypotheses I therefore exclude musical communication as a basic way of communicating concerning all participants, based on observations in the case of Mrs F, and include communicative musicality as a higher level of responding.

Results in connection with hypothesis 2

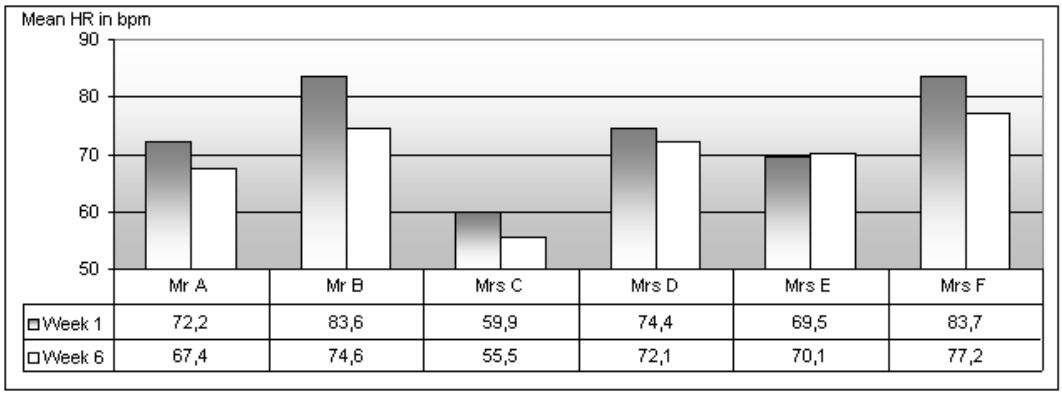
The six participants communicate responsively and this communication can be recognised by a system of communicative signs, representing different levels of communication: emotional valence, receptive participation, sociality, active participation, communicative musicality, and dialogue. There exists a relationship between a balanced arousal level and communication at more intensive levels for all six participants.

Third hypothesis

III) Music therapy has an influence on aspects in residential daily life for the person with dementia.

The proposition in this hypothesis is related to outer aspects of the therapy. I am interested in this outer issue as well, as it is clear that the participants most likely have forgotten my name and what we have been doing together, when we are outside the music therapy room. With this in mind it might seem senseless employing music therapists and waste resources on such activity. Assessing the effect of the music therapy is not a principal theme for this work, but it was possible for me to extend data collection to shorter periods before and after therapy. Scales or tests like GDS or MMSE are not sensitive enough and are not designed for assessing the effect of implementations like music therapy, and more fine-scaled instruments are called for. In assessing the outer aspects of the therapy I, in this study, refer to heart rate data collected pre and post therapy. Changes in heart rate pre/post therapy may be used as an indicator for change.

HR data was registered five weekdays before the month with music therapy, and five weekdays after therapy, at the same time of the day. The HR data are presented in the case studies in chapter 6, but here I want to display pre/post HR data across the six cases.



	Mr A	Mr B	Mrs C	Mrs D	Mrs E	Mrs F
Week 1	72,2	83,6	59,9	74,4	69,5	83,7
Week 6	67,4	74,6	55,5	72,1	70,1	77,2

Figure 9.1: Pre/post HR data. In week 1 and week 6 HR is measured for 30 minutes, every 5 second, for 5 days at the same time of the day

The bar chart, figure 9.1, shows, as mentioned in the case studies, a drop in bpm from before to after therapy in all cases, except for the case of Mrs E. Here a slight increase is seen. I regard this data display as a result that speaks for it self, but still needs to be related to the cases in order to interpret increases or decreases. – The HR measurements are so-called objective data as I have used repeated measures over a relatively long period of time (5 x 30 minutes), and it was ensured that the equipment did not influence the participants (it was

put on by contact staff in the morning when dressing, and did not effect free movements as the equipment is designed for athletes to be used during training).

As for comparing quantities, I must rule out that the outcomes are due to random variation. According to traditional behavioural science the only way of doing that is testing for statistical significance and by rejecting the null hypothesis stating that my two data sets are equal. In order to rule out random variation I have carried out a statistical test although I have certain reservations about statistical argumentation. My strategies in this work are based on alternative approaches to quantitative statistical analysis, and in *exploratory data analysis* (in contrast to *confirmatory data analysis*, see Robson 2002, p. 399) the diagrammatically displaying of data is accentuated. In the following I will discuss my reservations about the statistical analysis that I have carried out.

I see it as problematic that statistical analyses are not accessible at a profound level to most clinicians, and in several research studies there is paid more attention to the statistical computations than to clinical applicability. In order really to understand and see through statistical statements in-depth knowledge is needed. This creates a gap between researchers and clinicians. In order to make this gap smaller Cohen (1988) wrote the comprehensive guide to statistics "Statistical power analysis for the behavioural sciences", but introduces his work by stating that statistical power is frequently not understood:

> "Since statistical significance is so earnestly sought and devoutly wished for by behavioural scientists, one would think that the *a priori* probability of its accomplishment would be routinely determined and well understood. Quite surprisingly, this is not the case. Instead, if we take as evidence the research literature, we find evidence that statistical power is frequently not understood and, in reports of research where it is clearly relevant, the issue is not addressed." (Cohen 1988, p. 1)

When we in science define gold standards that are valuable to some sort of research, and then, in general, design research with the goal that it fits the requirements necessary for computing statistical values, it is possible that we overlook what the actual research question was. As previously described I suggest a pragmatic approach to research, where the research questions and focus for research are defined first, and then follows the definition of a fitting design. – And not in reverse order. In extension with this I suggest that exploratory and confirmatory data analyses are used to complete each other. Explaining data and displaying data graphically might help the researcher avoiding some of the pitfalls often criticized in statistical analyses, where the quantities are handled as independent values not related to a real context. In the manual to a statistical computer software Motulsky states that we must not base the analytical interpretations entirely on statistical calculations: "You must use scientific judgment and common sense to make inferences that go beyond the limitations of statistics. Thus, statistical logic is only part of data interpretation" (Motulsky 1999, p. 6).

Outcomes presented as quantities can easily be misused and in the end of the 1980s Funtowicz and Ravetz, 1986, presented the NUSAP notation intended for natural science and engineering (see Gherardi & Turner 2002, in the chapter "Real Men Don't Collect Soft Data"). They were "alarmed by the misuse of numbers in debates about nuclear safety levels" and the essence in NUSAP is simply that a single number standing alone is misleading (ibid., p. 88). NUSAP stands for: *Number. Units. Spread. Assessment. Pedigree.* As my third hypothesis concerns effect and outcome, I find it relevant not to let the number or the statistical value stand alone, but present it in connection with the *units* of measurement, displaying the *spread*, and base the *assessment* on a context that is related to a described case (*pedigree*).

> "Statistical analysis can be used where subtle significant changes occur in the data which are not immediately visually apparent, or where many variables are collected from an individual and need to be correlated on with another." (Aldridge 1996, p. 118)

To me the visual inspection and pattern-matching is on equal terms with doing a statistical test (see page 73), but if data cannot be displayed graphically or show no clear patterns, it might be necessary with statistical analyses.

When I choose to include a statistical test on the HR data in this work it is with the assumption that the word *significant* is very powerful in research traditions applying fixed designs.

As a first strategy I have used a statistical parametrical test, using a t-test with the null-hypothesis that there is no difference between the HR measurements in week 1 and week 6 for *all* six participants. This shows that HR levels measured in bpm significantly decrease from week 1 to week 6. This result only tells one truth about the changes in HR, as it from the bar chart, figure 9.1 page 275, is clear that the HR of Mrs E is increasing.

As a second strategy I carried out a t-test for *each* participant. Results show that p-values are <0.001 in all cases, which means that they are statistical significant, except in the case of Mrs E, where the p-value is 0.1 and thus not significant. Additionally, in the case of Mrs C a small decrease, which is significant ($p<0.001$), is seen even when the lowest curve (see figure 6.26 page 143) is excluded.

> "The t-test is described as the most powerful statistical test for difference between samples by comparing their means. However, it can be used only if the data sets fulfil the requirements for parametric tests (i.e. are normally distributed, use ratio or interval measures, and – usually – if the sample sizes are large enough." (Ansdell & Pavlicevic 2001)

When values are normally distributed they show a symmetrical increase and decrease of frequency of values defined as the Gaussian distribution. In the analyses I have used the t-test that assesses if there is a significant change between two phases. According to the NUSAP it makes sense to display the spread of values, and in the figures 9.2 - 9.7 at page 278 the distribution of bpm values is seen in the six histograms. Looking at the first graph (figure 9.2, page 278) describing the distribution of bpm values concerning the case of Mr A, the horizontal axis shows the HR values measured in bpm. On the vertical axis is indicated how many times a certain value occurs, and in order to make the two curves comparable they have been normalized by dividing the number with the amount of measurements. In week 1 number of measurements are 1579 and in week 6; 1058. The white curve, representing the measures from week 6, is very close to the Gaussian distribution. The other curves differ more or less from this ideal distribution, but as the sample sizes are so large, it is still possible to use the t-test, because with large samples "P value will be nearly correct even if population is fairly far from Gaussian" (Motylsky 1999, p 43).

By eyeballing (see page 73) the graphs of distribution of bpm values, it is clear that for Mr A (figure 9.2), Mr B (figure 9.3), and Mrs F (figure 9.7) apparent and significant parallel shifts occur. This evidently fits with the statistical tests. In the case of Mrs D (figure 9.5) the parallel shift is less obvious, but it is clear that upper bpm values are missing. This is an interesting result as it indicates a more balanced arousal level with no episodes of hyper-arousal. Mrs C (figure 9.4) and Mrs E (figure 9.6) show the 2 lowest mean HR values of the

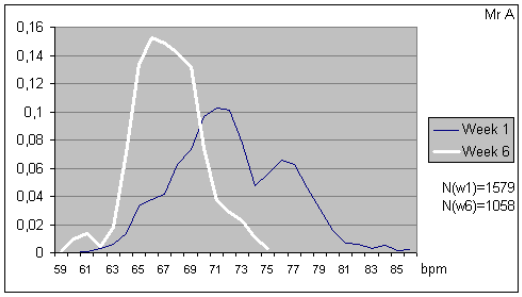


Figure 9.2: Mr A. Distribution of bpm values

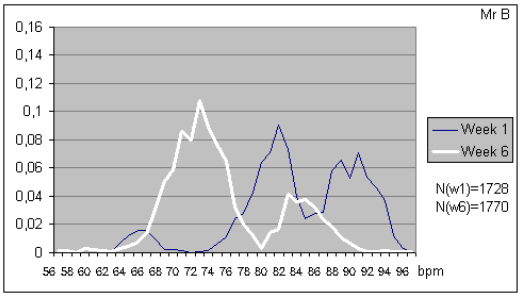


Figure 9.3: Mr B. Distribution of bpm values

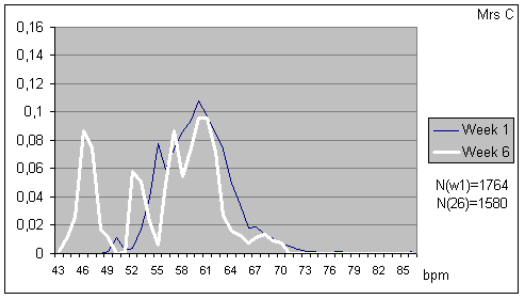


Figure 9.4: Mrs C. Distribution of bpm values

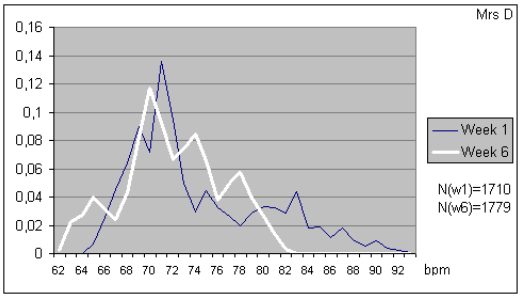


Figure 9.5: Mrs D. Distribution of bpm values

six participants. There are no clear patterns of changes in these two cases when considering the distribution pattern, although Mrs C's HR data show a significant decrease concerning mean values.

Based on the frequency distributions, that are graphically displayed, and on the statistical tests the analysis shows significant decreases in heart rate data in 5 of 6 participants; Mr A, Mr B, Mrs C, Mrs D, and Mrs F. In one person, Mrs E, no significant changes occur in the heart rate data.

This is a research study carried out in an open system, and it is not possible to state that these results are due to the music therapy or due to other variables. But based on data from the questionnaires it is possible to exclude certain variables. The general decrease in HR is not due to time of the year, to changes in staff burden, to changes in medication, to serious changes in state of health, to specific changes in the environment, or to "familiarity with treatment" (as these measurements not are carried out in a treatment context).

Additionally, a decrease in heart rate does not explain the causes of such drop. Does it mean that the person is less restless, less agitated, and has a higher quality of life? Without considering the context and the "pedigree" it is not clear if a decrease in HR is a positive or a negative result. In the case of Mrs E (figure 9.6), an increase in mean HR values might show a slight change in circadian rhythm, indicating that she is now slightly more active at this time of day. In this sense an increasing tendency in HR is positive.

Changes in HR might reflect only changes at the very period of the day where HR is measured. If it indicates that HR increases at other periods of the day, eventually resulting in increased agitation at other periods, this reflects a negative result, which is not revealed by the numbers alone. By consulting the questionnaires it is clear that staff do not observe increased restlessness or increased agitation at other periods of the day, they actually observe

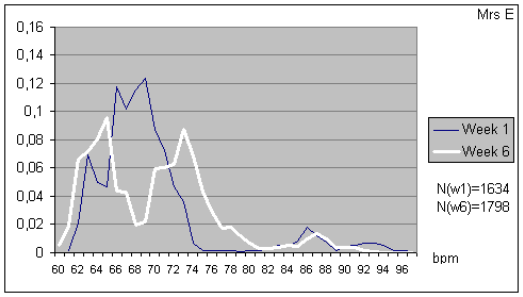


Figure 9.6: Mrs E. Distribution of bpm values

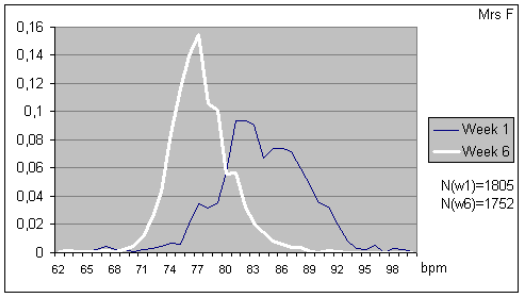


Figure 9.7: Mrs F. Distribution of bpm values

fewer episodes of agitation in week 6, and from the case studies it is known that two (Mrs C and Mrs F) of four persons have medication stopped after the end of the music therapy.

Considering these aspects I conclude that the music therapy shows a carry-over effect with 5 of 6 residents.

Results in connection with hypothesis 3

In 5 of 6 concrete cases music therapy shows an influence on aspects in residential daily life, defined in a statistical significant decrease in heart rate levels pre/post therapy, for persons with severe dementia showing agitated behaviour.

9.2 Conclusion

Based on the hypotheses that approach the focus of research from different angles, I conclude that ...

> - Singing has a positive influence on the 6 participants suffering from dementia in advanced stages. This influence is defined by degree of compliance, by changes in heart rate levels, and by various ways of taking part in the music therapy.
>
> - The six participants communicate responsively and this communication can be recognised by a system of communicative signs, representing different levels of communication: emotional valence, receptive participation, sociality, active participation, communicative musicality, and dialogue. There exists a relationship between a balanced arousal level and communication at more intensive levels for all six participants.
>
> - In 5 of 6 concrete cases music therapy shows an influence on aspects in residential daily life, defined in a statistical significant decrease in heart rate levels pre/post therapy, for persons with dementia in advanced stages showing agitated behaviour.

6 persons suffering from dementia in advanced stages – living in a special care unit where people are referred to, when the care becomes problematic at other homes or units – were invited to take part in 20 music therapy sessions. They clearly profited from these sessions, and most important: these persons were communicating and were able to be brought into a state where a communicative dialogue could take place. The songs offered a structure that functioned in focussing attention by mediating stability, as well as social and contextual cues.

Additionally the songs were used in regulating the arousal level of the participant towards environmental attention and a state most optimal for entering dialogue.

The clinical effect of using familiar songs is strong, as the songs function with constitutional, regulative, dialogical, as well as integrative aspects. The narrative and musical elements in the songs make it natural working with para-linguistic elements such as timbre, tempo, volume, pitch, and timing, and create a condition where nonverbal and social elements in a natural way becomes part of the communication. In this sense the individual music therapy setting can be carefully adjusted to the person, which makes it possible to meet psychosocial needs. As a regulative activity the music therapy increases quality of life to the person with dementia, and as an implementation that enables communication at various levels, the music therapy gives a possibility for working psychodynamically, bringing curative change to secondary symptoms of dementia.

9.3 Clinical applicability

During music therapy we see changes in heart rate, as well as a carry-over effect from *before* to *after* therapy. It is clear that this does not happen from session one. In the case of e.g. Mrs F and of Mrs C we do not see changes in active participation until after two weeks of daily music therapy sessions, and stabilizations in heart rate levels do not occur until the last week of music therapy. This indicates advantages with a high frequency of sessions with this client group. Instead of one long session once a week, which is commonly used in music therapy, shorter sessions that occur more frequently seem to be needed. In the initial phase and if the participant shows agitated behaviour *daily* sessions are suggested. Due to the failing cognitive ability the higher frequency of sessions advances the process of building up a structure with stability and cues. When stability and cues are frequently repeated and consolidated, the chance of being able to internalise an understanding of the context is greater.

Mrs F who suffered most cognitive deterioration became hyper-aroused in the first 3 sessions. If a recognizable structure had already been built up in music therapy sessions when her cognitive abilities were not that afflicted, the regulative functions of the songs might have been more effective and the potential for entering dialogue might have been greater. It is here suggested to start building up a recognizable structure for the therapy at an earlier stage of the disease and to keep the music therapy as a link for communication throughout the progression of the disease. At very early stages of dementia music therapy, together with other implementations, may be used as a way of helping the sufferer and his/her relatives to be aware of consequences of a dialogic degenerative disease. It may be helpful to family already at early stages to focus on other ways of being together, and focus on how to avoid a breakdown of semantic communication, being aware of ways of using *expression* and *act* in the communication.

The music and the songs in the therapy are used with different functions in order to regulate, stimulate, and communicate. This demands an understanding of communication at a social-pragmatic level, where conversation is not seen as only an exchange of words with a particular semantic meaning, but where direct conversation as well as being together is seen as interaction. This interaction is influenced by even subtle communicative signals that we are often not aware of. Music therapists are trained in focussing on musical communication, which is nonverbal and para-linguistic communication, and may contribute to dementia care with valuable approaches, in collaboration with staff and relatives. To staff and relatives it may be helpful to have new views on a person with dementia, – when these views in periods are only related to deficits and deterioration.

In this work no guidelines or rules are set up that define the "right" or "wrong" songs to use in the therapeutical work. There are clearly individual preferences for songs, – preferences that even change from one situation to another. More than 200 different songs (apart from the structure-songs) are used with the 6 participants who come from a quite homogeneous Danish culture. For music therapists working in multiethnic societies, the challenge becomes much bigger in defining personal and familiar songs. Being part of the same culture, this can be done more or less intuitively. When not sharing the same song traditions it becomes difficult and very challenging to choose the *right* song to express a certain mood or to contain a certain need. In this situation it becomes important to start the music therapy at a time where the person himself with help from the music therapist still is able to trace familiar and meaningful songs. The music therapist then has the possibility to continue using these songs when the disease progresses.

Why one song is chosen rather than another is strongly related to the use of the song with a sedative, stimulative, regulative or communicative purpose. In this sense the song choice is connected with how the music as a whole – as well as separated aspects of the music such as rhythm, harmony, and melody – influence persons with dementia physically, socially, and emotionally. This makes an analyse of song choice very complex as it often is an implicit or intuitive choice done by the therapist. Such an analyse may reveal useful clinical tools to the music therapist making the song choice explicit, and making it possible to combine the song choice with observational data of song preferences. Song preferences in turn might be closely related to performance style and song preferences of the therapist. An interesting further step in research in this field could be detailed analyses of categorizations of songs compared with data that involve the participants former and present preferences, stage of dementia, cultural and social background, and/or content themes transmitted via the song texts. With participants that are still able to express themselves verbally and who make comments to the songs, it would be very interesting to analyse if there are certain themes that these participants seem to be occupied with. This could be compared to themes that seems to have been important in their lives, or themes that might be general to persons living with degenerative diseases.

Results indicate a relationship between arousal level and moments where dialogues occur. In order to further these intensive moments regulation towards environmental attention is necessary with some participants. With persons suffering from dementia in advanced stages as well as a dialogic degenerative disease it might be important to focus on regulating techniques in the music therapy in the first place. This means sessions with a clear structure using the songs to mediate stability and cues. Sessions are built up with songs that function to regulate, stimulate, motivate, and/or sedate. Over time this might bring the participant to states where he/she communicates at more intensive levels. When dialogue occurs it might be possible as well to fulfil psychosocial needs and reduce secondary symptoms of dementia.

9.4 Limitations of the study – and perspectives

Analysis of regulation

For ethical reasons there seems to be a need that music therapy clinicians in a clear way describe in which way they work with the music and what the purpose with the work is. For this reason a continuing development of terminologies is needed, – terminologies that describe and make therapists aware of how they work and how this work has an influence on participants. Training programmes in music therapy ensure that the therapists-to-be are aware of the way in which music as well as relational aspects function in regulating mood,

concentration, attention, and arousal level. If the music therapist is not aware of this, she might not be aware of what happens to a whole unit after e.g. a sing-along where the music therapist has stimulated and entertained, but to a level where the participants were overwhelmed and not able to respond to the demands, and so react by being restless or agitated, or even hyper-aroused. This means a focus on how the music and the interaction function as *appeal*, described in the communication model af page 51. Appeal is an instrument that influences the "receiver" in the communication. If the communication is characterized by reciprocity, the music therapist will understand the participants' "answers", although the answers are not logical linguistic messages, and will adjust her communication to the person with dementia. In future research it is relevant to integrate viewpoints from different music therapy traditions on how music influences, and further, how this influence might bring the participant to states, e.g. leading to interaction and dialogue.

Analysis of the coding tool

The coding tool is based on qualitative analyses on six specific participants. It is possible that this tool is applicable to other persons with severe dementia. Using the tool with other participants might lead to a refinement of the codes and nuances that are not observed in this work. In my future clinical work I believe that the tool will give me an overview and concrete terms that describe at which communicative level the music therapy work is focussed, and when the "peak moments" characterized by intimacy, emotionality, dialogue or even awareness, happen. – Instead of the term peak moment these moments might as well be called Golden moments (Trondalen 2002), Meaningful moments (Amir 1992, 1996), or Pivotal moments (Grocke 1999), and are at the same time regarded as lucid moments (Normann 2001). For me the tool is easy to administer, but I do not know if other music therapist find this tool relevant and helpful in their clinical work, which might be an issue worth further investigation. The tool is not to be regarded as qualified for research, or as a research assessment tool, before its clinical applicability is assessed and tested.

Planning of the setting

In this study music therapy courses based on 20 sessions were planned. Ethically it did not seem correct to define the number of sessions beforehand, and the issue was discussed with staff. In a naturalistic setting the music therapist would have carried out daily sessions in shorter periods when it was needed, and the frequency of sessions would have been less in other periods. In order to plan and schedule the research 20 daily sessions fitted, and after end of the period of research the occupational therapist at the unit was informed about the course of the therapy, and was attentive to the needs of the participants. With some participants, e.g. Mrs C and Mrs F, the music therapy began to function with regulative effects, but did not show clear and stable patterns. This might have been reached with more sessions. With participants suffering from dementia close to stage 7 of the GDS there seems to be a need for a higher frequency of sessions in order to create a structure. In future research it seems very relevant to investigate therapy courses with a higher frequency of sessions in order to obtain clear patterns that reveal the influence of both regulation and communication in the music therapy. It would be very relevant as well to describe therapy courses starting at earlier stages of dementia and following the person with dementia throughout the progression of the disease until death. This kind of research seems only possible if clinicians are offered assessment tools and guidelines for how to make relevant observations as part of the daily routine.

Physiological data

The HR data show interesting outcome aspects. In this work I keep the result directly related to HR levels, stating that they change during therapy and that there is a decrease in bpm pre/post therapy. In further research it has interest to establish if this result is replicable, and if the changes in HR are related to changes in BPSD, e.g. agitation, or has influence on quality of life. With the "gunpowder explanation" I can state that an explosion has taken place. Robson (2002) describes the gunpowder explanation as used to illustrate the principles of realist explanation:

> "Does gunpowder blow up when a flame is applied? Yes, if the conditions are right. It doesn't ignite if it is damp, or if the mixture is wrong, or if no oxygen is present, or if heat is applied only for a short time. In realist terms, the *outcome* (the explosion) of an *action* (applying the flame) follows from *mechanisms* (the chemical composition of the gunpowder) acting in particular *contexts* (the particular conditions which allow the reaction to take place)" (Robson 2002, p. 30)

My question could here be: "Does persons in advanced stages of dementia respond, e.g. by showing physiological changes in HR, when exposed to music therapy?"

In this work I have *described* aspects of the *action* when describing the clinical music therapy approach. I have theoretically described *mechanisms* of a dialogical degenerative disease, of communication, dialogue, arousal, and environmental attention, and *contexts* such as structure, stability and cues. The actions, mechanisms, and contexts represent a huge number of variables that influences the outcome (the gunpowder explosion, or the response to the music therapy). I particularly have focussed on response and described responses given by the participants as an outcome. One among other outcomes is that there is a physiological response; a change in HR levels. For further research it would be very interesting to describe the action variables, mechanism variables and context variables and to replicate relationships – or describe new relationships – to the outcome.

On the first hand it is a limitation of this study that I do not collect data that clearly relate variables to outcomes, as it is possible in *closed* systems. On the other hand a control of variables might have given me situations where the "gunpowder" would not have reacted to my actions. I have analysed the mechanisms of communication in depth, but not mechanisms of e.g. the songs, song choice, or of singing style. There are many complex mechanisms and contexts to describe in order to exactly know why HR levels changes in some persons exposed to music therapy. My intentions are to describe the ingredients (in the gunpowder/music therapy) and to describe the context, being aware that I cannot give the precise "chemical compositions" and the precise contextual details. But I want to repeat that for further research is seems very relevant to search for relationships between changes in HR levels and changes in e.g. BPSD, in communicative responses, or in quality of life.

Method

A multi method approach with the purpose of securing validity by means of triangulation is not restricted to clear rules, providing a certain amount of measures that "locate the position on the map". This is up to the researcher to estimate when sufficient data point in the same direction. One pitfall is to make too little and too vague measures that pinpoint the position (see page 87). Another is to make too many different measures, giving thorough and interesting descriptions of the map, but describing locations that are not connected. Having no clear guidelines that may excuse me, as a researcher, from making the estimations myself,

it is up to my decisions and evaluations to state when I can present my findings or outcomes. There are no rules and formulas as in fixed analyses with clear conventions for the saturation point of data collection and for the end of the analysis procedure. This makes it difficult to evaluate flexible and qualitative research, as the evaluators have no precise means of saying if my "chemical compositions" are correct, or when a more accurate test is to be used. The readers or evaluators have to be presented to the whole chain of reasoning, and the more different methods are used, the more material and work to the evaluators. In this sense the triangulation process does not increase in value or validity in line with an inclusion of more types of triangulation, if this implies that the evaluators need to gain knowledge about various chains of reasoning. In short this means that the more thorough the researcher is, the more the work loses in elegance. Considering the restrictions of time and kilo weight of the thesis, I will put a stop to the writing, knowing that the research process goes on.

Foci

Analogous to the communication model at page 51 different layers of the music can be understood and analysed. In this analysis I do not focus on the "logical" aspects of the music – the structure of the music – but focus on a psychological and pragmatic understanding by making observations of participant responses. The social-pragmatic understanding reflects a focus on how the music influences the other person, and the emotional expression, rather than a "semantic" musical understanding. In future research characteristics of style and structure of the tunes, song choice, and in-dept analyses of the impact of precise musical components will bring more facets to this investigation. It is clear that with the amount of data that is collected for this study there are multiple directions to go with the data. It has been challenging to stick to the focus and I have often been tempted to follow the various other directions it has been – and still is – possible to go. At the same time it has been reassuring to have a clear way to go in order to avoid detours. Now, that I have gone the way through the wilderness and look back, all the other directions, that I did not go, no longer look like dangerous wrong tracks. The wrong tracks may seem now like interesting new paths for further investigation.

Coda:

In spite of her dementia disease Mrs D still has the capability to express herself in verbal language, and I want her voice to express the last words in this thesis:

> "It was good that you came today (laughs) ...
> I totally forgot why I was sad.
> But I was ...
> Never mind (laughs) ...
> Well ... which song are we going to sing tomorrow?"
>
> *(Mrs D, session 8, May 16th 2000, 10:29:25)*

Chapter 10

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Appendix A

Songs

Wir sitzen so fröhlich beisammen

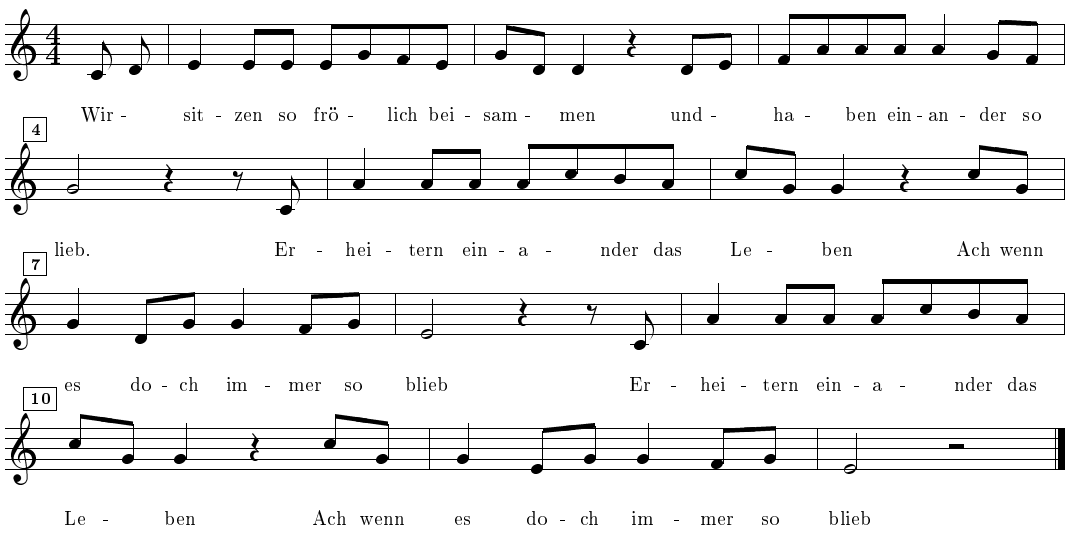
Alzheimer's patient, Johann F (Alzheimer 1911), learns this song from the other patients:

Wir sitzen so fröhlich beisammen
Und haben einander so lieb.
|: Erheitern einander das Leben;
Ach! wenn es doch immer so blieb'! :|

Es kann ja nicht immer so bleiben
Hier unter dem wechselnden Mond.
|: Es blüht eine Zeit und verwelket
Was mit uns die Erde bewohnt. :|

Doch weil es nicht immer so bleibet,
So haltet die Freude recht fest.
|: Wer weiß denn wie bald uns zerstreuet
Das Schicksal nach Ost und nach West. :|

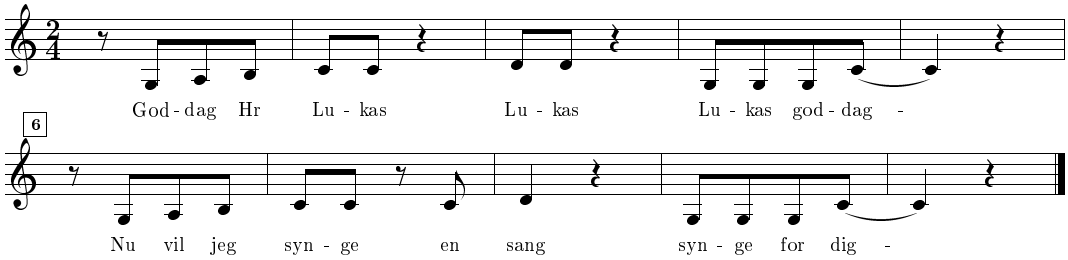
Kotzebue, 1761-1819



The tune can be heard at: http://ingeb.org/Lieder/wirsitze.html

Goddag

Short greeting song where I sing the participant's name and sing that we are going to sing together.



Roselil

Danish folksong. Written down in 1845 by C. K. F. Molbech. Here from Folkehøjskolens Sangbog, 17. udgave, nr. 518

|: Roselil' og hendes moder, de sad over bord, :|
de taled så mangt et skæmtens ord.
|: Ha, ha, ha! Så så så så! :|
de taled så mangt et skæmtens ord.

Før hvert træ skal i haven bære blomster af guld,
før jeg skal vorde nogen ungersvend huld.

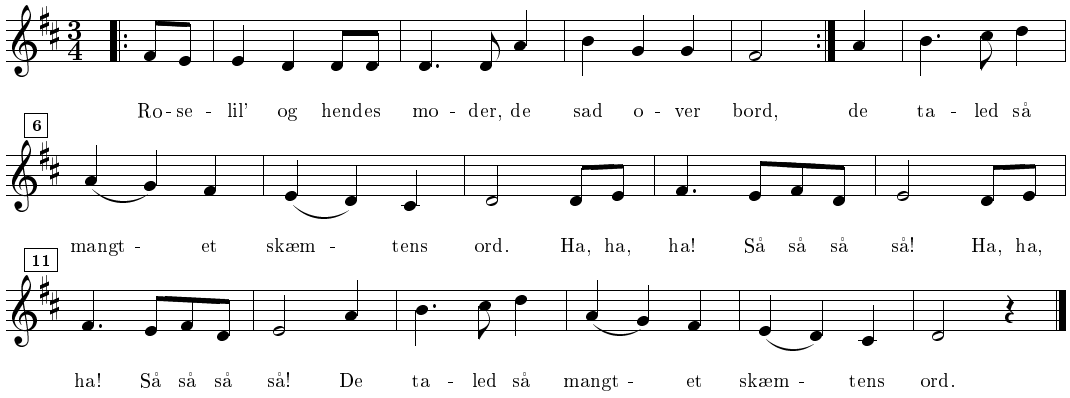
Hr. Peder stod på svalen og lytted med list:
den ler dog nok bedst, som ler til sidst.

Og der de kom ned udi urtegårdens læ,

da hang der en guldring på hvert et træ.

Roselil' blev så rød som et dryppende blod,
Hun stirred i græsset alt for sin fod.

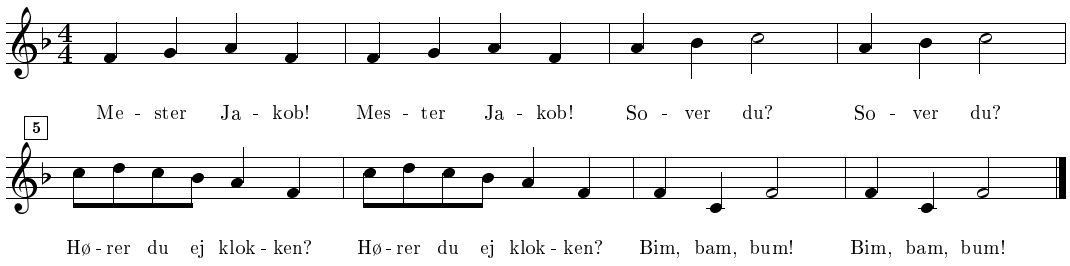
Da kyssed hendes læber hr. Peder med list:
Den ler dog nok bedst, som ler til sidst.
Ha, ha, ha! Så, så, så, så! Den ler dog nok bedst, som ler til sidst.



Mester Jakob

Traditional children's song. From the French: Frére Jacques.

Mester Jakob, Mester Jakob
Sover du? Sover du?
Hører du ej klokken? Hører du ej klokken?
Bim bam bum. Bim bam bum.



Jeg ved en lærkerede

Traditional children's song. Melody by: Carl Nielsen, text: Harald Bergstedt

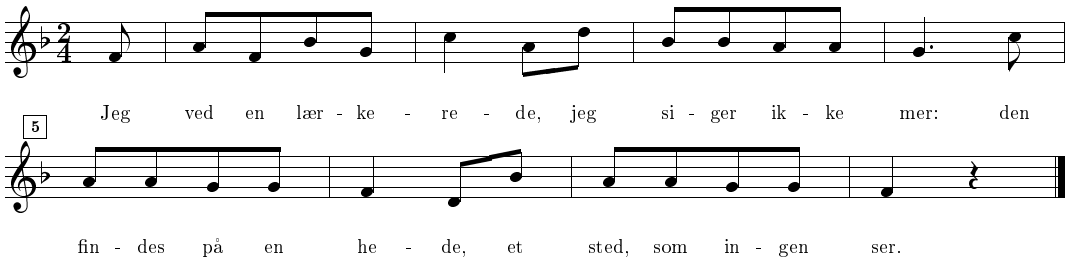
Jeg ved en lærkerede,
jeg siger ikke mer;
den findes på en hede,
et sted, som ingen ser.

I reden er der unger,
og ungerne har dun.
De pipper, de har tunger,
og reden er så lun.

Og de to gamle lærker,
de flyver tæt omkring.
Jeg tænker nok, de mærker,
jeg gør dem ingenting.

Jeg lurer bag en slåen.
Der står jeg ganske nær.
Jeg rækker mig på tåen
og holder på mit vejr.

For ræven han vil bide,
og drengen samle bær.
Men ingen skal få vide,
hvor lærkereden er.



Appendix B

Songs sung with the participants

Mr A,	63	different songs, sung	111	times.
Mr B,	54	different songs, sung	123	times.
Mr C,	66	different songs, sung	145	times.
Mr D,	111	different songs, sung	165	times.
Mr E,	110	different songs, sung	165	times.
Mr F,	48	different songs, sung	100	times.

r: songs in regulation-part of the session.
d: songs in dialogue-part of the session.
Example: F(16r, 19d) means that the song is sung with Mrs F in sesssion 16 in the regulation-part, and in session 19 in the dialogue-part.

Song	**Session**	**Book**
Ak, kæreste hr. Guldsmed	D(8d), F(16r,19d)	ss196
Alle gode gaver	D(19r), E(1r,2r,20r)	hs354
Alle mine længsler	D(15r)	hs524
Altid frejdig når du går	A(5d), B(5d), C(18r), D(8r,15d), E(10r), F(14d)	hs569
Anna var i Anders kær	A(14d), C(5d), E(13r)	ss195
Bedstefar, tag dine tænder på	A(14d)	hs311
Bjørnen sover	C(12r)	-
Blæsten går frisk over Limfjordens	A(16r), D(14r,15r), E(1d,3r,16d), F(12r,17d)	hs190
Bro, bro brille	C(18d), E(12d)	ms144
Danmark, dejligst vang og vænge	D(5r), E(12r)	hs372
Danmark nu blunder den lyse nat	A(1r,3r), B(5r), D(2r,8r)	hs339
De nære ting	C(7d), D(9d), E(16d,19d), F(3d)	ss171
Dejlig er sommernatten	C(7d), D(14r)	-
Den aller sidste vals	C(11d)	-
Den bonde han ganger sig ud i den	A(7d,16d,17d,20d), B(8d,12r), C(13d), F(13r)	hs546
Den danske sang	A(15r), E(6r)	hs132
Den er fin med kompasset	C(8r), D(3r), F(5d)	ss199
Den evigglade kobbersmed	D(14d)	ss229
Den första gång jag såg dig	E(13r)	ss189
Den gamle gartner	A(6d), B(7r,9d,17d,18d,19d,20d), D(2r), E(3d,14r), F(2d,8r)	ss218
Den grønne søde vår	A(13r)	hs328
Den lille anemone	A(7d,13d)	ss28

Song	Session	Book
Den lille frække Frederik	E(14r)	ms112
Den lille Ole med paraplyen	C(14r)	ms173
Den signede dag	A(11r), B(5r,8r), E(3r,6r)	hs1
Den spillemand snapped fiolen	A(1r), B(3d), C(1d,2d,5d,19d), E(3d)	ss212
Den sømand han må lide	A(3d), B(13d), F(8r,19d)	hs543
Der er et yndigt land	A(4r), B(4r)	hs160
Der er lys i lygten lillemor	A(4d), D(3d), E(4d,19d)	ss227
Der kom en mand .. Røde Hav	C(8r,11d), E(6d,14r)	ms151
Der rider en konge	D(14r,16d)	-
Der sad to katte på et bord	C(19d), E(2d)	-
Der stode tre skalke	A(2d), D(14d)	hs554
Dernede i dalen	B(15d,17d,18d,19d,20d), D(3d), E(20d)	mp32
Det er i dag et vejr	A(2r), B(14r), D(11r)	hs324
Det er så yndigt at følges ad	E(12r)	hs508
Det går atter hjemad	D(7r), E(20d)	ss207
Det haver så nyligen regnet	A(8d,9d), B(8d), D(8r), E(17r), F(12r)	hs404
Det lysner over agres felt	C(17d), F(1r,4r,7r,9r,10r,11r,13r,15r,16r, 17r,18r,19r,20r)	hs349
Det var en lørdag aften	B(2r,9r), C(2r,20r), D(2d,2d), F(4r,10d,12d,13d)	hs541
Det var på Capri	D(15d)	mp38
Det var på Fred'riksberg	A(4d,8d), D(4d), E(20d)	ss186
Dit hjerte er i fare Andresen	D(13d), E(12d)	mp20
Dronning Dagmar	D(13d)	hs527
Du danske sommer jeg elsker dig	D(3r,4r)	hs345
Du gamle måne	A(5d), B(13d), D(6r,7r)	mp44
Du skal ikke gi' mig roser	D(14d,15d,18d,20d), E(7d)	-
Du spørger min dreng	A(11d), B(14d), D(6r,15d,20d)	ss208
Dybt hælder året i sin gang	E(1r), F(15r)	hs361
Ebbe Skammelsen	E(15r)	hs529
Elefantens vuggevise	A15d , C(12d)	pv149
En er for lille	C(2r)	mp45
En jæger gik at jage	D(14d)	ss213
En lille pige i flade sko	D(9d,11d,18d), E(11d)	iI75
En lærke letted	D(18r), F(2d)	hs432
En sømand har sin enegang	A(9d,17d,18d,19d,20d), D(7d), F(4d,5d,11r,16r)	hs504
En sømand elsker havets	D(14d)	-
En vår er kommet	B(5d), D(6r), E(1d), F(3r)	ss184
Er du dus med himlens fugle	A(10d), B(12d,14d,16d,17d), D(17d), E(6d)	-
Et jævnt og muntert virksomt liv	E(8r)	hs463
Flyv fugl, flyv	D(8r,10r)	ss101
Flyv lille påfugl	C(8r,10d)	-
For alle de små blomster	C(19r)	ss40
Fra Engeland til Skotland	C(9r,15d), E(19d)	ss201
Fra Tyskland uddrog	C(7r), E(11d)	ss226
Fred hviler over land og by	A(15d), C(15d)	hs563
Frydeligt, med jubelkor	A(13r)	ss32
Fætter Mikkel	C(9d,10d,11d,12r,13r,14r,15r,16d,17d), E(13d)	-
Fødselsdagssang	E(4r)	ms106
Først den ene vej	C(9d,10d,11d,13r,14d), E(14d)	-
Giv mig Gud en salmetunge	E(7r,14r)	hs31
Glemmer du, så husker jeg	A(6d,8d,16d,17d,18d,19d), B(4d,5d,7d,12d), C(1d,3d,4d,6d,7d,14d), E(6d)	iI79
Goj awten	C(9r,9d,12r,16r,18d), D(9r)	i24

Song	Session	Book
Gribe efter blanke ting	D(13d)	i90
Grøn er vårens hæk	D(16r)	hs329
Gubben Noah	E(15d)	hs255
Hils fra mig derhjemme	B(11d), D(10d,19d), E(8d,19d), F(9r)	ss200
Hist hvor vejen slår en bugt	A(14d,15d), B(11d,12r), C(12d,14r,16d), E(15d), F(18d,20d)	hs180
Hist på Alpens isbelagte spire	C(8d,10d), D(2d), F(6d,7d,8d,11d,19d)	ss193
Hjalmar og Hulda	C(9r), D(9r,10d,11r,18d,20r), E(14d)	-
Holder du af mig	D(16r), E(18d)	ss181
Hos mor derhjemme i Kerteminde	D(2d,8d,18d,20r), E(2d,14d)	-
Hr. Peder kasted runer	B(14d), D(7r,15r), E(2d,16d)	hs517
Husker du i høst	C(20r), D(10r), E(2d,8d), F(15d)	ss180
Hvor skoven dog er frisk og stor	A(8d), C(7d,10r), D(10r)	hs335
Hvor smiler fager	E(1d,3r)	ss87
Højt på en gren en krage	C(13r), D(13d), E(2d,11d), F(12d)	ms3
Hør den lille stær	A(10d)	pv89
I al sin glans nu stråler solen	C(18r)	hs77
I alle de riger og lande	E(4r,6r,11r)	hs367
I den gule lupin	D(9d)	i68
I en kælder sort som kul	C(5r)	i68
I en lille have i Pileallé	B(12d), D(5d,7d)	ms14
I en skov en hytte lå	F(12d)	ms34
I Kongelunden	C(5d)	ss187
I skoven skulle være gilde	B(6r), C(1r,7r,19d), E(5d,12d)	ss211
I skovens dybe stille ro	C(4r,10d,19d), D(15d), F(15d,17d,18d)	ss93
I Østen stiger solen op	A(1r,2r,6r), B(1r,3r,5r,6r,7r,9r), C(1r), D(1r,10r,13r), E(12r)	hs13
Improvisation	A(6d,9d,10d,11d,15d,16d,17d,18d), B(9d,11d,12d,13d,18d,19d), C(1d,2r,4d,10r,11r,12r,12d,13d,14r,15d,18d), E(17d), F(5d,12d,14d,18r,19d,20d)	-
Jeg bærer med smil min byrde	E(10r,17r,20d)	ss167
Jeg elsker de grønne lunde	B(1r), C(5d), E(5r)	ss91
Jeg elsker den brogede verden	A(4r)	hs466
Jeg elsker/vaklende rønne	A(9d,10d,17d), B(9d,14d), D(6r), E(12d)	ss210
Jeg er havren	A(5r), B(1d,3d,4r,5d,7r,7d,8r,9r,10r,11r,12r,13r,14r,15r,16r,17r,18r,19r,20r), C(2r,8r,11r), D(6r), F(3r,5r,6r,8r,10r,11r,12r,13r,14r,16r,17r,18r,19r,20r)	hs344
Jeg er træt og går til ro	E(13d)	ss14
Jeg gik mig ud en sommerdag	E(17d)	ss132
Jeg har en ven, en rigtig sailor	D(13d)	mp41
Jeg kan se på dine øjne	E(15d)	hs514
Jeg plukker anemoner i november	E(13d)	ii73
Jeg ser de bøgelyse øer	A(1r), D(13r)	hs174
Jeg ved hvor der findes en have	A(1r,7r), B(1r,3r,10r,15r), C(19r), D(5r), E(5r), F(14d,17r)	ss90
Jeg vil bygge en verden	B(13d), D(10d,16r), E(13d)	-
Jeg vil tælle stjernerne	B(5d)	ms171
Jens Vejmand	E(13r), R(9r)	ss206
Jim og jeg var venner alle dage	D(8d,20r), F(11d)	ss223
Jyden han er stærk og sej	E(15d)	hs191
Jylland mellem tvende have	D(18r)	hs185

Song	Session	Book
Katinka, Katinka	B(2d), D(5d), F(6d)	ss192
Kom maj du søde milde	A(5r,6r,7r), B(8r,10r,13r)	hs326
Kong Christian	B(16d), D(16d)	hs383
Langt højere bjerge	D(18r)	hs159
Langt oppe bag Norges kyster	C(8d)	pv20
Lili Marleen	B(13d), D(12d,18d)	-
Lille Guds barn	E(7r,10r,13r)	hs43
Lille sommerfugl	A(7d,17d,18r,19r,20r), B(1d.11d.16d), C(4d,5r,14r), D(5d), F(10r)	mp49
Lover den Herre	E(7r)	hs33
Lykken er ikke gods eller guld	A(3d,11r,16d), C(4r,7d,16d,17d), D(20d), E(4r,8r,11r,17d)	hs159
Lysets engel går med glans	A(15r), E(4r,5r,19r)	hs11
Lær mig nattens stjerne	C(18r), D(5r,6r), E(3d,12r)	ss146
Man blir' så glad når solen skinner	D(12d)	mp52
Marken er mejet	C(1r,4r,5r,7r,12r,14d,15r,16r), D(1r,2r,3r,4r,5r,6r,14r), E(1d), F(1r,2r,3r)	
Med hænderne siger vi klap	C(9d)	mp51
Mig og Maggeduddi	D(11d,12d,17d,20r), E(5d)	mp51
Min Amanda var fra Kerteminde	A(10d), D(6r,19d)	ss190
Morgenstund har guld i mund	A(1r,5r), B(1r), D(6r)	hs9
Mors lille Ole	B(6r), C(5r), F(6r)	ms42
Musens sang	D(13d)	i388
My bonni is over the ocean	D(13d)	ii283
Nu er dagen fuld af sang	A(6d), D(11r)	hs346
Nu er det længe siden	D(1r,9r), E(2r), F(7r)	hs420
Nu er jord og himmel stille	A(15d), B(9d,11d,15d), F(18d)	pv150
Nu falmer skoven	D(17r), E(4r,20d), F(1r,5r,8r)	hs352
Nu lakker det af tiden småt	A(13r,14r), B(13r), D(12r)	ss31
Nu lokker atter de lange veje	A(11r), B(11r,14d)	ss209
Nu piber alle fløjter	D(4d.14d), F(10r,12d)	ss230
Nu titte til hinanden	A(3r,4r,7r), B(4r,7r,7d), E(15r,16r,17r,18r)	hs15
Når vinteren rinder	A(8r,9r)	hs309
Oh when the saints	D(13d)	i344
Ole sad på en knold og sang	A(4d), B(15r,17d), C(9r,16r), E(8r,16d,20d), F(2r)	hs471
Om jeg tar' mig en livsens ven	E(13r)	ss182
Op al den ting	C(8d,18r), E(3d,8r,11r,19r)	hs30
Op lille Hans	E(12d,14d)	hs30
Per spelman han hadde	E(1d,15d)	hs506
Pigen og Søndenvinden	C(13d), D(16d)	mp61
På det jævne	D(12r), E(4d,7d,14e,20d)	hs464
På min lysegrønne ø	D(17d,18d), E(18d)	-
På Samsø var en pige	A(1d), D(1d), E(3d,10d,14d)	ss191
På Sjølunds fagre sletter	B(15d), D(6r,15r), E(6d)	hs375
På Vossevangen	A(11d), D(5d,6r)E(18d)	ss216
Ramund	D(6r)	hs540
Rundesang	D(18r)	-
Røversangen fra Kardemommeby	C(13d)	ms110
Sangen har lysning	A(16d), E(17d)	hs131
Se det summer af sol over engen	B(4r,17r,18r,19r,20r), C(2r,9r,10r,11r,17r), D(4r,7r)	hs334
Se dig ud en sommerdag	A(10r), D(4r)	hs149
Se hvilken morgenstund	A(2d), B(2r)	hs18
Se Norges blomsterdal	D(13r), E(7d)	pv75

Song	Session	Book
Se nu stiger solen af havets skød	A(pr,10r,14r,16r,17r,18r,19r,20r), B(10r), E(1r,2r), F(6r)	hs22
Septembers himmel er så blå	D(17r,19r)	hs353
Sig nærmer tiden	B(10r,15r), E(10r,15r)	hr393
Skamlingsbanken	D(12r), F(9r)	ss205
Skomagerpolka	C(13d,15r,15d,20d)	-
Skould gammel venskab	B(16d,18d,19d,20d), C(16r,18d), D(8d), E(17r), F(7d)	hs521
Skyerne gråne	E(18r)	hs359
Skærslipperens sang	D(7r), F(7d)	ss209
Skønne september	D(17r,19r), E(2r), F(15r)	ss56
Solen er så rød mor	C(16d), D(20d), E(18d)	ms176
Solskin om bord	D(11d)	-
Som en rejselysten flåde	E(16r), F(8r)	hs(166)
Sov sødt barnlille	E(18r)	hs87
Spurven sidder stum bag kvist	E(18d)	hs302
Stille hjerte sol går ned	E(15r)	hs548
Svup Karoline	E(12d,16d)	ms70
Så går vi rundt om en enebærbusk	E(14r)	ms150
Så ruller jeg med dig	D(3d,12d,19d), F(8d)	mp124
Så sødt som i gamle dage	A(16d), B(4d), C(17r), D(4d,17d), E(10d), F(2d)	ss183
Så'n var det ikke i 90'erne	D(19d,20d)	-
Tag den ring og lad den vandre	F(2r)	-
Tinge-linge-later	E(12d,13d,14r,15d,16r,17d,18d,19d,20d)	ms145
Titte til hinanden	B(18d,19d,20d)	ii78
To skridt til højre	C(8d,11d)	ii78
Tordenskjold	B(16r), D(16d), E(8d)	-
Tornerose	C(18d), E(11d,14r,20d), F(16d,18d)	ms149
Totur til Vejle	C(10d,15d,17d)	-
Tænk hvis jeg sad på månen	C(13d)	ms143
Tørresnoren	A(14d), D(19d)	ss215
Under den hvide bro	A(1d,3r), D(16r), E(8d)	mp72
Vi der valgte regnen	E(15r)	ii69
Vi elsker vort land	A(16d)	hs342
Vi pløjed og vi såed	C(4r)	hs354
Vildanden	D(6r)	-
Vipper springer over klinge	C(19r), E(3r)	ss41
Vort modersmål er dejligt	E(16r)	hs119
Vågn op og slå på dine strenge	A(8r), B(9r), E(20r)	hs8
What shall we do with a drunken	D(13d)	i348
Åh Susanne	C(5d,7d,9d,10d,11d,13r,14r,15d,16d,16d, 17r,17d,18d,20d), E(5d,12d)	pv136
Åh x vil du ride på livets glade vej	E(11d)	-

Songbooks:

hs: Folkehøjskolens Sangbog. Foreningen for folkehøjskoler i Danmark. 17. Udgave. Odense 1995

i or ii: Sangbogen, bind 1 or bind 2. Marstal *et al.* (ed.). Wilhelm Hansen, 1988

mp: Magnaprint sangbog 1. Borgens forlag, 1980

ms: Min sangbog. 150 børnesange. Marstal, I. (ed.). Wilhelm Hansen, 1987

pv: På Vingerne. Sange for børn & unge. DGI, Vingsted, 1996

ss: Senior Sangbogen. Andersen W. (ed). Forlaget Mikro, Galten 1996

Appendix C

Coding of response and quality of response

Table C.1: Coding of response and quality of response

		Rpo	**/ge**	**Rge**	**Rfo**	**Rha**	**Rhe**	**Rfa**	**Rvi**	**Rvo**	**/co**	**/tx**	**/si**	**/imp**
Emotional valence	R	Rpo		Rge	Rfo	Rha	Rhe	Rfa	Rvi	Rvo				
	Qbr	Rpo−Qbr				Rha−Qbr	Rhe−Qbr		Rvi−Qbr					
	Qse	Rpo−Qse				Rha−Qse								
	Q+			Rge−Q+										
Participation (Receptive)	Qpa													
	Qor													
	Qor−obj	Rpo−Qor−obj	Rpo/ge−Qor−obj			Rha−Qor−obj			Rvi−Qor−obj					
	Qre													
	Qrem													
Sociality	Qcl						Rhe−Qcl	Rfa−Q+						
	Qto					Rha−Qto								
	Qor−per	Rpo−Qor−per	Rpo/ge−Qor−per			Rha−Qor−per	Rhe−Qor−per		Rvi−Qor−per					
	Qim	Rpo−Qim		Rge−Qim		Rha−Qim	Rhe−Qim							
Participation (Active)	R /co/tx /si/imp										Rvo/co Rvo/co−Q+	Rvo/tx Rsi/tx	Rvo/si Rvo/si−Q+ Rvo/si−Qor	Rvo/imp
	Qini									Rvo−Qini			Rvo/si−Qini	Rvo/imp−Qini
	Qint		Rpo/ge−Qint				Rhe−Qint				Rvo/co−Qint			
Communicative musicality	Qbe	Rpo−Qbe	Rpo/ge−Qbe		Rfo−Qbe	Rha−Qbe	Rhe−Qbe				Rvo/co−Qbe		Rvo/si−Qbe	Rvo/imp−Qbe
	Qph	Rph−Qph	Rpo/ge−Qph		Rfo−Qph	Rha−Qph	Rhe−Qph				Rvo/co−Qph		Rvo/si−Qph	Rvo/imp−Qph
	Qpi												Rvo/si−Qpi	
Dialogue	Qinti					Rha−Qinti		Rfa−Qinti	Rvi−Qinti					
	Qem							Rfa−Qem Rfa/vo−Qem+	Rvi−Qem					
	Qdi						Rhe−Qdi	Rfa/to−Qem+			Rvo/co−Qdi		Rvo/si−Qdi	
	Qaw												Rvo/si−Qaw	

Appendix D

Q- and R-Quotations

In the first row are the codes that the quotations are labelled with. In brackets, in the second row, are the quotations from the text data. The quotations from the six participants are mixed.

Emotional valence

Rpo	<leans forward, moves to sitting position for a short while>
Rfo	<bobbing foot up and down, moves leg>
Rha	<lifts arm, moves hand back and forth>
Rhe	<lifts head, nods, moves head slightly from side to side>
Rfa	<moves lips>
Rvo	<making a sound, whispers something incomprehensible, verbalizes>
Rpo-Qbr	<stands still, walks towards the door, leaves the room, turns away>
Rha-Qbr	<releases Mt's hand>
Rhe-Qbr	<turns head away>
Rvi-Qbr	<looks away, closes his/her eyes>
Qse	<looks very relaxed, a deep sigh, yawns>
Rpo-Qse	<sits calmly, sleeps, leans back, breathes deeply>
Rha-Qse	<hand rests>
Rhe-Qse	<leans her head against the back rest>
Rvi-Qse	<is lost in reverie, blinks sleepily with her eyes>
Rvo-Q÷	<ouch, ow, groans>
Rha-Q÷	<pushes Mt's hand away>
Rvi-Q÷	<looks angrily at Mt>
Rvo-Q÷	<"belt up, such a Kurt", "that is mean">
Q+	<having fun, seems comfortable, pleased, happy>
Rvi-Q+	<looks happily out of the window>
Rvo-Q+	<"ye-e-es"> <"yes, it is wonderful">

Receptive participation

Qpa	<is taking part, is present, is caught by the song, is moved by the music, listens, the song goes in, the text has a meaning>
Rpo/ge-Qor-obj	<moving towards the sound>
Rha-Qor-obj	<reaches out for the sound-source, reaches out for Mt's shoulder, points at window/camera, takes songbooks>
Rvi-Qor-obj	<looks in direction of the sound, looks at Mt's shoulder, looks at camera, follows Mt with her eyes>
Qre	<recognizes the melody/song/text, remembers the words, reacts to the word>
Qrem	<is listening with longing. Memories, longing, associations, memories are elicited>

Sociality

Qcl	<sitting close, being close>
Rhe-Qcl	<heads are close together, faces are close>
Qto	<physical contact>
Rfa-Q+	<smiles>
Rha-Qto	<holding hands, resting a hand on Mt's leg, strokes Mt's hand>
Rha-Qto	<touching Mt's cheek or face, putting an arm around Mt's neck, touching Mt's shoulder, pulls Mt's hand>
Qor-per	<focused at Mt, attentive to Mt, attention focused on Mt, aware of where Mt is>
Rpo-Qor-per	<turns against Mt, stops in front of Mt, sits down close to Mt, approaches Mt, leans in the direction of Mt>
Rpo/ge-Qor-per	<walks directly towards Mt>
Rha-Qor-per	<points at Mt's face, gives Mt the hearing aids/the handkerchief/the songbook>
Rvi-Qor-per	<eye contact, they look at each other, follows Mt with the eyes, looks directly at Mt>
Qim	<together they make a break, they follow the music together>
Rpo-Qim	<both straightened themselves up, Mt moves head back which participant does subsequently, 47:13 Mt takes a deep breath – 47:16 Mrs C takes a deep breath, Mt changes the way she sits – Mrs E changes the way she sits>
Rge-Qim	<Participant's soft movements are influenced by Mt's soft singing>

Active Participation

Rvo/co	<says " . . . words. . . ", comments thing going on, expresses words directly related the songs, to the therapist >
Rvo/co-Q+	<says "Yes", "This was a good song">
Rvo/tx	<sings the text, quotes several verses or lines from different songs>
Rvo/si	<sings, hums, joins the song, sings solo>
Rvo/si-Q+	<sound/timbre on the voice>
Rvo/si-Qor	<sings more and more, uses more and more words in the song, is more certain of the tune, answers more quickly in the refrain, words are clearer>
Qini	<participant is active, is taking over, is performing, is taking initiative, is leading>, <the roles have changed and Pp interrupts and changes the text>
Rvo/si-Qini	<starts on her own singing>
Rvo/imp-Qini	<puts her "own world" in a musical form, participant leads and makes syncopes, dotted rhythms, finishes the descending tune, seems to fall out of the musical frame but creates one on her own>
Qint	<decides to stop, takes eye contact to Mt in order to signify that he is aware of the song being over. Prepares himself when the song is going to end, does it clearly and with accent. Engaged and convincing. Interrupts himself and gives an explanation. Corrects and shows that she knows something about it. Forms her own meaning about the song text and underlines the meaning of the text>
Rpo/ge-Qint	<walks purposively towards Mt searching for the song/the sound>
Rhe-Qint	<bends down her head with expectation, approaches to interfere and bends back her head and then breaks into the song>
Rvo/co-Qint	<answers adequate/appropriately>

Communicative musicality

Rpo-Qbe	<leans back and forth in the rhythm, indicates the rhythm with the body, they agree on tempo with the body>
Rpo/ge-Qbe	<walks a few steps to and fro in a metre according to the song, bodily very synchronous with the rhythm>
Rfo-Qbe	<moves feet rhythmically according to the song, rocks feet in tempo, same food-rhythm as the song>
Rha-Qbe	<taps the beat>
Rvo/co-Qbe	<talks now (instead of singing) but still in the same rhythm>
Rvo/imp-Qbe	<in her own song she follows the rhythm of Mt, her voice reflects the accentuation of tempo in the tune>
Qph	<they agree on the ending of the music, he is attentive and reacts when the song is over, follows Mt's ritardando>
Rpo-Qph	<sways back when the music stops, moves her body in accordance with the phrasing of the song, leans back on the last tone>
Rfo-Qph	<follows ritardando at the end with feet>
Rha-Qph	<moves her hands in accordance with the movements of the tones, clearly follows the phrasing with gestures>
Rvi-Qph	<eye contact when the verse is over, looks at Mt when the song stops>
Rvo/si-Qph	<follows Mt in the ending of the song, breaks in at a suitable interval between two stanzas>
Rvo/imp-Qph	<the key note is clearly marked, feeling of form, period, ending, dynamic, phrasing>, <is capable of returning and ending in form>
Qpi	<in same tone, hits a kind of key note, she strikes the right note>
Rvo/si-Qpi	<hums the tune in pitch most of the time, sings in pitch, catches the tune, adds melody>

Dialogue

Qinti	<nearness, a special connection, common focus, sharing a "secret", fellowship of intimate and concentrated quality, the familiarity and confidence is large and warm, emotional involvement, a feeling of sharing, humour>
Rha-Qinti	<hand movements reflect intimacy in the contact, strokes Mt's cheek, pats Mt's hair>
Rfa-Qinti	<facial expression reflects intimacy in the contact>
Rvi-Qinti	<looks at me with a twinkle in his eyes>
Qem	<He is sad, gloomy, has a lump in his throat. She speaks in a dynamic/intensive way, stressing the words. Power, energy, vigour, temperament, substantial timing, charisma, Affect attunement>
Rfa-Qem	<his face shows seriousness, he blinks/tears in his eyes>
Rfa/vo-Qem+	<laughs, guffaws, chuckles>
Rfa/to-Qem+	<kisses Mt's hand>
Rvo/si-Qem÷	<joins in the song in a screaming voice>
Rvo-Qem	<whines>
Rvi-Qem	<tenderness is shown through eye contact, he addresses himself directly to Mt, he thanks for the music, makes comments on the song, he tries to read Mt's response, dialogue at a conscious level, call/response situation, a feeling of being able to give something to another person.>
Rha-Qdi	<waves goodbye. Playing: "threatens" Mt with her fist while laughing>
Rhe-Qdi	<gives Mt a nod, says hello by nodding>
Rvo/co-Qdi	<can ask a question, answers Mt's question, gives an explanation on the song text, makes a fairytale-like speech addressed directly towards another person, "Here you are" (*gives Mt some sweets*)>
Rvo/si-Qdi	<asks his question by singing>
Qaw	<both know what is going to happen>
Rvo/si-Qaw	<he sings an exceedingly relevant question about the music therapy going to stop, in singing he asks when music therapy is going to stop. He manifests to have remembered that Mt will come for the last time>

Abbreviations used in the tables in the next appendices

R (Response)

Postural	*Gestural*	*Foot*	*Hand*	*Head*	*Facial*	*Visual*	*Vocal*	*/comment*	*/text*	*/singing*	*/improvising*
po	**/ge**	**fo**	**ha**	**he**	**fa**	**vi**	**vo**	**/co**	**/tx**	**/si**	**/imp**

Q (Quality of Response)

Clip 1 − Mr X		**po /ge fo ha he fa vi vo /co /tx /si /imp**
Emotional valence	R	Response
	Qbr	Break
	Qse	Sedative
	Q+/ Q−	Positive / Negative
Participation (Receptive)	Qpa	Participation
	Qor	Orientation
	Qor−obj	Orientation towards an object
	Qre	Recognition
	Qrem	Reminiscence
Sociality	Qcl	Being close
	Qto	Touching
	Qor−per	Orientation towards a person
	Qim	Imitating
Participation (Active)	R/co/tx/si/imp	Response /comment / text / singing / improvising
	Qini	Initiative
	Qint	Intentionality
Communica− tive musicality	Qbe	Beat
	Qph	Phrase
	Qpi	Pitch
Dialogue	Qinti	Intimacy
	Qem	Emotionality
	Qdi	Dialogue
	Qaw	Awareness of relation

Appendix E

Matrices - selected clips

Matrices showing response and quality of response in clip 1 – clip 8

Clip 1 − Mr A		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R		1	1 1 2	
	Qbr			2	
	Qse				
	Q+	**3**			
Participation (Receptive)	Qpa	**3**			
	Qor	1			
	Qor−obj				
	Qre				
	Qrem				
Sociality	Qcl			**3** **10**	
	Qto			**7**	
	Qor−per	1		**13**	
	Qim			1 1	
Participation (Active)	R/co/tx/si/imp				**4** 2 **3**
	Qini	1			2 **4**
	Qint			**3**	
Communica− tive musicality	Qbe		2	**5** **5**	1 1
	Qph	**3**			
	Qpi				
Dialogue	Qinti	**3**		1 1 1	
	Qem			1	
	Qdi	1		1	**7**
	Qaw				**3**

Clip 2 − Mrs F		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R				
	Qbr		2	**5** 2 **7**	
	Qse	2	**9**		
	Q+		1		
Participation (Receptive)	Qpa	**3? 5**			
	Qor	1?			
	Qor−obj	1? **4**	2 **3**	**5** **3**	
	Qre	1? 2			
	Qrem	1			
Sociality	Qcl		**3**		
	Qto			**3**	
	Qor−per	**5**	**7** **5**	1 **3** **6**	
	Qim		1		
Participation (Active)	R/co/tx/si/imp				
	Qini				
	Qint		1		
Communica− tive musicality	Qbe	1	2 1?,1		
	Qph		**5** **3**	1	
	Qpi				
Dialogue	Qinti				
	Qem				
	Qdi				
	Qaw				

Clip 3 − Mr B		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R			**3**	**8**
	Qbr	1		**5** 1 **13**	
	Qse	1		**5**	
	Q+				
Participation (Receptive)	Qpa	**4**			
	Qor	1			
	Qor−obj	2		**12?3** 1	
	Qre	2			
	Qrem				
Sociality	Qcl	1			
	Qto			**12**	
	Qor−per	2		1 **11**	
	Qim	2			
Participation (Active)	R/co/tx/si/imp				**17**
	Qini				
	Qint				
Communica− tive musicality	Qbe	**6**	1	**9**	
	Qph				
	Qpi				
Dialogue	Qinti	2			
	Qem	**3**			
	Qdi				1
	Qaw				

Clip 4 − Mrs E		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R		**3**		
	Qbr				
	Qse				
	Q+	**5**			
Participation (Receptive)	Qpa	**3**			
	Qor	**3**			
	Qor−obj				
	Qre				
	Qrem				
Sociality	Qcl				
	Qto				
	Qor−per	1		1	
	Qim				
Participation (Active)	R/co/tx/si/imp				1,**4** **8,11**
	Qini				**7**
	Qint				
Communica− tive musicality	Qbe		**6**		**4**
	Qph	1	**3**	1	1
	Qpi				1
Dialogue	Qinti	**3**			
	Qem			**4**	
	Qdi	**5**			
	Qaw				

Clip 5− Mrs C		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R				2
	Qbr				
	Qse				
	Q+	1			
Participation (Receptive)	Qpa	**9**			
	Qor	2			
	Qor−obj				
	Qre	2			
	Qrem				
Sociality	Qcl			**5**	
	Qto			**4**	
	Qor−per			**8**	
	Qim				
Participation (Active)	R/co/tx/si/imp				**9** **11** **18**
	Qini				**7**
	Qint	1			
Communica− tive musicality	Qbe	**4**			**3**
	Qph				**11**
	Qpi	**5**			
Dialogue	Qinti				
	Qem				
	Qdi				
	Qaw				

Clip 6 − Mr A		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R		6 12	2 **6** 1	
	Qbr			**8**	
	Qse		4		
	Q+	**17**			
Participation (Receptive)	Qpa	2? **9**			
	Qor	**9**			
	Qor−obj				
	Qre				
	Qrem	1			
Sociality	Qcl				
	Qto	2		**5** **4** **13**	
	Qor−per			2 **14**	
	Qim		3		
Participation (Active)	R/co/tx/si/imp				
	Qini	**4**			
	Qint			1	
Communica− tive musicality	Qbe	**3**	2 15	**4** **6**	
	Qph	**6**	4	2 **6** **5**	
	Qpi				
Dialogue	Qinti	**10**			
	Qem			**3, 9**	
	Qdi	**3**			
	Qaw				

Clip 7 − Mrs D		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R				
	Qbr				
	Qse				
	Q+				
Participation (Receptive)	Qpa	**4**			
	Qor	1			
	Qor−obj				
	Qre	**3**			
	Qrem	**4**			
Sociality	Qcl				
	Qto				
	Qor−per		**3**	**7**	
	Qim				
Participation (Active)	R/co/tx/si/imp				**9** **4,5**
	Qini	**13**			
	Qint	**6**			
Communica− tive musicality	Qbe	2			
	Qph				**8**
	Qpi				**4**
Dialogue	Qinti	**3**			
	Qem	**8**		**7**	
	Qdi				**7**
	Qaw				

Clip 8 − Mrs D		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R		1	1 1	
	Qbr				
	Qse				
	Q+				
Participation (Receptive)	Qpa	**5**			
	Qor	**4**			
	Qor−obj				
	Qre				
	Qrem				
Sociality	Qcl			**4**	
	Qto			2	
	Qor−per			**4**	
	Qim	1			
Participation (Active)	R/co/tx/si/imp				**4** 1
	Qini				
	Qint	**4**		1	
Communica− tive musicality	Qbe	2		**7**	
	Qph	**4**			**3**
	Qpi				
Dialogue	Qinti	2			
	Qem	**9**			
	Qdi	1			**8**
	Qaw	1			

Appendix F

Matrices - selected examples

Matrices showing response and quality of response in selected examples from the case studies

Mr A Ex 1		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R		1 2	3 4	3
	Qbr				
	Qse				
	Q+				
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj			4 1	
	Qre				
	Qrem				
Sociality	Qcl				
	Qto			2	
	Qor−per			2	
	Qim				
Participation (Active)	R/co/tx/si/imp				6 8
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti			4	
	Qem				1
	Qdi			1	12
	Qaw				

Mr A Ex 2		Q	po	/ge	ge	fo	ha	he	fa	vi	vo	/co	/tx	/si	/imp
Emotional valence	R					4	1	10	1		21				
	Qbr									7					
	Qse		11							1					
	Q+														
Participation (Receptive)	Qpa														
	Qor														
	Qor−obj														
	Qre														
	Qrem														
Sociality	Qcl								11						
	Qto														
	Qor−per		1							17					
	Qim														
Participation (Active)	R/co/tx/si/imp										2				
	Qini														
	Qint														
Communica− tive musicality	Qbe						1								
	Qph														
	Qpi														
Dialogue	Qinti		1				1			1					
	Qem								5						
	Qdi														
	Qaw														

