

Digitalization or what happens when introducing new technology and its impact on VET teaching practice

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Challenges

- Rapid technical advances
- Specialised skills and knowledge
- How can VET teachers arrange for learning so students learn up-to-date skills?
- How can VET teachers develop their ability to teach their students in modern didactics with new technologies?
- (Without fundings for purchasing new machines...)

The old surprise or disappointment

"Screens do not seem to be the way to the knowledge, rather the opposite"

(Dagens Nyheter 20190829)



Digitalization – VET teacher training program

- Learning outcome and content
 - Knowledge about
 - Try different software
 - Students with special needs
- Learning on campus as well as through the local learning platform (LISAM)
- More distance using zoom then meeting face-to-face as an effect of the pandemic

Digitalization – VET upper secondary school

- National strategy of digitalization in the Swedish school system.
- Goal – all students should have a tablet or a computer
- Teachers' and students' digital competence
- Emphasize inclusion, equity, participation
- The ability to communicate and use information – implications for how to gain/find knowledge
- Digitalization of vocational practice
- New teaching methods arise to support students' vocational learning

One such teaching method is...



Previous research on simulation-based training

- Three arguments for using simulators as a teaching method;
 - the technical development and advancements in work life
 - the financial aspect
 - the safety issue of vocational training.

- The research on contemporary simulation pedagogies can be thematised into three themes:
 - 1) the effect of technology-enhanced simulation training,
 - 2) the fidelity and authenticity of simulation and learning, and
 - 3) pedagogical considerations and underpinnings.

About the project

- Four year project – founded by the Swedish research council.
- Researchers: Song-ee Ahn & Sofia Nyström
- Two upper secondary schools and two vocational education programmes; Natural Resource Use Programme & Vehicle and Transport Programme
- Longitudinal ethnographical data collection: interviews, observations, video-recordings, and studies of course materials
- Teachers (n=12) and students (three classes, around n=57) and manufacturer of simulators
- Thematic analysis

Sociomaterial perspective



- Definition of practice as “...embodied, materially mediated arrays of human activity centrally organized around shared practical understanding” (Schatzki, 2002, p. 11).
- A practice presupposes a particular arrangement of activities that hang together through language, actions and relationships – ‘sayings,’ ‘doings’ and ‘relatings’
- Materials as dynamic and integrated with human activities in ways that act on practice

What happens when introducing new technology?

- The beginning - an ad hoc practice and introduction - very loosely connected to existing VET teaching practice

Many colleagues thought that it was a way of occupying our students, a very expensive babysitter (Tim)

- Changes in sayings and doings - becomes a part of teaching practice

I think it depends a lot on how we as teachers work with the simulators. If we use them as a place to be for a short while then it is not good. However, if you appoint resources [in this case a teacher] to sit next to the students during the times they are supposed to simulate, then I think it will be a difference. If students are left alone, then it is hard. (Eric)

- A rearrangement of teachers' work and new relatings
- A new emerging teaching practice
- New demands on the teacher

Ahn, S. & Nyström, S. (2021). Using high-fidelity simulators in VET teaching practices – A VET teacher perspective. Paper presented at Crossing boundaries conference, