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'Sometimes, I feel a bit decoupled': Strategies in Videoconference Teaching

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This paper is about videoconference interaction and teaching strategies. On the basis of participant observation and detailed video analyses of videoconference teaching, this paper lists three different categories that were employed in a professional bachelor's programme in physiotherapy. These categories were developed with respect to the ways the teaching strategies include or relate to the e-learning space in the physical part of the videoconference classroom. The study found a *distancing* strategy which was employed in order to focus activities in the physical classroom and keep the videoconference space at a distance; an *appendixing* strategy which linked the e-learning space to the physical one by the use of specific technology, communication form and time; and an *annexing* strategy which related to both the physical space and the e-learners' space and coupled the two spaces by very frequent use of multimodal communication with both groups of students.

Introduction

E-learning has often been found to enhance social inclusion of students via learning innovation (Bader & Kottstorfer, 2013) with its metaphors relating to, for instance, the creation of gateways, to opening doors, and to letting people in (Seale, Draffan, & Wald, 2010). However, it can be questioned whether e-learning groups are more welcoming of diversity than other groups (Hughes, 2007). Many structural reasons, including Information and Communications Technology (ICT) skills and language and family backgrounds also play important roles in relation to feeling included in the online setting (Hatlevik & Christophersen, 2013). Even if access to an online educational setting is granted, a balance must be struck between the mechanics of 'belonging' to a community and active participation in it (Hall, 2006, p. 505).

When e-learning enters the *traditional* classroom, changes in interactions are to be expected, because not only does technology affect the learning environment, teachers' attitude and their relation to the e-learning space also frame the opportunities for the students to participate actively in the digital and physical environment. Technological artefacts facilitate people's involvement with reality, but it also co-shapes people's perceptions, actions, experience, and existence (Verbeek, 2011), and the institutional demands of changing the traditional way of teaching to a new e-learning approach can mean a change in professional teacher identity as well (Hanson, 2009; Spencer, 2011). Some researchers (Gildersleeve & Kuntz, 2011) argue that teachers carry 'embodied markings' from previous teaching environments and that institutional environmental change may expect them to ignore or erase these markings, although many teachers prefer the classroom to remain the same physical and traditional classroom that they feel familiar with (McNaughton, Westberry, Billot, & Gaeta, 2014). Even if it is found (Walsh-Pasco, 2005) that '[...] the qualities of effective videoconferencing teachers are the same as effective classroom teachers' (p. 38), and that videoconference teaching is both appreciated by students and found to be effective when interactivity is a part of the learning design (Greenberg, 2009), research finds that special attention towards communication with e-learning students is needed because body language can be understood differently when it is transmitted through a camera and a computer screen (Pytash & O'Byrne, 2014).

Given that the remote location in videoconferences can remove a sense of accountability among the students (Garner & Buckner, 2013), eye contact from the teacher is even more important in this setting (Levinson, Ørngreen, & Buhl, 2013, p. 253ff; Orman & Whitaker, 2010; Tipton, Pulliam, Allen, & Sherwood, 2011) if the students are to experience inclusion and presence in the classroom. Online students often need more attention and support in social interaction (Zhan & Mei, 2013), but the use of diverse technology and applications are also found to enhance the students' experience of belonging and of social presence in the course (Roseth, Akcaoglu, & Zellner, 2013; Tipton et al., 2011).

In this paper, I will analyse a videoconference setting that was new to the teachers—a setting they often spoke of as *difficult*, *challenging*, or *damn hard to teach in*. It consisted of a blend of students – that is, both on-campus and remotely connected e-learning students in the classroom – and it was just recently

introduced as a way to complete the physiotherapy diploma. The question to be answered in this paper is thus as follows: What strategies did teachers employ in the videoconference blended classroom in order to teach and communicate with both e-learning and on-campus students?