Mr A Ex 3		Q	po	/ge	ge	fo	ha	he	fa	vi	vo	/co	/tx	/si	/imp
Emotional valence	R					9	2	10	1		14				
	Qbr														
	Qse		7												
	Q+									1					
Participation (Receptive)	Qpa	1													
	Qor														
	Qor−obj						1								
	Qre														
	Qrem														
Sociality	Qcl								16						
	Qto						5								
	Qor−per		1							18					
	Qim														
Participation (Active)	R/co/tx/si/imp													1	
	Qini														
	Qint														
Communica− tive musicality	Qbe							1							
	Qph														
	Qpi														
Dialogue	Qinti														
	Qem								5						
	Qdi														
	Qaw														

Mr B − Ex 1		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R Qbr Qse Q+				
Participation (Receptive)	Qpa Qor Qor−obj Qre Qrem				
Sociality	Qcl Qto Qor−per Qim			1 2 1	
Participation (Active)	R/co/tx/si/imp Qini Qint				
Communica− tive musicality	Qbe Qph Qpi				
Dialogue	Qinti Qem Qdi Qaw				

Mr B − Ex 2		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R Qbr Qse Q+		8	4 1 2	4
Participation (Receptive)	Qpa Qor Qor−obj Qre Qrem			4	
Sociality	Qcl Qto Qor−per Qim		3 1	1 10 1 1	
Participation (Active)	R/co/tx/si/imp Qini Qint				
Communica− tive musicality	Qbe Qph Qpi			2? 1?	
Dialogue	Qinti Qem Qdi Qaw			4	2

Mr B − Ex 3		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R			2 1	10
	Qbr				
	Qse		10	8	
	Q+				
Participation (Receptive)	Qpa	1			
	Qor				
	Qor−obj			1	
	Qre				
	Qrem				
Sociality	Qcl			1	
	Qto			15	
	Qor−per		1	1 1 7	
	Qim				
Participation (Active)	R/co/tx/si/imp				1
	Qini				
	Qint				
Communica− tive musicality	Qbe			1+1?	
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem			3+1	
	Qdi				
	Qaw				

Mrs C − Ex 1		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R				
	Qbr			15	
	Qse		1		
	Q+			1− 1−	
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj			1 1	
	Qre				
	Qrem				
Sociality	Qcl			1+	
	Qto				
	Qor−per		4	3 7	
	Qim		1		
Participation (Active)	R/co/tx/si/imp				
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem			1	
	Qdi				
	Qaw				

Mrs C − Ex 2		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R Qbr Qse Q+		2	6	28
Participation (Receptive)	Qpa Qor Qor−obj Qre Qrem			2	
Sociality	Qcl Qto Qor−per Qim			1+ 1	
Participation (Active)	R/co/tx/si/imp Qini Qint				2 2
Communica− tive musicality	Qbe Qph Qpi				
Dialogue	Qinti Qem Qdi Qaw			6 1	2 3

Mrs C − Ex 3		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R Qbr Qse Q+	1	1	10	29
Participation (Receptive)	Qpa Qor Qor−obj Qre Qrem				
Sociality	Qcl Qto Qor−per Qim			2 2	
Participation (Active)	R/co/tx/si/imp Qini Qint			1	3 3
Communica− tive musicality	Qbe Qph Qpi				
Dialogue	Qinti Qem Qdi Qaw			14	5

Mrs D − Ex 1		Q	po	/ge	ge	fo	ha	he	fa	vi	vo	/co	/tx	/si	/imp
Emotional valence	R							1			4				
	Qbr									12					
	Qse		4							6					
	Q+														
Participation (Receptive)	Qpa														
	Qor														
	Qor−obj														
	Qre														
	Qrem														
Sociality	Qcl								1						
	Qto							1							
	Qor−per		1					1		1					
	Qim														
Participation (Active)	R/co/tx/si/imp										8		3		
	Qini														
	Qint														
Communica− tive musicality	Qbe														
	Qph														
	Qpi														
Dialogue	Qinti											1−			
	Qem										3−			1−	
	Qdi											2			
	Qaw														

Mrs D − Ex 2		Q	po	/ge	ge	fo	ha	he	fa	vi	vo	/co	/tx	/si	/imp
Emotional valence	R							17			35				
	Qbr														
	Qse		1												
	Q+														
Participation (Receptive)	Qpa	2													
	Qor														
	Qor−obj														
	Qre														
	Qrem														
Sociality	Qcl								3+						
	Qto														
	Qor−per														
	Qim														
Participation (Active)	R/co/tx/si/imp											27	13	29	1
	Qini													1	
	Qint														
Communica− tive musicality	Qbe						1								
	Qph														
	Qpi													1	
Dialogue	Qinti														
	Qem								5						
	Qdi										3				
	Qaw														

Mrs D − Ex 3		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R			1 9	21
	Qbr				
	Qse		1		
	Q+				
Participation (Receptive)	Qpa	1			
	Qor				
	Qor−obj				
	Qre				
	Qrem				
Sociality	Qcl				
	Qto			5+	
	Qor−per				
	Qim				
Participation (Active)	R/co/tx/si/imp				19 10 26
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem			3	1
	Qdi				
	Qaw				4

Mrs E − Ex 1		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R		9	1	38
	Qbr				
	Qse		2	1	
	Q+				
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj				
	Qre				
	Qrem				
Sociality	Qcl				
	Qto			3+	
	Qor−per			2	
	Qim		1	1	
Participation (Active)	R/co/tx/si/imp				4 3
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem				
	Qdi				
	Qaw				

Mrs E − Ex 2		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R		1	2	12
	Qbr			5	
	Qse				
	Q+				
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj				
	Qre				
	Qrem				
Sociality	Qcl			1+	
	Qto				
	Qor−per			1 2	
	Qim		1		
Participation (Active)	R/co/tx/si/imp				6− 2
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem				
	Qdi				1
	Qaw				

Mrs E − Ex 3		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R		14	2 2	22
	Qbr			3	
	Qse				
	Q+				
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj				
	Qre				
	Qrem				
Sociality	Qcl			1 7+	
	Qto				
	Qor−per			1 5	
	Qim		1		
Participation (Active)	R/co/tx/si/imp				
	Qini				
	Qint				
Communica− tive musicality	Qbe		3		
	Qph		1	1	
	Qpi				
Dialogue	Qinti				
	Qem			6	
	Qdi				
	Qaw				

Mrs F − Ex 1		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R			1	88
	Qbr		9		
	Qse		14		
	Q+				
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj			2	
	Qre				
	Qrem				
Sociality	Qcl				
	Qto			16	
	Qor−per		6	1	
	Qim				1
Participation (Active)	R/co/tx/si/imp				
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem				
	Qdi				
	Qaw				

Mrs F − Ex 2		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R			1	87
	Qbr		29		
	Qse		11		
	Q+				
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj			1	
	Qre				
	Qrem				
Sociality	Qcl				
	Qto			19	
	Qor−per		10	2	
	Qim				
Participation (Active)	R/co/tx/si/imp				
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem				
	Qdi				
	Qaw				

Mrs F − Ex 3		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R				3
	Qbr		33		
	Qse		3		
	Q+				
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj			1	
	Qre				
	Qrem				
Sociality	Qcl				
	Qto			12	
	Qor−per		1	1	
	Qim				
Participation (Active)	R/co/tx/si/imp				
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem				
	Qdi				
	Qaw				

Mrs F − Ex 4		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R				13
	Qbr		14	3	
	Qse		4		
	Q+				
Participation (Receptive)	Qpa				
	Qor				
	Qor−obj				
	Qre				
	Qrem				
Sociality	Qcl				
	Qto			12	
	Qor−per		2	1	
	Qim				
Participation (Active)	R/co/tx/si/imp				
	Qini				
	Qint				
Communica− tive musicality	Qbe				
	Qph				
	Qpi				
Dialogue	Qinti			1	
	Qem				
	Qdi				
	Qaw				

Appendix G

Tables

Cohen-Mansfield Agitation Inventory (CMAI)

(modified version, Gerontopsyk. Risskov, DK used at Nursing Home Caritas)

Please read each of the 29 descriptions of agitated behaviour and mark how frequent they occurred in the patient in the last 24 hours.

1. not at all
2. less than once a day
3. once or twice a day
4. three to six times a day
5. once or twice an hour
6. more than twice an hour
7. very often during an hour

		in last 24 hours				an hour		
		%	<1	1-2	3-6	1-2	>2	∞
	Physically Aggressive							
1	Hitting	1	2	3	4	5	6	7
2	Kicking	1	2	3	4	5	6	7
3	Grabbing	1	2	3	4	5	6	7
4	Pushing	1	2	3	4	5	6	7
5	Throwing things	1	2	3	4	5	6	7
6	Biting	1	2	3	4	5	6	7
7	Scratching	1	2	3	4	5	6	7
8	Spitting	1	2	3	4	5	6	7
9	Hurting one self	1	2	3	4	5	6	7
10	Tearing up or destroying belongings	1	2	3	4	5	6	7
11	Making advances	1	2	3	4	5	6	7
	Physically Non-Agressive							
12	Pacing	1	2	3	4	5	6	7
13	Inappropriate dressing/undressing	1	2	3	4	5	6	7
14	Escaping protected environment	1	2	3	4	5	6	7
15	Falling purposely	1	2	3	4	5	6	7
16	Eating/drinking odd things	1	2	3	4	5	6	7
17	Inappropriate handling	1	2	3	4	5	6	7
18	Shadowing	1	2	3	4	5	6	7
19	Hoarding	1	2	3	4	5	6	7
20	Repetitive mannerisms	1	2	3	4	5	6	7
21	General restlessness	1	2	3	4	5	6	7
	Verbally Aggressive							
22	Screaming/temper outbursts	1	2	3	4	5	6	7
23	Socially inappropriate commentary	1	2	3	4	5	6	7
24	Cursing	1	2	3	4	5	6	7
	Verbally Non- Aggressive							
25	Repetitive sentences	1	2	3	4	5	6	7
26	Chanting	1	2	3	4	5	6	7
27	Constant interruptions	1	2	3	4	5	6	7
28	Negativism	1	2	3	4	5	6	7
29	Constant request for attention	1	2	3	4	5	6	7

The six participants

	A	B	C	D	E	F
Sex	M	M	F	F	F	F
Age	83	76	80	83	84	73
Diagnose	Dementia of Alz's type	Dementia of Alz's type	Dementia vascular	Dementia vascular	Dementia vascular (frontal)	Dementia of Pick's type
MMSE	2-6	0	0	5	3	0
Resident since .. (other home)	Feb.1999	Jan. 1998 (1995)	1997	June 1999 (1998)	Sept 1996 (1995)	Dec. 1999
Med.	÷	÷	Risp 1/2 Cipr. 1/2 29-9-00: ÷Cipr.	Risp 1/2 Zol. 29-9-00: +Rem. ÷Zol	Trilafon 8mg	Risp 1 1/2mg 8-1-00: ÷ Risp
Material status	widower	married	married	widow	widow	widow
Children (sist. and brothers)	3 (4)	4 (2)	2 (7)	3 (5)	4 (7)	0 (4)
Music in former life	÷	Accordeon	Folk-dancing	Singing	Singing	÷
Hearing aid	++			(++)		
Stage (1-7) (Reisberg)	6 verbal	7	7	6 verbal	6 verbal	7
CMAI $(x) < 2$	phys.agg (x) ∼non.agg (x) verb.agg (x) ∼non.agg (x)	phys.agg (x) ∼non.agg x verb.agg ∼non.agg	phys.agg (x) ∼non.agg x verb.agg x ∼non.agg	phys.agg x ∼non.agg x verb.agg x ∼non.agg x	phys.agg (x) ∼non.agg (x) verb.agg x ∼non.agg x	phys.agg x ∼non.agg x verb.agg x ∼non.agg x
Comments	Is thankful towards staff when being helped, but aggressive toward other residents. Stays in own room, puts things in order. Is angry, insecure, when things "disappear".	Ambulates quietly at the unit, often hand in hand with Mrs C. Rolls up trousers leg. Moves furniture. Aggressive when dressing, bathing, etc.	Sitting with her eyes closed, or ambulating, often hand in hand with Mr B. Aggressive when dressing, bathing, etc. "Word salad". Do not recognise family	Very poor vision in both eyes. Relevant talk. Often very angry, sholding, appealing, crying "help". Recognises own children and few staff. Eats, drinks without help.	Capable of holding conversation with "clichés". Recognises some family members. Often angry, condescending, scolding.	Agitated, desperate, trying to get away, ambulating, difficult to get in contact with. Repeats same two words. Acquires assistance in all ADL.

Antidepressants: Cipramil (Citalopram), Zoloft(Sertralin), Remoron

Antipsychotics: Risperdal (Risperidon), Trilafon(Perphenazin)

Questionnaire

Date ____

To be completed by staff at the end of day duty

1	Number of staff on duty in group y	
2	Number of "contact" staff in group y	
3	Number of "new" staff in group y	
4a	Mrs D was awake at ____ o'clock	
4b	Mrs D was woken up at ____ o'clock	
5	Time for bath	
6	Time for breakfast	
7	Time for physiotherapy	
8	Time for activity (which _____)	
9a	Time for visit (children ____ grandchildren ____ others____)	
9b	Time for rest	

Tick the appropriate box, one in each line

	During the day Mrs D ...	*Not at all*	*Once*	*2-3 times*	*Often*	*All the time*	*Do not know*
10	seemed comfortable						
11	hummed/sang/whistled						
13	initiated talks						
14	told about relevant events						
15	sat calmly in group recess						
16	had good appetite for dinner						
17	had pos. contact with other res.						
18	had a good time in the lounge						
19	slept/dosed in her chair						
20	was appealing or condescending						
21	had delusions						
22	was disturbing other residents						
23	caught at other residents						
24	scold at other residents						
25	scold at or opposed staff						
26	hit						
27	screamed or yelled						
28	was regretful						
29	cried						
30	(other)						

31	Mrs.D's state of health is	good	☐	stable	☐	bad	☐	
32	Mrs. D's medication is	the same	☐	changed	☐	increased	☐	decreased ☐

33 Are there any tings or events that have had influence on Mrs D today? if yes which?

Comments to the questionnare

☐ tick in numbers or time. Or “no” if the activity did not take place.
☐ tick only ONCE in each line

2: ’contact’ staff: staff that are listed at the plan of the day as belonging in group y

3: ’new’ staff: a new staff member, student employee, or substitute that is not familiar with the residents and the daily routines

4a/4b: just chose one of the possibilities

8: it is not necessary to note individual music therapy

16: had good appetite for dinner. Use the categories 1) not at all, 2) a little, 3) normal, 4) good, 5) extraordinarily good

18: with ”had a good time in the lounge” is understood that Mrs D stayed in the lounge without disturbing and seemed to enjoy being there

Appendix H

English summary

Singing Dialogue.
Music therapy with persons in advanced stages of dementia. A case study research design

Hanne Mette Ridder

PhD-thesis, Aalborg University, Institute for Music and Music therapy. 2003.
Supervision by: David Aldridge, chair of qualitative research, University of Witten-Herdecke, Germany, and Inge Nygaard Pedersen, Musikterapiklinikken, Aalborg Psychiatric Hospital, Aalborg University, Denmark.

Background issues for the clinical approach

Dementia is synonymous with deficits and losses and is in this material described as a dialogic degenerative disease (Aldridge 2001a). It becomes difficult for the person with dementia to perceive environmental information, to express basic needs, and to feel recognized and understood. This can lead to isolation, resulting in serious secondary symptoms of dementia.

In a number of cases of persons suffering from Alzheimer's disease, e.g. the case of Johann F. described by A. Alzheimer in 1911, it is seen that procedural memory and certain musical aspects of language such as syntax, fluency, phonology, morphology, intonation, and rhythm are preserved longer than e.g. episodic and semantic memory function in the degenerative process of the disease.

The dementia syndrome is characterized by cognitive, behavioural, and psychological symptoms. Part of the symptoms are not directly related to the dementia disease, but related to the difficulty in fulfilling psychosocial needs. BPSD (behavioural and psychological symptoms of dementia) might be expressed as secondary symptoms in burnt-out states or catastrophic reactions. If psychosocial needs are fulfilled, extreme states of burnt-out or catastrophic reactions might be avoided. By adjusting the communication with the person suffering from dementia focussing on nonverbal components, on adaptation of environment and stimuli, and on attitude, expectations, and demands, it might be possible via the communication to fulfil psychosocial needs.

Based on a literature review of 75 studies (Ridder 2002a) – describing music activities or music therapy with persons with dementia – 4 functions of music are set up that reflect

different categories of approaches. The music is seen to have an overall evaluative, regulative, stimulative, and communicative function, where there in the literature especially is a focus on stimulative and regulative approaches. From the studies, where different implementations and settings with more than 800 persons with dementia are described, it is clear that the use of music in dementia care is effective and generally increases quality of life. There seem to be a growing interest in the communicative function of music, especially in European studies.

In music therapy literature singing is described as a valuable therapeutical technique that can be adapted to levels of functioning and is documented to have positive effect on various aspects such as oxygen uptake, immune defence, stress, agitation, social behaviour, relaxation, language function, cognition, participation, periods of lucidity, feeling of identity, and reminiscence. Singing is further described to provide an avenue for interpersonal interaction, expression of emotions, feeling of being held, ability to contain emotions, meeting needs, and psychodynamic work. Singing is closely related to intrinsic musical communication which seems important to persons suffering a dialogic degenerative disease.

The epistemological approach to clinical aspects in the music therapy setting is a social-pragmatic understanding of communication and dialogue, seeing dialogue as a three part exchange, where one subject expresses him/herself with signs and is understood by another subject. The focus is on a psychological and pragmatic understanding of linguistic, paralinguistic, and nonverbal messages.

Dialogue and communication is described to be dependent of levels of arousal, and the so-called Yerkes-Dodson law describes performance as optimal at medium levels of arousal. This law as well as the arousal construct has certain weaknesses, but is usable in describing extreme states, and in dementia care it offers a clear model for planning activities or therapy. A person in a hyper-aroused state shows little environmental attention and is unable to communicate effectively with others. At a certain point physical exhaustion leads the person to a hypo-aroused state, until the person again shoots to levels of very high arousal. With no or only short periods of a “balanced” arousal level, where the person has most possibilities for perceiving environmental stimuli and entering into dialogue, it is difficult to fulfil psychosocial needs. Achieving a balanced arousal level is possible by using moderate stimuli and contextual or symbolic cues. Moderate stimuli balance between e.g. new and familiar, fast and slow, loud and quiet, and trivial and intense.

Background issues for the research method

A distinction is made between open and closed systems being determinant to the methodological approach. Based on ideas of Colin Robson’s ”Real world research” (2002) the terms fixed and flexible designs are use to describe strategies for processing quantitative and qualitative data. Case study approaches are described distinguishing between case study strategies as a) a helping discipline, b) an independent methodology, and c) basic science, followed by short introductions to ethnography and grounded theory. At last issues concerning interpretation, ethics, credibility and validity are described, and among these four types of triangulation (data-, observer-, methodological-, and theory triangulation).

Purpose

The purpose of the study is to propose a non-pharmacological approach intending a higher quality of life and fulfilment of psychosocial needs in persons suffering from dementia in advanced stages. In dementia care focus has been on aetiology, diagnosis, and optimal physical nursing, and remarkable steps have been taken in order to improve care. During the last

decade dementia seems to be reconsidered, and a humanistic, person-centred approach has gained a footing, adding new values and qualities to dementia care. Clinical music therapy and music therapy research is a growing and valuable field, and seems to add vital qualities of life to persons suffering from dementia.

Method

The method is a flexible mixed-method design using physiological data to validate observational data in a case study research design, approached both ethnographically and by means of grounded theory using ATLAS.ti as qualitative research software for the analysis and administration of transcribed data.

Participants

6 persons between 73-84 years, living in a gerontopsychological care unit, and suffering from dementia in advanced stages each take part in 20 individual music therapy sessions. In the cognitive test, MMSE, the participants score between 0-5 points (out of 30), and in the functional assessment staging, FAST, all 6 participants are observed to be on stage 6 (out of 7). The Cohen-Mansfield agitation inventory, CMAI, describe all participants to show *physical aggressive* and *physical non-aggressive* agitated behaviour.

Data

I here distinguish between primary and secondary data, where the primary data are the 'raw' data, and the secondary data are the processed data. The primary data are video recordings of 20 daily music therapy sessions with the 6 participants, and five-second-interval heart beat measurements measured for 30 minutes 5 days before and after the month with music therapy, as well as measurements during all music therapy sessions. Staff completed questionnaires twice a day during all 6 weeks for each participants, and the music therapist wrote down informal subjective observations shortly after each session. Medical charts, health records, and background information about each participant additionally served as primary data. Secondary data consisted of video data transcripts, heart rate (HR) data in session-graphs, HR pre/post data graphically displayed, reduction of video data to 8 short clips for external assessors, and transcripts of external assessor's observations.

The clinical setting

The overall focus of this work is on the use of familiar songs in individual music therapy. The music therapy sessions are held daily and last about 25 minutes. The purpose of the music therapy is to create the framework for a safe setting for the residents, where there is a focus on remaining abilities and resources. In such a setting we can trace and choose personal meaningful songs, offer contact, accept, and understanding, which in turn enables communication and dialogue.

Each session is built up with a certain composition with structure-songs, a regulation-part, and a dialogue-part. The first step is to 1) focus attention of the participant, then to 2) regulate the arousal level towards environmental attention, in order to enable 3) dialogue. A fourth step is to 4) conclude the therapy session.

6 case studies and hermeneutic analysis of response

Each case study is treated separately, but all 6 case studies follow the same structure. A profile is given of the participant before an evaluation of the music therapy process, where the focus is on compliance, carry-over effect, regulation, and communicative signals. The observations are validated with HR data, event coding and pattern-matching graphically displayed.

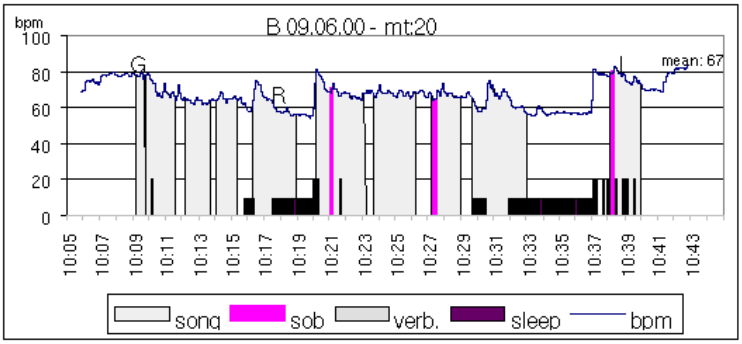


Figure H.1: Example of a session-graph from session 20 with Mr B

Then follows a chapter with in-depth analyses of selected video clips. These analyses are done by 5 external assessors, and subsequently transcripts are processed by means of the computer programme ATLAS.ti that is based on principles from grounded theory. Responses given by participants are coded, structured, and labelled. The labels of *quality of response* are equally structured and organised in code families. The result of this is a coding tool that suggests a catalogue of responses and their qualities, which reveals different layers of communication. This coding tool is applied on the selected video clips and to given examples from the case studies and shows that all six participants engage themselves in the music therapy according to their possibilities and resources. When the communication occurs at an intensive level, e.g. in a dialogue, more aspects seem to further the communication. One aspect is the person's ability to perceive a "message" in order to respond. The six participants in periods perceive and respond at a higher degree, when their arousal level is neither too high nor too low, which enables them to enter into dialogue.

Results

Based on the hypotheses that approach the focus of research from different angles is concluded that...

- Singing has a positive influence on the 6 participants suffering from dementia in advanced stages. This influence is defined by degree of compliance, by changes in heart rate levels, and by various ways of taking part in the music therapy.

- The six participants communicate responsively and this communication can be recognised by a system of communicative signs, representing different levels of communication: emotional valence, receptive participation, sociality, active participation, communicative musicality, and dialogue. There exists a relationship between a balanced arousal level and communication at more intensive levels for all six participants.

- In 5 of 6 concrete cases music therapy shows an influence on aspects in residential daily life, defined in a statistical significant decrease in heart rate levels pre/post therapy, for persons with dementia in advanced stages showing agitated behaviour.

Mr B − Ex 3		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R			2 1	10
	Qbr				
	Qse		10	8	
	Q+				
Participation (Receptive)	Qpa	1			
	Qor				
	Qor−obj			1	
	Qre				
	Qrem				
Sociality	Qcl			1	
	Qto			15	
	Qor−per		1	1 1 7	
	Qim				
Participation (Active)	R/co/tx/si/imp				1
	Qini				
	Qint				
Communica− tive musicality	Qbe			1+1?	
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem			3+1	
	Qdi				
	Qaw				

Table H.1: Example of a coding matrix from session 20 with Mr B.

Clinical applicability

As a regulative activity the music therapy increases quality of life to the person with dementia, and as an implementation that enables communication at various levels, the music therapy gives a possibility for working psychodynamically, bringing curative change to secondary symptoms of dementia.

During music therapy we see changes in heart rate, as well as a carry-over effect from *before* to *after* the whole therapy course. From the case studies it is clear that these changes not happen from the very first session, and that some participants need several sessions before they are familiar with the structure (built up with stability and cues) and respond with changes in emotional valence, by participation, sociality or other levels of communication. The participants seem to benefit from the high frequency of sessions and based on this, *daily* sessions are suggested in the initial phase of a therapy course or if a participant in periods shows agitated behaviour.

As a model for the composition of a music therapy session, as well as for a whole therapy course, the following 4 steps are suggested: 1) Focus attention (by means of stability and cues) 2) Regulate the arousal level (by means of musical and social elements) 3) Offer possibilities for entering into dialogue (by means of nonverbal and para-linguistic signals) 4) Conclude (by means of stability and cues)

This material does not present a catalogue of songs with defined effects, but implies a person-centred approach where the music therapist in each situation must assess – implicitly or explicitly – how the participant responds to the song; if the song catch (or does not catch) the person, has a sedating and stimulating function, is too demanding, or elicits reminiscences

or feelings.

The music and the songs in the therapy are used with different functions in order to regulate, stimulate, and communicate. This implies an understanding of communication at a social-pragmatic level, where dialogue is not seen as only an exchange of words with a particular semantic meaning. Music therapists are trained in focussing on musical communication, which is nonverbal and para-linguistic communication, and may contribute to dementia care with valuable approaches.

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Appendix I

Dansk resumé

Sange i dialog.
Musikterapi med svært demensramte personer.
Et casestudie forskningsdesign

Hanne Mette Ridder

Ph.d.-afhandling, Aalborg Universitet, Institut for Musik og Musikterapi. 2003.
Vejledere: David Aldridge, professorat i kvalitativ forskning, Witten-Herdecke Universitet, Tyskland, samt Inge Nygaard Pedersen, Musikterapiklinikken, Aalborg Psykiatriske Sygehus, Aalborg Universitet, Danmark

Indfaldsvinker til det kliniske arbejde

Demens er synonymt med både kognitive og sociale tab og er i dette materiale beskrevet som en kommunikativ degenerativ lidelse eller dialogic degenerative disease (Aldridge 2001). For den demensramte bliver det vanskeligt at omsætte sanseinformationer, at udtrykke grundlæggende behov og at føle sig anerkendt og forstået. Det kan føre til isolation og medføre betydelige sekundære symptomer på demens sygdommen.

I et antal casebeskrivelser omhandlende personer med Alzheimers sygdom, f.eks. Johann F.'s case beskrevet af A. Alzheimer i 1911, er den procedurale hukommelse og visse musikalsk sproglige aspekter så som syntaks, retorik, fonologi, morfologi, intonation og rytme bevaret længere end f.eks. episodiske og semantiske hukommelsesfunktioner i den degenerative sygdomsproces.

Demenssyndromet kan karakteriseres ved kognitive, adfærdsmæssige og psykologiske symptomer. En del af symptomerne er ikke direkte relateret til demenssygdommen, men relateret til vanskelighederne ved at få psykosociale behov opfyldt. BPSD (behavioural and psychological symptoms of dementia) kan udtrykke sig som sekundære symptomer ved tilstande af udbrændthed og panikreaktioner. Hvis psykosociale behov opfyldes kan ekstreme tilstande af udbrændthed og panikreaktioner forhindres. Ved at justere kommunikationen til den demensramte med fokus på nonverbale udtryksformer, på tilpasning af omgivelser og stimuli samt på holdninger, forventninger og krav er der mulighed for at opfylde psykosociale behov via kommunikationen.

På baggrund af et litteraturstudie af 75 undersøgelser (Ridder 2002a), som beskriver

musikaktiviteter og musikterapi med demensramte, kan musikken beskrives som havende 4 overordnede funktioner der afspejler forskellige indfaldsvinkler til det kliniske arbejde. Generelt kan det siges at musikken har en evaluerende, regulerende, stimulerende og kommunikativ funktion, hvor der i litteraturen specielt er fokus på de stimulerende og regulerende indfaldsvinkler. Fra litteraturmaterialet, hvor diverse aktiviteter og tiltag med mere end 800 demensramte beskrives, fremgår det at brugen af musik i demensomsorgen er virkningsfuld og generelt øger livskvaliteten. Der ses en øget interesse i musikkens kommunikative funktion, især i nyere europæiske studier.

