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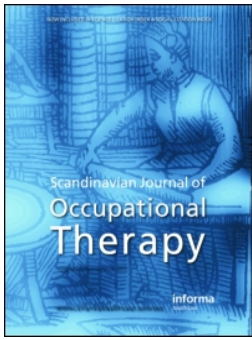
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Presenting an analytic framework facilitating a situationally oriented analysis of the use of digital technology for engagement in occupation

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ABSTRACT

Background: Digital technology is closely intertwined with and influences people's everyday lives. Within occupational science and occupational therapy, research is therefore warranted into situationally oriented analysis of the use of digital technology for engagement in occupation.

Objective: To contribute with an analytic framework facilitating a situationally oriented analysis of the use of digital technology for engagement in occupation.

Material and methods: An operationalisation of Dewey's theory of transaction and inquiry in conjunction with an occupational science approach served as the analytical framework for exploring how underprivileged adults use digital technology for engaging in health-related occupation.

Findings: The analytical framework proved useful for a situationally oriented analysis of digital technology use for engagement in occupation: by fostering identification and registration of digital technology artefacts used for engagement in occupation, by making transparent the complexity that the situation creates for the participant, by identifying problems with and needs for inquiries in relation to engagement in occupation and, finally, by facilitating a situation-oriented analytical language.

Conclusion: The analytical framework presented is useful for conducting a situationally oriented analysis of digital technology use for engagement in occupation. Future research and validation of the analytical framework are needed.

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Introduction

Occupational science and therapy scholars have argued that everyday life may be described as a complex and constantly changing situation relationally influencing engagement in occupation [1–5]. However, adopting this pragmatic perspective implies also adopting a situationally oriented analytical approach that fosters an understanding of how and why aspects within 'situations' affect engagement in occupation [6]. As we think about the present and future changes that digital technology (DT) is expected to bring to people's everyday life situations - and thus to the arena for both occupational science research and occupational therapy practice [7] - the use of DT appears to be a highly relevant topic for exploring how to practice situational orientation when analysing engagement in occupation. In this study, DT is used to denote specific digitalised everyday technologies such as personal computers,

smartphones, computer tablets and any applications accompanying these devices [8]. The objective of this paper is to provide an analytic framework facilitating a situationally oriented analysis of the use of DT for engagement in occupation.

In the following sections we pursue this objective in four manners. First, we provide arguments to underpin the importance of incorporating a situationally oriented analytical approach when applying a transactional perspective to engagement in occupation in empirical research as well as the need for a situational orientation when analysing the use of DT for engagement in occupation. Second, we describe the theoretical frame that enabled us to develop the presented analytical framework. Third, we present how we developed the analytical framework. Fourth, we demonstrate how the framework may be applied by referring to the first author's doctoral work [9]. Finally, we discuss implications for application of the

presented analytical framework and close the discussion by offering suggestions for future research and validation of the analytical framework.

Background

The argument that engagement in occupation is more of a societal and community-based phenomenon than an individual one creates a need for research to generate knowledge about engagement in occupation as a situationally dependent phenomenon [3,10]. For this purpose occupational science and occupational therapy scholars have adopted Deweyan pragmatism in general and Dewey's theory on transaction and inquiry in particular. A transactional perspective has been highlighted as a useful theoretical resource for developing knowledge on occupation as a situationally dependent phenomenon [11,12] as it may facilitate a relational and integrated understanding of everyday life by providing a theoretical understanding of engagement in occupation from a situation-dependent perspective [10]. Characteristics of engagement in occupation are therefore not identified from individual value only but also depends on a complex transaction bringing together person and situation [13,14]. Following this perspective, simultaneous attention to situation-occupation-and-person as a whole becomes the main focus of our analysis when exploring the situated character of engagement in occupation [6].

Living in an era of digitalised participation in everyday life, DTs have become inextricably linked to and influences engagement in occupation [8,15]. Their use implies has transformed the circumstances for engaging in occupations and functioning in everyday life has, to a considerable extent, become digitally supported [15]. To take an example, the use of DT to support engagement in health-related occupations in everyday life is growing, both privately and professionally [16]. Consequently, and owing to their duty to promote their clients' health [17], occupational therapists face new practice concerns when supporting people in engaging in occupations [15,18]. This has further shaped discussions on the quality of occupational therapists' current digital competencies [8,19,20]. Even though researchers within occupational science and occupational therapy have identified the use of DT for engagement in occupation as an important area of interest [20], and studies have been conducted on how everyday technology (electronic, technical and mechanical equipment) affects occupations of daily living for people with disabilities [21–23], research and discussions are missing on how

to analyse people's use of DT to ensure that their use reflects the development towards increasing integration of DT into everyday life.

In relation to this, scholars within occupational science have highlighted the need to understand the pervasiveness of DTs for engaging in occupations in daily life from a transactional perspective [8]. However, research applying a transactional perspective to explore how DT influences engagement in occupation is limited [9]. Similarly, Dewey viewed technology as essential to transactional processes. He regarded technology as the use of instruments or means to reach an intended outcome, not only as a modifiable object separate from people's actions. As such, Dewey stated that technologies need to be analysed and understood in multiple relations between people and situations. Because of his inclusive perspective on technology, Dewey considered technology to be constitutive of experience while also altering experience [24]. Following Dewey's conception of technology as neither neutral nor final [25], we argue that applying a transactional perspective on how technology influences engagement in occupation makes it necessary to analyse the use of technology for engagement in occupation in a multifaceted and situationally oriented manner.

Furthermore, occupational science scholars have claimed a need to explore research methodologies suitable for capturing the multifaceted elements of situations from an occupational perspective. To take an example, a focus on exploring ways of analysing engagement in occupation from a transactional perspective can be identified [26,27]. Scoping literature within occupational science and occupational therapy reveals various attempts to bring together person, occupation and situation from a many-sided analytical perspective. For instance, Rosenberg and Johansson (2013) suggest that the situation is an applicable unit of analysis in research aiming to understand where and when transactions occur. Furthermore, Aldrich and Rudman (2015) share their experiences on applying situational mapping and conclude that a sociology and grounded theory approach to applying situational analysis is promising for facilitating inquiries into situations of occupational engagement. Additionally, Shank and Cutchin (2010) use a transactional perspective as an approach to focus on relational and process aspects in their analysis following a process similar to grounded theory [28].

However, comparing the described contributions on how to analyse engagement in occupation as situationally dependent reveals a tendency towards

conceptualising findings from a transactional perspective rather than operationalising the analysis that precedes these findings on the basis of a situated orientation. Moreover, few of the identified studies have applied Dewey's suggestion for a delimitation of the concept of situation, as presented in his theory of transactionalism and inquiry [29,30]. The focus on a situated understanding of occupation introduces a need for methodological approaches that can develop knowledge of the situational variables constituting occupation [6]. Specific methods to study occupation at a situational level are largely missing within occupational science. In addition, the question of how a transactional perspective on occupation may be used in occupational therapy practice seems unanswered to date. Thus, to the best of our knowledge, bringing situational orientation to a practical level by analysing aspects of engagement in occupation, while using Dewey's description of what constitutes a situation, has not yet been contemplated or utilised in the occupational science or occupational therapy literature. It may therefore be argued that taking situational variables into account while using a situation-oriented approach to the analysis of engagement in occupation is an important - yet missing - aspect in the continued development of a transactional perspective on occupation. In addition, this approach may form the basis for the analysis of the situated character of using DT for engagement in occupation and shed light on ways of analysing people's use of DT within occupational therapy practice as an important part of enhancing digital competencies in occupational therapy practice. We take up this challenge by operationalising Dewey's theory of transaction and inquiry. We do so within an occupational science approach, thereby establishing the basis for an analytic framework for situationally oriented analysis of the use of DT for engagement in occupation.

Theoretical frame for the development of the analytical framework

John Dewey's theory of transaction and inquiry

Dewey named the set of facts or circumstances that surround human actions the 'situation'. According to Dewey, situations can be either indeterminate or determinate and characterised by certain challenges and needs. An indeterminate situation is one that is 'open to inquiry' in the sense that its constituents are not a coherent whole and, therefore, shape a problematic nature. By contrast, a determinate situation is a closed and unproblematic situation. Dewey described

that 'inquiry' serves as a controlled transformation of the indeterminate into determinate, turning the situation into a unified contextual whole [31]. Dewey thus regarded inquiry as a mode of thinking and acting by which humans approach indeterminate situations to transform them into determinate situations [31,32].

According to this perspective, situations comprise an interconnected functional relation, merging individuals and context through inquiry, continuously shaping an always developing arena for human action [14,32,33]. In his later works, Dewey together with Bentley (1949) developed the theory on inquiry by describing 'transactions' as an inquiry in which events and their descriptions are to be accepted as tentative and preliminary. They argued that new events are based on inquiry made at any time [29]. Following their line of reasoning, the use of DT for engagement in occupation can be described as dependent on the mode of thinking and acting (inquiry) adopted by individuals in their attempt to transform indeterminate situations into determinate situations.

The concepts of functional coordination, habit, context and end-in-view are described by Dewey as central to the complex character of transaction, and they must be seen as fundamental elements when observing and analysing human behaviour as a situationally dependent phenomenon.

Functional coordination is the process by which the individual and the situation co-constitute one another through their mutual relationship [3]. The goal of this process is to maintain, enhance and obtain an overall harmonic functioning within indeterminate or determinate situations. Thus, through functional processing people 'occupy' their everyday lives. Overall, Dewey described functional coordination as a continuously active process reliant on the relationship of constructs formed and defined by situations [30]. *Habits* form the foundation for a person's functional coordination within a coherent relationship between person and situations [29,33,34]. Habits are thus a key factor in creating a determinate situation. *Context* is a spatial and temporal background affecting all thinking [33,35]. Context influences the formation and enactment of habits by configuring the situations in which habits function. It provides the requirements for functional coordination and thus the basis for transaction. Context shapes habits, either by demanding a re-configuration of habits or by creating habits gained through experience [32,36]. Therefore, context influences a determinate situation or an indeterminate situation. *Ends-in-view* drive transactions and are

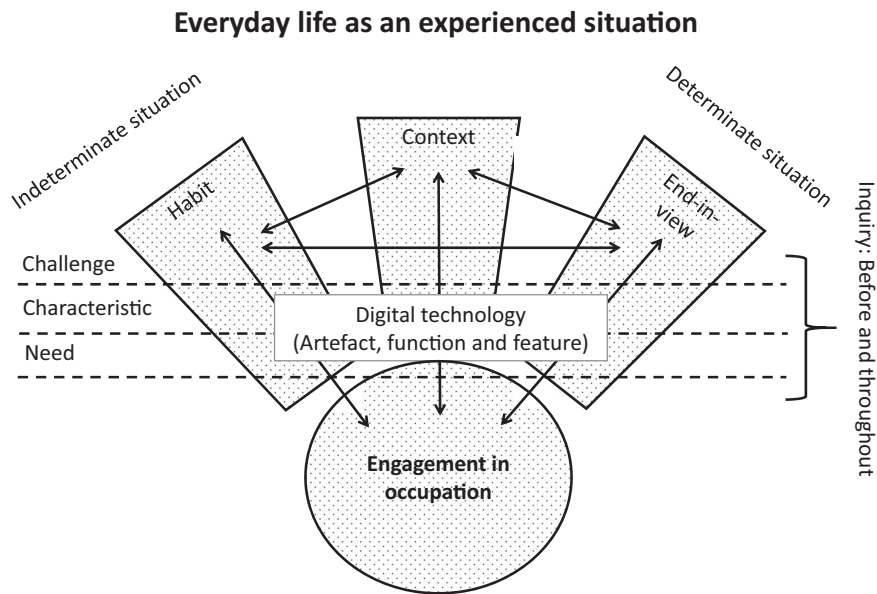


Figure 1. Theoretical frame for the development of the presented analytical framework.

supported by habit and context. An end-in-view is a basic, incomplete and constantly developing and ongoing drive towards a functionally coordinated person-situation relationship before and throughout a transaction [33]. As such, ends-in-view affect a determinate or indeterminate situation.

An occupational science approach

As a discipline, occupational science is concerned with studies of the purpose, meaning and complexity of the relationship between people, what they do and where and how they do it [37,38]. As a basis for implementing general knowledge from occupational science in the development of the analytical approach, occupation is defined overall as engagement in everyday life endeavours [38,39]. Furthermore, this study assumes that everything influencing a person's capability to engage in occupation in everyday life may positively or negatively impact the individual's health, depending on the context within which it takes place [40–44]. The application of occupational science as a theoretical resource further implies that everyday experience emerges and unfolds through humans' engagement in occupation [38,39,45].

Everyday life as an experienced situation

Applying Deweyan pragmatism within an occupational science approach, and in line with a transactional perspective on occupation [14], everyday life can therefore be seen as dependent on the dynamic interplay of experienced everyday life situations,

engagement in occupation, habit, context and end-in-view. Adopting this point of view, we refer to 'situational orientation' as awareness of these identifiable variables constituting everyday life as an experienced situation. This awareness implies viewing situation-occupation-and-person as a whole, by which the use of DT for engagement in occupation is either facilitated or hindered. A prerequisite for applying the presented analytical approach is thus an understanding of everyday life as an experienced situation, influenced by the ongoing and relational interplay between the described components of situation, occupation, habit, context and end-in-view as the condition of the transaction (the use of DT for engagement in occupation). Consequently, use of DT is not merely understood as used by the individual to engage in occupation; rather it is embedded in the very components constituting everyday life as an experienced situation. This theoretical understanding, applied to the development of the presented analytical framework, is illustrated in Figure 1 (Theoretical frame for the development of the presented analytical framework).

Materials and method

Approach, setting, participants, data collection and data analysis

The analytical framework was used to analyse data collected in an empirical study aiming to contribute knowledge about underprivileged citizens' use of technology for engaging in health-related occupation as a

part of everyday health management [9]. Underprivileged citizens are defined as a segment of the population that does not have access to the rights or benefits granted to the rest of society, often due to a low economic or social status [9]. For this study, a qualitative exploratory study design was chosen [46,47]. A residential area in the northern part of Denmark, identified by The Danish Health Authority as a district with health inequalities [48], was chosen as the geographical setting for data collection. Using snowball sampling [49,50], we recruited adults (18+ years) with health problems, early retirees, social security recipients and/or unemployed people capable of writing and understanding the Danish language who lived in the selected residential area. Eight participants, six women and two men, aged 27 to 66 years, were enrolled in the study. The study was conducted as an iterative process of data collection and analysis. Data collected in the study were subjected to three interconnected analytical processes. In the final part of this analytical process, data material collected from cultural probes [51–53] and individual interviews and workshops were analysed in a final qualitative content analysis [54].

Development and application of the analytical framework

For the final part of the analytical process, we developed an analytical framework based on the theoretical frame described above. For this operationalisation of theory, the described relationship of indeterminate situation, determinate situation, habit, context and end-in-view, was viewed as central to capturing as a unit of analysis the relation between the individual, his or her use of DT for engagement in health-related occupation and the situation. To synthesise the analytical process, we developed the structured categorisation matrix shown in [Appendix A \(Table A1 - Overview of the analytical findings in the structured categorisation matrix\)](#). The matrix was created in accordance with the described theoretical frame and for the purpose of framing the relationship of the concepts chosen as main data coding categories. The horizontal components in the table were employed to the table in accordance with Dewey's notion of indeterminate and determinate situations, along with columns for reporting of the participants' DTs use, the features and functions of this use and a column for an overall transactional perspective. The vertical components in the table were employed in conformity with Dewey's notion of the concepts of habit, context

and end-in-view. During the organising of the data analysis, we applied Dewey's notion of an 'indeterminate situation' and a 'determinate situation' as an overarching agenda of understanding for the participant's use of DT for engagement in health-related occupation. The analytical process was structured into five steps as follows.

Firstly, and in line with Dewey's description of an indeterminate situation as the antecedent condition of inquiry [31], we focussed on analysing the characteristics, challenges and needs of the participants' engagement in health-related occupation. Secondly, the analysis emphasised strongly the concepts of habit, context and end-in-view, owing to their pivotal role in the theory of transaction [25,33,34,36]. To identify habit, context and end-in-view, we asked four questions during the analysis: 1) What are the participants' habits? 2) What is participants' context? 3) What is the participants' end-in-view? and 4) What kinds of indeterminate situations are shaped by each of these factors and/or by the relation between habits, context and end-in-view and the participants' use of DT for engaging in health-related occupation. Thirdly, we compared the answers to these questions with the identified challenges, characteristics and needs of the participants to describe the participants' desired determinate situation. All data were reviewed for content and coded for correspondence with and examples of the concepts of indeterminate situation, determinate situation, habit, context and end-in-view; and sub-categories were generated as a way of describing the unit of analysis. Fourthly, we identified if and how the identified use of DT for engagement in health-related occupation could support the participants' inquiries before and throughout the movement from an indeterminate to a determinate situation in relation to habits, context and end-in-view. Finally, using a transactional perspective, we made an abstraction on habits, context and end-in-view. This final step of the analysis produced the overall analytical understanding of how the participants used DT to engage in health-related occupation from a situationally oriented perspective.

As illustrated in [Figure 1](#) (Theoretical frame for the development of the presented analytical framework), our use of the components constituting the analytical framework in the analysis of the participants' everyday life situations adopted a transactional perspective. This means that the description and analysis of each component was prepared paying attention to its dynamic interplay with the other components. The components thus worked as an

interleaved whole, and therefore the final formulation of a transactional perspective on ‘technology use for engagement in health-related occupation’ should not be regarded only from the perspective of the individual but from a situation-oriented perspective. [Appendix A \(Table A1\)](#): Overview of the analytical findings in the structured categorisation matrix) presents an overview of the coding of the data material and summarises the analytical findings of the study.

Results

As shown by Madsen (2017), the use of the presented analytical framework in the analysis of data helped identifying that the participants’ use of technology to engage in health-related occupation as a part of their everyday health management is influenced by the technology’s support of the merging complex interplay of personal and contextual conditions and its support of the participants in their ‘inquiry to action’ strategies concerning engagement in health-related occupation. More specifically, the analytical approach allowed us to determine that the participants used DT to engage in health-related occupation in three ways: 1) by supporting inquiries towards appropriate habits and actualisation. 2) by supporting context-related inquiry relevant to engagement in health-related occupation and 3) by supporting inquiries aiming to obtain uniformity and stability in everyday life as a basic drive towards engagement in health-related occupation. In the following sections, we show how the applied analytical framework was found to be useful for conducting a situationally oriented analysis of DT use for engagement in occupation.

Identification and registration of digital technological artefacts used for engagement in occupation

Our use of the table for identification and analysis ([Table A1](#)) made it possible to identify and register a range of DTs used by the participants for engagement in health-related occupation. As presented by Madsen (2017), the application of the table fostered identification and registration of televisions, computers, tablets and smartphones, with a marked focus on features and functions related to the internet (official web-pages, social media, chat and email) as the DTs identified by the participants for engagement in health-related occupation.

A frame for making transparent the complexity that the situation creates for the participant

The analytical framework was found useful in making transparent the complexity of the participants’ everyday lives. This became evident during the analysis, where orientation towards the various components that make up the analysis framework and a simultaneous focus on the participants’ situations revealed that their use of DT was not only unidirectional, but had multiple application perspective, due to the complexity that shaped their everyday lives. For example, the participants wished for DT to be designed not only for their everyday lives, but also for the relations between themselves and their context. This was clarified in the participants’ need for support of context-related inquiry and experience, and exemplified through their needs to be someone within a context, to gain access to and coordinate with and within a certain context and to obtain motivation and recognition to engage in health-related occupation from other citizens [9]. By acknowledging everyday life as an experienced situation and by applying Dewey’s view of technology use as emerging from the transaction between the individual, the context and the situation, the analytical approach thus supports the need to understand everyday life as a complex situation influencing the use of DT for engagement in occupation.

Identification of problems with and needs for inquiries in relation to engagement in occupation

Using the analysis framework, it became clear that the approach made it possible to identify problems with and needs for inquiries in relation to engagement in health-related occupation. This was the case, e.g. when discovering the participants’ search for and need of support in their inquiries related to habits, context and end-in-view. In particular, the analysis fostered a focus on the participant’s reports that they experienced ‘unfulfilled inquiries’ when using existing DT. This could, for instance, be observed in their expressions about having the ability to seek knowledge about how to engage in health-related occupation on the internet, but they also lacked the resources to put this knowledge into practice in everyday life [9].

Because the theoretical frame for the development of the analytical framework is informed by American pragmatism, which is based on the need to comprehend how real-life problems are understood, resolved and acted upon [33], the analytical approach was found to facilitate a view on everyday life characterised by its problem-solving nature. In addition, the philosophy of pragmatism facilitates a perspective on

changeability in the sense that pragmatist philosophers regard the world as emergent and never final. Applying a pragmatic philosophical perspective on everyday life thus turns focus onto the nature of knowing and acting - knowledge about what we do in everyday life and knowledge about how we do it as the central point of interest [55–57]. This produced an analytical focus on the participants' knowledge or lack of knowledge about how to engage in health-related occupation by use of DT rather than an analysis of their specific performance of occupation.

Facilitating a situation-oriented analytical language

The use of the presented analytical framework was found to enable the use of a situationally oriented language for the data analysis. As an example hereof, the habits dominating the transactions of the participants' everyday life may be described as non-conductive to the functional coordination needed to engage in health-related occupation. This formed an indeterminate situation of stalling, characterised by a lack of knowledge about how to break the situation and revealed difficulties in translating inspiration into action. Furthermore, the application of a situation-oriented language for the analysis made it possible to articulate that the use of DT to connect with the context played a vital role for the participants' possibility to form inquiries and thus to build a foundation for engaging in health-related occupation. It also allowed us to describe how the participants used DT to support their context-related inquiry and experience in manners relevant to obtaining a determinate situation of engagement in health-related occupation. Finally, the analytical approach made it possible to communicate that the participants used DT to obtain uniformity and stability in everyday life, and that their use of and wish for DT to support these inquiries may be considered as necessary stepping stones (transactions) in their ends-in-view and hence in their basic drive towards obtaining a determinate situation of everyday health management [9]. As such, this study indicates that by operationalisation, pragmatist concepts applied in conjunction with an occupational perspective may inform and guide the terminology orchestrating a situation-oriented analytical process.

Discussion

DT use is becoming increasingly important for human occupation and appears to be increasingly

embedded in people's everyday occupations [7]. Given its complexity and the fact that human use of technology encompasses multiple facets [8,15], the use of DT to engage in occupation appears as an obvious area for studying how a transactional perspective may contribute to a situated understanding of DT use in everyday life. In this study, we applied 'use of DT' to show how a combination of method and theory applied to experienced situations may be a methodological resource for studying occupation. This is in line with the call to apply a transactional perspective in empirical research transcending the individual [11]. The study shows that it is possible to analyse the use of DT for engagement in occupation from its relationship to the situation by applying Dewey's concepts of indeterminate or determinate situations that depend on the dynamic interplay of functional coordination, habit, context and end-in-view within an occupational science approach.

Although a large body of occupational science research has applied and discussed a transactional perspective, we see, as argued in the introduction, a need to operationalise a transactional perspective on occupation within the occupational science and occupational therapy literature. This perspective is supported by recent research, which resorts to a more application-oriented approach in the use of a transactional perspective on occupation, for example within occupational therapy practice models [58], in relation to community change [59], as an element in occupational therapy education [60] and in relation to measurement of performance in digitally mediated occupations [61]. This study contributes with an example that brings situational orientation to a practical level by analysing aspects of engagement in occupation from a transactional perspective. We believe that this theoretical and methodological move is important to support one of the basic aims of occupational science; providing insight into the primary modality of occupational therapy (occupation) by researching dimensions of occupation [62]. Yet, as discussed below, pros as well as cons may be associated with applying Dewey's pragmatist perspective to an analysis of the use of technology for engagement in occupation as situationally dependent.

Analysing technology use as situationally dependent

It is possible that applying Dewey's transactional perspective may have kept our analysis of underprivileged adult citizens' use of technology for engagement

in health-related occupation at a somewhat unshaped level. Dewey did not fully describe any bounds of the concept of situation, which raises the question of the criteria defining the limits of 'a situation'. Therefore, it is important to note that the suggested 'situation orientation' of the analytical framework does not contain any specific directions specifying where and when situations begin and end.

Rosenberg and Johansson (2013) suggested that a situation is an applicable unit of analysis because it allows us to understand where and when transactions occur. They did, however, also emphasise that the lack of bounds of the concept of situations may challenge the balancing between openness to the entire situation and the situational aspects chosen for exploration. In contrast to Rosenberg and Johansson (2013), we applied Dewey's description of habit, context and end-in-view as central components of the complex character of transaction as a frame for the analysis of occupation as situationally dependent. It is thus conceivable that our operationalisation of this perspective into an analytical tool might have created a better balance between the various aspects constituting a combined situational orientation.

Applying Dewey's idea of knowledge (inquiry) as the key source of human practice [25] to the development of the analytical framework raises the question of whether focussing on the use of DT for engagement in occupation is merely a 'knowledge issue'. As proved by occupational therapy research, the use of everyday technology is also affected by both mental and physical components of the individual [21–23]. The analytical framework may therefore best serve citizens if applied in conjunction with more detailed tools, focussing more in depth on performance of occupation. It is thus likely that owing to its broad situational orientation, the framework used in this study may be used to 'set the stage' for a more in-depth analysis of how certain technologies are applied during the performance of occupation.

Although this study indicated that Deweyan pragmatism offers a set of concepts that in conjunction with an occupational science approach may serve as an analytical framework for exploring the use of DT for engagement in occupation, it is important to emphasise that the areas of Dewey's pragmatic philosophy addressed in this study comprise only a subset of his extensive work. The application of Dewey's theory of transaction is thus limited by being dispersed across his entire body of work. Acquiring a thorough understanding of Dewey's pragmatic philosophy presupposes a dedicated study of his ideas. Future work

to further develop the analytical framework should therefore include studies of Dewey's theories on 'situations' in relation to analysis of technology use for engagement in occupation.

In relation to this, it is worth discussing the extent of situational orientation that the analytical framework presented in this study holds. It is possible that the situational orientation we have applied in this study is only as accurate as our own reading or perception of *the situation* as presented by Dewey. In relation to this point, we believe that this possible challenge to the analysis of occupation as situationally dependent relates to the discussion of the challenges raised by the use of language within occupational science and occupational therapy when moving into new terrain in the study of the phenomenon of occupation [63]. Overall, the presented analytical tool may still offer an analytical frame for researchers seeking an approach allowing them to explore and communicate the use of technology from a situationally oriented perspective. However, future research is needed exploring the usefulness of analysing technology use - and maybe even occupation in general - by applying the framework developed in this study.

The findings of this study also raise the issue whether it is fruitful in future research within occupational science and occupational therapy to view technology as an adjunct to engagement in occupation, or what Smith (2017) called *occupation-related technology* (ORT). This approach may form a perspective on technology as a modifiable object separate from engagement in occupation. However, holding on to dogmas that analytically separate person, occupation, technology and situation from each other may be problematic if we are to reflect the development towards technology and everyday life evolving more in unity than in separation. Analysing the use of technology for engagement in occupation as situationally dependent may provide an opportunity to comprehend technology use from a situationally oriented perspective. This perspective should, however, be further explored in future empirical research.

A framework for researching, developing and providing technology aids

Within the spectrum of methods and approaches for researching DT, some are more appropriate than others for the investigation of DT use for engagement in occupation. The challenge is to understand DTs and their embedding in people's everyday life as they occur, i.e. to understand the dynamics of technology use and the

consequences of these dynamics for occupation. However, DTs are often researched and developed by engineers with a technical focus and therefore characterised by a narrow attention to the product or the product development process. From a holistic perspective, technology cannot be considered a stand-alone element; it is always situated in a context. To understand technology usage, we must therefore focus on the situational aspects that affect technology usage. This is important to avoid that occupations become more difficult to engage in for certain groups of citizens than for others if digitalisation force changes to the requirements to engage in occupations [61]. We therefore argue for a need for both a methodological and theoretical approach to research and the need to understand the use of DT for engagement in occupation from an embedded perspective. This study contributes to both occupational science and occupational therapy by adopting an analytical perspective that supports a situationally oriented analysis of DT use, which is key to understanding DTs and their embeddedness into people's everyday life, and thus a prerequisite to engagement in occupation.