Empirical settings, and methodological and theoretical frameworks

A general definition of the term *blended learning* has developed significantly throughout the last twenty years (Sharma, 2010), and thus the terms *blended learning*, *hybrid learning* and *mixed-mode learning* are often used interchangeably in current research (Pytash & O'Byrne, 2014). Moreover, the blend can consist of mixes between, for instance, offline and online learning; between self-paced and collaborative learning; and between synchronous physical formats, synchronous online formats, and self-paced, asynchronous formats (c.f. Lim, Morris, & Kupritz, 2007). The term can also mean blends of online and face-to-face students in the same physical space (Osguthorpe & Graham, 2003). In the physiotherapy programme that generated the empirical material for this paper, e-learning was implemented in a *double-blended* format: the e-learning students participated in traditional on-campus teaching three days every second week, and the rest of the days, they attended the on-campus teaching via videoconference from home, or they studied at home independently or in groups. Thus, one of the blends consisted of the mix of e-learning students' online and face-to-face learning. The other blend consisted of mixing the remote e-learning students and the physically present on-campus students in the same classroom via videoconference technology. To sum up, when the teaching took place on campus, either the classroom consisted of only physically present students, or half of the students were physically present on campus and the rest of them – that is the e-learning students – participated online via Adobe Connect or watched the lesson afterwards. The study presented in this paper was conducted in this setting of blended learning, and the focus will now be on the blended – or hybrid – classrooms with both e-learning students and on-campus students present.

The research design consisted of participant observations of the e-learning students' videoconference lessons during 8 autumn weeks the first year and 3 weeks the next autumn, and of focus groups with 32 e-learning students and interviews with five teachers in the physiotherapy programme. With inspiration from grounded theory's coding and constant comparison (Bryant & Charmaz, 2013; Charmaz, 2009; Glaser & Strauss, 1967), field notes and transcripts from focus groups and interviews were analysed, and the emerging themes were grouped in order to categorise the teachers' different ways of teaching, communicating, and relating to students in the videoconference lessons. In order to further saturate these emerging categories of the videoconference interaction and teaching strategies, theoretical sampling was conducted (Morse, 2013), and three exemplary lessons were chosen and further analysed in order to be able to show different patterns between them.

Research sometimes considers it problematic to use video with the intention of capturing interactions between participants, because the presence of the camera can make these participants behave differently (Herman-Kinney & Verschaeve, 2003) or make them assume the role of *research participant on video* (Pink & Leder Mackley, 2014; p. 147). However, in the second year of the project in the physiotherapy programme, the videoconference lessons were recorded, digitally saved, and stored so that students had access to them and could watch them whenever and as many times as they wished. Thus, even if the teachers knew of the research that was going on, the video observations and analysis of the lessons could be conducted without having to make a special camera setup for the sake of research; the setup was already made for the sake of the e-learning students, and performing the role of 'teacher on video' was becoming a part of their daily life. They thus seemed to pay little attention to the supplementary role of research participant on video.

In order to identify patterns in the teachers' interactions with the e-learning students and the on-campus students in the same classroom, a table for structured observations was created (Bryman, 2012; p. 253 et seq.), which was inspired by other video observation studies of teaching and learning (Cobb & Whitenack, 1996; Majid et al., 2006; Oliver & McLoughlin, 1997; Saw et al., 2008). On the basis of the participant observations in the videoconferences, it was found that interaction took place not only as verbal and body language in the classroom lesson; important interaction also took place during breaks, through written communication in the chat, and by the use of technology (e.g. turning of camera, choice of new software) (c.f. Hampel & Stickler, 2012). Thus, it was found to be useful to register the way the teachers included and interacted with the students during videoconference lessons, but also to

differentiate between bodily/verbal interactions and those that took place via digital technology in the form of chat, use of specific software, camera angles etc. Due to the research interest in how the interactions between the teachers and the e-learning students could be compared with those taking place between the teachers and the present on-campus students, the table also needed to differentiate between interactions with the two groups related to time, technology, and content.

