

# The importance of reflection on technology in practice for developing professional understanding

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## Background and introduction

The various private and public institutions that employ graduates with advanced healthcare degrees are looking for employees who have more specific knowledge and competencies to implement technology into practice. This occurs as the patron demographic of such institutions becomes increasingly elderly people in need of healthcare, nursing, and rehabilitation services. Simultaneously, the prevalence of working-age employees to provide such care is decreasing. In addition, there are several new diagnoses within the disability area which also require services. One solution to these challenges is the implementation of new technologies that help deliver healthcare services. We aimed to evaluate how students in various educational programmes experience these new technologies as part of their work practice, and to develop new educational courses concerning new technology competencies. Therefore, an interview study was initiated which aimed to address the following research questions:

- What / which technology do students report to understanding in the interview survey?
- How does technology affect students' development of professional understanding and identity during education?

This poster presents results from occupational therapy students; the overall research study involving several professions is presented in the article: Technology understanding in the professions. This article is published in the journal: LearningTech, 2022 (Lassen & Kærgaard, 2022).

Occupational therapist education in Denmark has a duration of 3.5 years and consists of 7 semesters. Students learn aids, technology and accessibility in the 4th semester, which is also when the students partake in practical experiences. Teaching about technology and aids relates predominantly to technology/aids that citizens/patients can use in everyday activities to become more independent, as well as how technology can be used by a healthcare professional in the form of an occupational therapy tool (Professionshøjskolen, UCN, 2021).

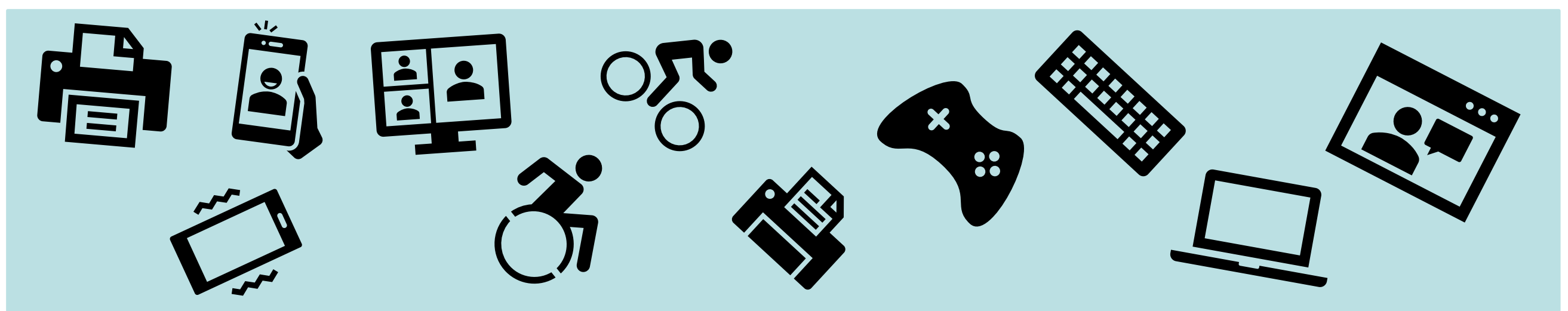
## Methods

A total of 12 semi-structured interviews were conducted for occupational therapy students, six of which occurred in the 3rd semester and six of which occurred in the 5th semester. This timing was selected so that students could be interviewed before and after receiving instruction in aids and technology and practicing using this technology in the 4th semester. Specifically, for occupational therapy students, this study sought to determine whether changes can be detected in the students' understanding of technology, after both theoretical and practice-based teaching about technology (Horn, et al., 2020; Fink, H., 2019).

The interview guide is designed based on the framework for the semi-structured life world interview (Kvale & Brinkmann, 2009, pp. 22-45). The study was conducted as follows:

1. Thematisation (Thesis: students do not understand the same thing about the lay concept of 'technology').
2. Design [The interviews were designed based on a question guide that aims to pursue questions in the direction that provides relevant answers in depth (probing)].
3. Interview (The interviews were expected to last approximately 60 minutes and were conducted via video conference).
4. Transcription (The interviews were recorded and transcribed).
5. Analysis (The transcripts were analysed with a focus on expressing the students' understanding of technology).
6. Verification (The interpretation of the interviews was verified by the interviewees rereading and confirming the analyses).
7. Reporting (Kvale & Brinkmann, 2009).

The study's approach was inspired by: Science, Technology, and Society studies (STS) (Cresswell, 2010). In addition, the study's theoretical starting point was an understanding of theory and practice based on the notion of phronesis where "practice", contrary to the profession's conventional understanding, is not tied to a place (Eikeland, 2008). A condensation of opinion has been made based on the interviews in relation to questions based on the research questions.



## Findings

The study findings suggests that students' understanding of technology is related to their personal experience with the technology in a specific practice. The students gained a greater understanding of the possibilities offered by the technology when they experienced it in practice with, for example, patients and / or colleagues. A higher level of understanding of and comfort with a technology comes with experiencing it in practice rather than just reading about the possibilities of technology in a textbook.

The students expressed that practical experience with technology provides greater insight into the applicability of professional methods and theories in different subject areas. Similarly, the students' practical experience helps expose them to new areas of work and alternative career opportunities involving technology. This experience provides a different perspective and understanding of technology, so that students see it not only as a compensatory measure but as something that can bring great benefit to the healthcare profession.

The students had far more examples of possible applications for technology in practice when they were in the 5th semester compared to the 3rd semester of occupational therapy school. Furthermore, they are able to reflect on new and untested possibilities for technology in the 5th semester.

All occupational therapy students (3rd and 5th semester students) pointed out that when they started the occupational therapy program, they had very limited knowledge of technology as it related to their profession. However, all students expect that over half of their future working time will involve some form of technology.

The students gave examples of technologies that they expect to use in their working lives such as:

- **Technology to support their training and rehabilitation work with the citizen / patient.**
- **Concrete aids that they introduce to the citizen / patient.**
- **Technology that supports their documentation of professional work (PC, journaling programs, etc.).**
- **Technology that aims to improve their own work environment.**
- **Technology that aims to support the services provided (i.e., various welfare technologies / health technologies).**