I litteraturmaterialet beskrives sang som en værdifuld musikterapeutisk teknik som kan tilpasses den enkeltes funktionsevner, og som har positiv effekt på iltoptagelse, immunforsvar, stress, agiteret adfærd, social adfærd, afspænding, sprogfunktion, kognition, deltagelse, klarhedsøjeblikke, identitetsfølelse og reminiscens. Det beskrives at sang åbner muligheden for interpersonel interaktion, følelsesmæssige udtryk, evnen til at rumme følelser, opfylde behov samt psykodynamisk arbejde. Det at synge er tæt forbundet med en indre og medfødt musikalsk kommunikation som synes specielt vigtig i forhold til personer med en kommunikativ degenerativ lidelse.

Den epistemologiske indfaldsvinkel til kliniske aspekter i musikterapien er en socialpragmatisk forståelse af kommunikation og dialog, hvor det at indgå i en dialog ses som en treleddet størrelse: et subjekt der ytrer sig i tegn og forstås af et andet subjekt, og med fokus på en psykologisk og pragmatisk forståelse af sproglige meddelelser, samt para-lingvistiske og kropslige udtryk (Hougaard 1996).

Dialog og kommunikation er beskrevet som værende afhængige af arousalniveauet, og den såkaldte Yerkes-Dodson-lov beskriver en sammenhæng hvor vores ydeevne er højest ved et middel arousalniveau. Denne lov, så vel som arousalbegrebet, har visse svagheder, men er brugbar ved beskrivelsen af ekstreme tilstande, og i demensplejen giver den en klar model der kan bruges i organiseringen af aktiviteter og terapi. En person, der er hyper-aroused, udviser kun en lille grad af opmærksomhed mod omgivelserne og er ikke i stand til at kommunikere effektivt med andre. På et vist tidspunkt vil personen være så fysisk udmattet af det høje aktivitetsniveau at vedkommende ryger over i en hypo-aroused, udbrændtheds tilstand, indtil han/hun atter fanges ind i en hyper-aroused tilstand. Når der kun opstår korte perioder med et "balanceret" arousalniveau, som er de perioder hvor personen har størst mulighed for at sanse stimuli fra omgivelserne og indgå i dialog med en anden person, er det vanskeligt at opfylde psykosociale behov. Det er muligt at opnå et balanceret arousalniveau ved at bruge moderate stimuli og kontekstuelle eller symbolske cues. Moderate stimuli er en balance mellem f.eks. nyt og velkendt, hurtigt og langsomt, kraftigt og svagt samt trivielt og intenst.

Indfaldsvinkler til forskningsmetoden

En skelnen mellem *åbne* og *lukkede systemer* har afgørende indflydelse på den metodologiske tilgang. Med udgangspunkt i Colin Robson's "Real world research" (2002) benyttes udtrykkene *fixed* og *flexible designs* til at beskrive de strategier der vælges til bearbejdning af kvantitative og kvalitative data. Metoder til anvendelse af casestudier beskrives med en skelnen mellem casestudiestrategier som a) en hjælpedisciplin, b) en selvstændig videnskabelig metode og c) grundforskning/anvendt forskning. Herefter gives korte præsentationer af etnografi og grounded theory, og temaer omkring fortolkning, etik, troværdighed og validitet samt fire former for triangulering (data-, observations-, metodologisk-, og teoretisk triangulering).

Formål

Det overordnede formål med denne undersøgelse er at bidrage med en nonfarmakologisk indfaldsvinkel der sigter mod at højne livskvaliteten og opfylde psykosociale behov hos personer med svær demens. I demensplejen har der i høj grad været fokuseret på ætiologi, diagnostik og optimal fysisk pleje, og der er set betydelige fremskridt og forbedringer indenfor demensområdet. Indenfor det sidste årti er den generelle opfattelse af demens blevet revurderet, og en humanistisk, person-centreret indfaldsvinkel med nye værdier og kvaliteter til demensomsorgen har fået plads. Klinisk musikterapi og musikterapiforskning er et vigtigt og voksende felt, som tilsyneladende kan bidrage væsentligt med en højnelse af livskvaliteten for demensramte.

Metode

Metoden er et 'flexible mixed-method design' med brug af fysiologiske data i analysen af observationsdata i et casestudie forskningsdesign. Her bruges ligeledes en etnografisk indfaldsvinkel samt grounded theory, hvor computerprogrammet ATLAS.ti til kvalitativ forskning er brugt i analysen af data-transskriptioner.

Deltagere

6 beboere mellem 73 og 84 år, som er ramt af svær demens og bor på et gerontopsykologisk plejehjemsafsnit, har hver deltaget i 20 individuelle musikterapi sessioner. I den kognitive test, MMSE, scorer deltagerne 0-5 (ud af 30) point, og ved vurdering af funktionsniveau ligger samtlige i overgangen mellem trin 6 og 7 (ud af 7) på FAST-skalaen. På Cohen-Mansfields opgørelse over agiteret adfærd udviser alle deltagere *fysisk aggressiv* samt *fysisk ikke-aggressiv* agiteret adfærd.

Data

Der skelnes mellem primære og sekundære data, hvor primære data er 'rå' data og sekundære data er behandlede data. Primære data består af video optagelser af 20 daglige musikterapi sessioner med de 6 deltagere, samt pulsmålinger målt i 5-sekunds intervaller i løbet af 30 minutter 5 dage før og efter hele terapiforløbet, samt målinger fra selve musikterapisessionerne. To gange dagligt har personale udfyldt spørgeskemaer i 6 uger for hver at de 6 deltagere, og musikterapeuten har nedskrevet uformelle subjektive observationer kort efter hver session. Yderligere blev journaler, cardex og baggrundsinformation om hver deltager brugt som primære data. Sekundære data bestod af transskriptioner af videodata, pulsdata i sessions-grafer, pulsdata før og efter musikterapiforløbet, udvælgelse af 8 korte videoklip til analyse udført af eksterne observatører, og endelig transskriptioner af de eksterne observatørers observationer.

Den kliniske setting

Det overordnene fokus for dette arbejde er på brugen af velkendte sange i individuel musikterapi. Sessionerne afholdes dagligt og varer omkring 25 minutter. Formålet med musikterapien er at skabe en tryg ramme omkring musikterapien og at fokusere på de evner og ressourcer personen stadig har. Vi kan her få mulighed for at finde frem til sange der er meningsfulde for den enkelte, tilbyde kontakt, accept og forståelse, og således muliggøre kommunikation og dialog.

Hver session er opbygget med en bestemt struktur der omfatter struktur-sange, en regulerings-del og en dialog-del. Det første trin er at 1) fange deltagerens opmærksomhed, derefter at 2) regulere arousalniveauet så vedkommende er i stand til at sanse sine omgivelser, hvilket gør det muligt at 3) indgå i en dialog. Som det fjerde trin 4) afrundes terapisessionen.

6 casestudier og en hermeneutisk analyse af respons

Hvert casestudie er foretaget separat, men alle 6 casestudier følger den samme struktur. Der gives en profil af hver deltager før en evaluering af musikterapiprocessen, hvor fokus er på kompliance, carry-over-effekt, regulering og kommunikative signaler. Observationerne er valideret med pulsdata, event-coding og pattern-matching som er opstillet grafisk.

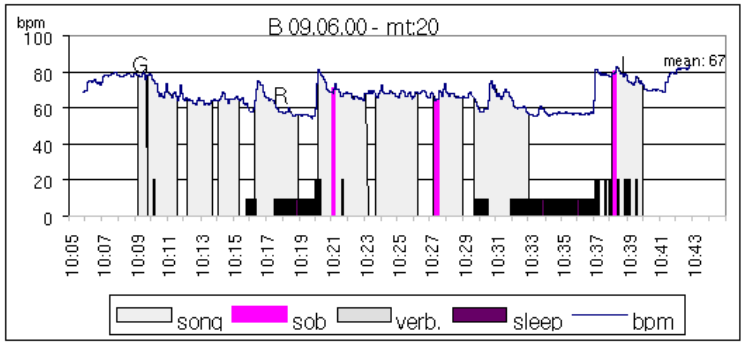

Figure I.1: Eksempel på en sessions-graf fra session nr. 20 med Hr. B

Den hermeneutiske analyse omfatter detaljerede analyser af udvalgte videoklip. Disse analyser er udført af eksterne observatører hvorefter transskriptioner af analyserne er behandlet med computerprogrammet ATLAS.ti som er baseret på principper fra grounded theory. Den respons, som det er observeret at deltagerne giver i musikterapien, kodes, struktureres og kategoriseres. Betegnelserne på *responskvaliteter* bliver ligeledes struktureret og organiseret i "code families". Resultatet af dette er et kodningsværktøj med en opstilling af deltagernes "respons" og eventuelle "responskvaliteter" som inddeler kommunikationen i forskellige lag. Kodningsværktøjet benyttes i forhold til de udvalgte videoklip og herefter til eksempler der er sat op i casestudierne, hvilket viser at alle seks deltagere er engagerede i musikterapien i forhold til deres evner og ressourcer. Når der forekommer kommunikation i de mere intensive lag, f.eks. i en dialog, er der flere aspekter der er medvirkende til at fremme kommunikationen. Et aspekt er personens evne til at modtage en "besked" for at kunne respondere på denne. Der ses perioder hvor de seks deltageres arousalniveau hverken er for højt eller for lavt, og hvor de i højere grad kan modtage information og respondere, hvilket gør det muligt for dem at indgå i dialog.

Resultater

På baggrund af hypoteserne som afspejler forskellige fremgangsmåder til undersøgelsens fokus kan det konkluderes at...

- Sang her en positiv indflydelse på de 6 svært demensramte personer. Denne indflydelse kan defineres ud fra graden af kompliance, ændringer i pulsfrekvens og ud fra forskellige måder at deltage i musikterapien på.

Mr B − Ex 3		Q	po /ge ge fo	ha he fa vi	vo /co /tx /si /imp
Emotional valence	R			2 1	10
	Qbr				
	Qse		10	8	
	Q+				
Participation (Receptive)	Qpa	1			
	Qor				
	Qor−obj			1	
	Qre				
	Qrem				
Sociality	Qcl			1	
	Qto			15	
	Qor−per		1	1 1 7	
	Qim				
Participation (Active)	R/co/tx/si/imp				1
	Qini				
	Qint				
Communica− tive musicality	Qbe			1+1?	
	Qph				
	Qpi				
Dialogue	Qinti				
	Qem			3+1	
	Qdi				
	Qaw				

Table I.1: Eksempel på en kode-matrice fra session nr. 20 med Hr. B

- De seks deltagere formår at kommunikere med musikterapeuten, og denne kommunikation kan karakteriseres ud fra et system af kommunikative signaler der afspejler forskellige grader af kommunikation: grundstemning, receptiv deltagelse, socialitet, aktiv deltagelse, kommunikativ musikalitet samt dialog. Der ses en sammenhæng mellem et afbalanceret arousalniveau og mere intensive grader af kommunikation.

- I 5 ud af 6 konkrete tilfælde viser musikterapien en indflydelse på aspekter i dagliglivet udover musikterapien, defineret i et statistisk signifikant fald i pulsfrekvens i en periode før og efter terapien for personer med svær demens som udviser agiteret adfærd.

Klinisk anvendelighed

Som en regulerende aktivitet øger musikterapien livskvaliteten for den demensramte, og som et tiltag der muliggør grader af kommunikation giver musikterapien mulighed for at arbejde psykodynamisk ved at bringe kurativ forandring til sekundære symptomer på demenssygdommen.

I løbet af den enkelte musikterapisession ses forandringer i pulsfrekvensen, ligesom der ses en carry-over-effekt fra *før* til *efter* hele terapiforløbet. Fra beskrivelserne i de enkelte casestudier ses at disse forandringer ikke sker fra den første session, og at nogle af deltagerne har brug for adskillige sessioner før de genkender og er trygge ved strukturen (som bygges op af stabilitet og cues) og responderer med ændringer i grundstemning, deltagelse, socialitet eller andre grader af kommunikation. Deltagerne ser ud til at have gavn af en større hyppighed af

sessioner og på baggrund af dette anbefales daglige sessioner i begyndelsen af et terapiforløb eller hvis en deltager i perioder udviser agiteret adfærd.

Som model for opbygning af en enkelt musikterapi session, samt af hele terapiforløb, foreslås konkret følgende 4 trin:
1) Fang opmærksomhed (vha. stabilitet og cues)
2) Reguler arousalniveau (vha. musikalske og relationelle elementer)
3) Tilbyd dialog (vha. nonverbale og para-lingvistiske signaler)
4) Afrund (vha. stabilitet og cues)

Dette materiale giver ikke en liste over sange som er defineret til at virke på bestemte måder, men anvender en person-centreret tilgangsvinkel hvor musikterapeuten i hver enkelt situation må forholde sig til og vurdere – implicit eller eksplicit – hvordan deltageren reagerer på en sang; om sangen ser ud til at 'fange' deltageren eller ej, virker beroligende eller stimulerende, om den virker krævende, og/eller fremkalder erindringer og følelser.

Musikken og sangene i terapien opfylder forskellige funktioner i forhold til at regulere, stimulere og kommunikere. Dette forudsætter en social-pragmatisk forståelse af kommunikation hvor det at indgå i en dialog ikke udelukkende ses som en udveksling af ord med en bestemt semantisk mening. Musikterapeuter er trænet i at fokusere på musikalsk kommunikation, som er nonverbal og para-lingvistisk kommunikation, og kan bidrage til demensplejen og demensomsorgen med værdifulde indfaldsvinkler og metoder.

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Abbreviations

AD Alzheimer's Disease

ADL Activities of daily living

ANS Autonomic nervous system

AOM Analytically orientated music therapy

BPSD Behavioural and psychological symptoms of dementia

CBT Cognitive behavioural therapy

CMAI Cohen-Mansfield Agitation Inventory (Cohen-Mansfield *et al.* 1989)

CVA Cerebral Vascular Accident

DAT Dementia of Alzheimer's type

DSM-IV Diagnostic and Statistical Manual of Mental Disorders, fourth edition. Published by American Psychiatric Association, see: www.psychologynet.org/dsm

EEG Electroencephalograhpy. Small electrodes on the scalp record electrical activity of nerve cells of the brain

FAST Functional Assessment Staging (Reisberg 1988)

GDS Global Deterioration Scale (Reisberg 1982), see: www.geriatric-resources.com

GP General practitioner

GT Grounded theory

HR Heart rate

ICD-10 International Statistical Classification of Diseases and Related Health Problems, tenth revision. WHO, see: www.who.int/whosis/icd10

MMSE Mini Mental State Examination, Folstein *et al.* 1975

MT Music therapist

NJMT Nordic journal of music therapy, see: www.hisf.no/njmt

OT Occupational therapist

PN Pro necessitate. Medication given when necessary

Pp Participant

RCT Randomised controlled trial

SMMA the Structural Model for Musical Analysis (Grocke 1999)

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