The tables below count the interactions between the teacher and the two groups of students as they appear either through the teacher's verbal/body language or through his or her use of the technology. In both kinds of interaction, the teacher's body is, of course, a prerequisite for the teaching in the videoconference, but technology affords him or her an opportunity to relate to the e-learning students not only through speech, but also through the use of eye contact (i.e. looking towards the camera) and/or body movements towards or away from the camera in order to appear on the e-learning students' computers at home. However, he or she can also address and interact with this group of students without letting their body appear on their computer screens, when choosing only to chat with them, turning their attention towards something just by turning the camera or opening or closing certain areas in the videoconference interface. Below, I will analyse the influence of these choices of strategies on students' interactions in the videoconference.

Teaching strategies

The way the teachers taught in the videoconference blended classroom and the strategies they employed in doing so are registered by counting the elements that are also considered important in a traditional face-to-face teaching lesson (Dalziel-Job, Oberlander, & Smith, 2011; Garner & Buckner, 2013); in this case, this includes eye contact, looking towards the camera, and directly addressing the students through verbal and/or body language in the videoconference in the blended classroom. In the tables, vertical differentiations are made between subject and technical/social matter of the communication and whether the teacher is addressing /questioning /responding to the on-campus student or the e-learning students: (abbreviated: (T->OS)/(T->ES)); the on-campus/e-learning students addressing /questioning /responding to the teacher (OS->T)/(ES->T); and the on-campus/e-learning students addressing /questioning /responding to their fellow students (OS->FS)/(ES->FS). Furthermore, the tables differentiate between interactions taking place during the lesson or during breaks and whether the interactions happen on the basis of body language/spoken words or through technology/written words. The tables are thus intended to show how the interactions during the lessons/breaks are distributed among the two groups of students and in relation to time, body and communication content.

However, before I turn to all the numbers, some field notes will introduce each of the three lessons.

'I've ended up just saying 'Welcome', and then I've done my teaching': Distancing strategy

Before the lesson begins, a colleague starts the videoconference software and asks the e-learning students whether the sound and the picture are okay. He leaves once the technology is working, and the teacher Joe takes over. He has taught the subject matter for many years, and this afternoon he teaches from 1:15 PM to 4:35 PM. He bases his lecture on PowerPoint presentations that include pictures and text, and he very often relates the content of his lecture to the students' everyday experiences and their sports. Joe asks the students a lot of questions, and they are able to answer if they have prepared for class or know of the subject already. All the questions are answered by one of the students in the classroom. The camera captures him from the knees and up; however, he walks around the classroom and therefore frequently steps out of its reach. The e-learning students never answer any of the questions, neither verbally nor in the chat, and Joe never addresses them directly. However, he does seem aware of their presence for he turns the camera three times when he goes to demonstrate something in the middle of the classroom. One of the e-learning students comments on the lecture only once, but when doing so, the student turns to his fellow students, and Joe does not follow up on the comment.

Joe relates very actively to the students in the classroom by walking towards the student that answers the question, and by waiting and looking at them silently after asking a question like, for instance, 'How long should the ice stay on [the injured leg]?' or 'Have any of you had a brain concussion?' Furthermore, Joe

asks questions relating to technology, like ‘Is it on now?’, or relating to the teaching procedure, like ‘Did you buy the book?’

Table 1
Interactions in ‘Joe’s’ lessons

Agents	Matter	Language/cues during lesson		Language/cues during breaks	
		Verbal/body	Written/via technology	Verbal/body	Written/via technology
T->OS	Subject	130			
	Techn./Social	12		3	
OS->T	Subject	125			
	Techn./Social	13		2	
OS->FS	Subject				
	Techn./Social				
T->ES	Subject				
	Techn./Social				3
ES->T	Subject				2
	Techn./Social		1		4
ES->FS	Subject		3		
	Techn./Social				6

In the table, the number of interactions between the teacher and the on-campus students in the classroom stands out, as does the lack of communication with the e-learning students who watch the lesson live or asynchronously later on. The only indication that the lesson is targeted at the e-learning students is Joe’s angling of the camera in order to make sure that it captures what he demonstrates, even if their (few) attempts to participate seem partly ignored. Interactions with e-learning students emerge as something that is not a part of Joe’s teaching strategy. His presence is distinctly located in the physical classroom among the present students, and the interactions are focused on verbal and bodily communication with the present on-campus students. Joe’s strategy could be categorised as *distancing* because it rarely integrates the e-learning group of students other than through technology in the form of camera angling without accompanying comments. This strategy seems to stress the importance of the ‘traditional’ teaching with its opportunities for frequent dialogue with rapid questions and answers between the teacher and the students, which seems easy and natural in the shared physical space. Technology can be seen as a hindrance to the flow of the lesson (c.f. Vetere et al., 2012) and to ‘the classroom ping-pong’, as one teacher put it, because it demands that the teacher focuses on the camera now and again and is aware of the sound, the camera angle, the light etc. This can be a difficult challenge for some teachers. One teacher described this challenge as follows:

‘I think it’s very difficult to keep the focus on...well, if you are to keep the focus on both...you really need big reserves of energy to be present both in the classroom with the students and to pay attention to the chat and respond to the e-learning students without making the on-campus students think, ‘Well, well, now I’m just wasting my time’. So I think it’s really difficult to be synchronously present virtually and in the classroom; I haven’t been able to do it...I’ve ended up just saying ‘Welcome’, and then I’ve done my teaching’’ (Teacher interview, *Philip*).

To e-learning students, this teaching strategy might signal insurmountable distance between the space of the e-learners and the physical classroom, and several of the students expressed a feeling of isolation or being invisible in the videoconference lessons:

‘And you feel a bit decoupled sometimes. Well, the other day, I was disconnected from the lesson in half an hour and I sat there and tried to get in contact with people on Facebook and what have you to say, ‘Helloooo, couldn’t you just...’ But they just don’t look at the screen...and then I’m like, ‘Hey, there are people sitting out here too, you know?!’

However, technology—and even its breakdowns—can also contribute to a feeling of belonging and teacher presence when a strategy other than the distancing one is employed.

‘I’d prefer separating them’: Appendix strategy

In this example of a strategy in videoconference teaching, the teacher *Harold* seems to focus mainly on present on-campus students like Joe did. However, Harold is very aware of not leaving the space that can be captured by the camera, and he often looks directly into it when speaking. He stands right in front of it when he is demonstrating something on his own body. For instance, when he speaks of the red bone marrow, he shows the camera where ‘the red bone marrow T-shirt’ is located. Harold addresses the students in general—and the e-learners especially—through the use of technology. During the 90-minute lesson, several technology breakdowns occur, but Harold actively chats with the e-learners during the time without any picture on the videoconference. When showing the heart’s structure and later an ECG curve, he uses the computer program Paint instead of drawing on the black board. Due to the imprecise lines, his so-called ‘little creative drawing’ leaves much to be desired aesthetically, but Harold uses his voice while drawing it and thereby makes the drawing easier to understand. In the drawing process, he never looks into the camera or addresses the e-learning students directly, but through the multimodal expression of the drawing, the e-learning group is connected actively to the physical classroom. Furthermore, in relation to questions and dialogues with the e-learning students about technology issues, he chooses to communicate through technology and chat and, for instance, when he wants to check whether the sound is on, he asks silently in the chat.

Table 2
Interactions in ‘Harold’s’ lessons. The + indicates that the use of technology was accompanied by speech but without addressing the e-learning students specifically

Agents	Matter	Language/cues during lesson		Language/cues during breaks	
		Verbal/body	Written/via technology	Verbal/body	Written/via technology
T->OS	Subject	15			
	Techn./Social				
OS->T	Subject	15			
	Techn./Social				
OS->FS	Subject				
	Techn./Social				
T->ES	Subject	+	+++		
	Techn./Social				3
ES->T	Subject				
	Techn./Social				5
ES->FS	Subject				
	Techn./Social		11		

The table shows that weight is put on directly addressing both groups of students. However, it also shows that different modalities are chosen: on-campus students are addressed verbally and e-learning students are addressed via technology, and only the e-learning group has dialogues with him concerning technology and other social issues (e.g. writing in the chat ‘We will take a break now for 5 minutes’). Harold’s presence is divided into a bodily/verbal presence in the physical classroom and one that is based on technology and written words when in direct interaction with the e-learners. The teacher relates to the e-learning students via specific technology and multimodal language and during a specific time (during breaks), even if it makes his teaching in the physical classroom less smooth. Moreover, this separation makes the e-learning students chat with each other in order to seek help, and it seems that Harold links the e-learning group to the physical classroom and makes the former an appendix to the latter. Using this *appendixing* strategy, the majority of the time is centred on the interactions in the classroom just as all the questions concerning the subject matter likewise emerge from interactions here.

Generally, the teachers in the programme found it difficult to teach both groups at the same time, and many of them wished they were separated because they found that the two groups required different ways of communication and teaching. One teacher put it as follows:

‘I’d prefer a separate e-learning class and a separate on-campus class. So you don’t mix apples and oranges, but instead you could focus on ‘now it’s e-learning’ and the interaction you can have with such a class. Then it would be on their premises and not on those of the on-campus class. And vice versa’ (Teacher interview, *Cathrine*).

Compared to the distancing strategy, the appending strategy also approaches the e-learning space as something that ‘does not really belong’ in face-to-face teaching, but while the distancing strategy focuses the attention on the physical space and almost ignores the e-learning space, the appending strategy links the e-learning space to the classroom. However, it does so through specific communication and technology and at a specific time, all of which differ from those used in ‘the main room’ (McNaughton et al., 2014). None of the strategies demands direct interaction from the e-learning students, but instead lets them participate in classroom teaching mainly by watching and listening to the lecture. As a consequence, the e-learners often appear more active in the chat with their fellow students.

However, a third strategy that emerged in the study in the physiotherapy programme, one that focussed on a continuous relation and interaction between the two groups of students and between several modalities and attention towards the camera at the same time. The section below will describe this last strategy.

‘You just take a break too, back home!’: Annexing strategy

The teacher *Allan* pays a lot of attention not only to the students in the classroom but also to the e-learning students via the camera and ensures it captures him all the time. He speaks directly to the e-learning students, saying, for instance, ‘You, back home, you can just Google it’. He also shares his comments on the process in the classroom with the e-learners: ‘You just take a break, back home, too’. During breaks, even if the exact words are not audible, one can hear that Allan speaks with the students in the classroom, and just before the break ends, he goes to the camera and resumes the chat by saying to the e-learners, ‘I just told them that you can find a bone fracture by the use of a tuning fork...’ During the three-hour lesson, Allan uses the videoconference software’s arrow instead of pointing physically at something on his PowerPoint, which makes it easy to follow his lead for both groups of students.

The e-learning students are very active in the chat, and they contribute both socially and in terms of subject matter. Allan keeps an eye on the chat, and he verbally integrates the questions asked in the chat as a natural part of the lesson. Procedural information is reported the same way (e.g. when he is going to leave the camera, he says ‘I’ll just go get my coffee’). Allan uses a lot of humour when he teaches, and this apparently inspires the atmosphere both in the classroom on campus and among the e-learners: the chat is active and includes jokes and other content not only related to subject matter. One of the students writes the following at the end of the lesson: ‘It’s so nice to participate here even without speaking. It’s like being there yourself ;o)’.