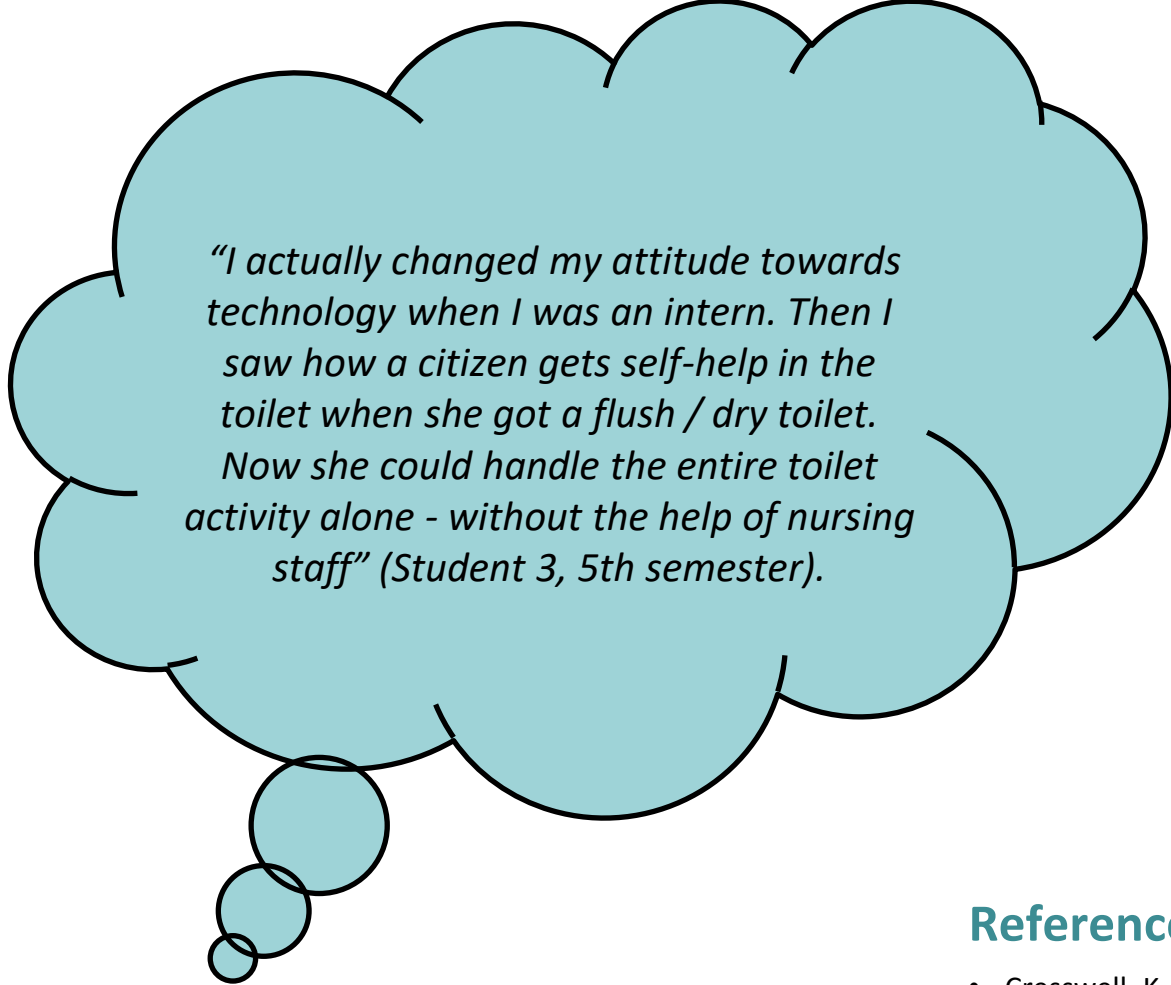
Another interesting perspective is that students who had been in internships where they'd used technology gave examples of how technology contributed their understanding of some theoretical elements in the occupational therapy programme. These elements did not necessarily directly relate to technology. For example, one student talked about the importance of using an activity analysis:

*"I now better understand why I need to do an activity analysis - and why there need to be different graduation options in the different activities for the patient. In my internship, I tested with a training technology (training programs on a tablet with video and customization options) and it made it visible to me that a citizen had made some small advances in rehabilitation that I would not have seen without the technology because it was very small progress, but the technologist showed that the patient could do a little more exercises - and I then had to do an activity analysis where it contains some other graduation options for the patient" (Student 1, 5th semester).*

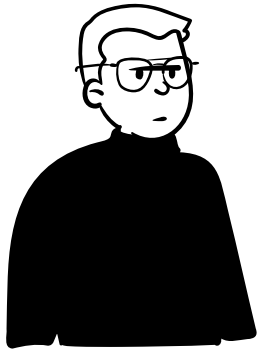


The technology clarified to the student, as well as to the patient himself, that the patient had made progress. The technology was instrumental in visualizing progress and as a motivating factor for the patient to continue rehabilitation.

A final perspective that emerged in the interviews was that witnessing citizens and patients using technology in practice could be instrumental in the student changing their own view of technology. One student said:



*"I actually changed my attitude towards technology when I was an intern. Then I saw how a citizen gets self-help in the toilet when she got a flush / dry toilet. Now she could handle the entire toilet activity alone - without the help of nursing staff" (Student 3, 5th semester).*



Before the student's internship, her overall perspective on technology was that it was impersonal and cold. However, after the internship, the student saw technology as creating opportunities for users and patients.

## Conclusion

It is important for students to gain practical experience with technology to develop their professional understanding of it. Practical experience with technology early in their education gives students the opportunity to reflect upon technology in relation to the professional methods and theories used throughout the remainder of their course.

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