The analytical approach presented in this study contributes with an example illustrating how to obtain knowledge that is useful in working with the dynamics of everyday life where DT of various kinds must be implemented to support engagement in occupation. The analytical framework may therefore be useful for occupational therapists gathering data prior to either developing or providing DT as aids intended to support citizens in fulfilling their inquiries when engaging in occupation. Given that DTs have become an inseparable factor influencing engagement in occupation [8,15], analysing citizens' habits, contexts and ends-in-view from a situation-oriented perspective may potentially provide occupational therapists with knowledge about the layers of complexity characterising users' everyday life and a useful picture of how to avoid DT functions and (design) features that are contra-indicated for the users' needed inquiries. As such, it would be interesting in future research to explore whether the analytical framework is useful in occupational therapy practice dealing with DT to underpin engagement in occupation.

Future research and validation of the analytical framework

By introducing the analytical framework, we intended to provide both a conceptual understanding of and a structure for practical use of Dewey's theories on transaction and inquiry. Future research on the

application of the analytical framework should critically examine the usefulness of the framework and discuss possible advantages and disadvantages of its use. A future validation of the suggested analytical framework is therefore needed. Validation may be achieved, e.g. by testing the framework in relation to different groups of citizens' use of technology for engagement in occupation, in relation to use of different types of technology and in different cultural contexts.

Methodological considerations

A limitation of this study is the number of enrolled participants generating data for the application of the presented analytical framework. The relatively low number of participants limits the representativeness of this study. In addition, the participants were recruited from only one culture and one specific area of Denmark, and we did not explore any generational and gender differences between the participants' use of DT.

It is further relevant to discuss whether our ambition to 'double manage' theoretical perspectives from Deweyan pragmatism and occupational science was accomplished and if it provides an accurate theoretical frame for the development of the analytical framework and the data analysis. Our familiarity with both Deweyan pragmatism and occupational science can, however, be considered to facilitate trustworthiness in the use of the theoretical frame for the development of the analytical framework. This was substantiated by thorough discussions of the relevance and application of the chosen theoretical resources among the authors.

Conclusion

The objective of this study was to provide an analytic approach to situationally oriented analysis of the use of DT for engagement in occupation. This was done by reporting on the development and application of an operationalisation of Dewey's theory of transaction and inquiry in conjunction with an occupational science approach used as a framework for analysing how underprivileged adults use DT for engagement in occupation as part of their everyday health management. The study showed that the framework developed is useful for conducting a situationally oriented analysis of DT use for engagement in occupation. The usefulness is characterised by identification and registration of DT artefacts used for engagement in occupation, by providing a frame for creating transparency of the complexity the situation forms for the participant, by identification of problems with and needs for inquiries in relation to

engagement in occupation and by facilitating a situation-oriented analytical language. Even so, future research and validation of the analytical framework presented are needed.

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Disclosure statement

The author reports no conflicts of interest. The author alone is responsible for the contents and writing of the paper.

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Appendix A

Table A1. Overview of the analytical findings in the structured categorisation matrix.

Component	Indeterminate situation of everyday health management	Characteristics of the indeterminate situation	Challenge	Need	Determinate situation of everyday health management	Digital technological artefact	Feature/function	Use of DT for engagement in health-related occupation
Habit	Stalling	A lack of knowledge about how to break the situation Difficulties in translating inspiration into action	Breaking inappropriate habits Moving from inspiration to actualisation	Stimulation to take action	Appropriate habits Actualisation	Computer, Tablet Smartphone	Chat Email Internet Official websites Social media	To support inquiries towards appropriate habits and actualisation.
Context	Disconnected from a context	Lack of possibility to experience and define themselves as part of a context	Connecting to the context	Being someone within a context To gain access to and coordinate with and within a certain context Motivation and recognition by other citizens	Connected to the context	Television Computer Tablet Smartphone	Internet Email Social media Chat	To support context-related inquiry relevant to obtaining a determinate situation relevant for engagement in health-related occupation.
End-in-view	Lack of knowledge about how to cope with the situation	Difficulties in managing everyday life	Coping with everyday life	Maintaining status quo Obtaining situation-convertible knowledge To compare with others in the same situation	To cope with everyday life	Computer Tablet Smartphone	Internet Social media	To support inquiries about obtaining uniformity and stability in everyday life as a basic drive towards obtaining a determinate situation of health-related occupation.