Based on the counting of interactions during the lesson, Table 3 shows that the majority of the subject matter questions—like in the two other strategies—is asked or answered by the on-campus students. However, in contrast to these strategies, it is also found that the teacher relates equally, and mainly verbally, to both groups of students.

Table 3

Interactions in ‘Allan’s’ lessons. The + in this table indicates that the teacher talks a lot with the on-campus students during breaks; however, they are too far away from the microphones to be heard clearly on the video.

Agents	Matter	Language/cues during lesson		Language/cues during breaks	
		Verbal/body	Written/via technology	Verbal/body	Written/via technology
T->OS	Subject	20		+	
	Techn./Social	14		+	
OS->T	Subject	23		+	
	Techn./Social	9		+	
OS->FS	Subject				
	Techn./Social	1		+	
T->ES	Subject	9		2	
	Techn./Social	13	1	5	5
ES->T	Subject		10		4
	Techn./Social		10		21
ES->FS	Subject				

A lot of the questions and answers during the lesson involve both groups of students, and the e-learning students are more active than the on-campus ones, when all interactions are counted. The interaction activity thus spreads all over the table and points towards a strategy of an *annexing* of the e-learning space into the on-campus classroom. (The concept builds upon the Latin word *adnectere*, which means *join together*). Both groups of students are spoken to verbally, and the e-learners' comments and answers from the chat are integrated verbally in the classroom too. The annexing strategy encourages multimodal interactions relating to social, technical and subject matters, and thus the coupling of the e-learning space with the physical one clearly expands and changes the traditional teaching classroom.

A student compares the distancing and the annexing strategies as follows:

Majken: '[Joe] needs someone to turn the camera on and off. Stuff like that...well, it's not much engagement and interest he shows us like that. Unlike 'Allan', you know. He really fights to give us a good lesson.'

Anne-Mette: 'Yeah? How? ... How do you see that?'

Majken: 'Umm, I think that the stuff he's made with *Wallwhisher* or what's the name... where you can go in and watch his videos, well, stuff like that... Then it's easier to sit at home and relate to...and I think he does a great job in having the lessons recorded, and saying, 'Let's take a break' and stuff like that...'

Many of the teachers found the blended videoconference setting *damn hard to teach in*, but their *fighting* and visible engagement in relation to the videoconference space clearly influenced the e-learning students' interactions and experiences of being included and present in the classroom teaching.

Conclusion and discussion

The e-learning students in all three teachers' lessons have the opportunity to interact only through questions and comments in the chat functionality in Adobe Connect and not in the same modality as the teacher, but this issue was not framed as a problem *per se* among the e-learning students. Correspondingly, previous research (Hampel & Stickler, 2012) finds that e-learners in videoconference teaching—where the e-learners do have access to the same modalities as the teacher—are oftentimes more actively engaged in the other modality than the teacher's, especially when matters other than subject matter are in question. Such research also found that the e-learners mainly discussed subject matters when the teacher distinctly encouraged them to do so.

In the present study, it was evident that the teachers' direct communication with the e-learners influenced their interactions to a great extent. However, a repeated attention towards technology and the camera (i.e. eye *contact* with the e-learning students), and a creation of a pleasant and congenial atmosphere also encouraged interactions in both groups of students. Usually, questions asked in the classroom were understood as mainly addressing the on-campus students, maybe because the teacher naturally pays attention to and makes eye contact with the students in the room, and thus he/she expresses expectations of answers from the present students. Moreover, in conversations in general where there are more than two interlocutors, it is not always unambiguously clear whether the personal pronoun 'you' includes all group members or excludes some of them (Gupta, Niekrasz, Purver, & Jurafsky, 2007) (e.g. 'You, the girls, stay in here, and you, the boys, go outside'). Thus, in all three examples of teaching in videoconference settings, it was found that the different strategies' use of for instance eye contact, attention towards technology, camera, chat and directly addressing the students (or lack thereof) created very different opportunities for participation, interaction, and experience of inclusion of the different groups of on-campus and e-learning students.

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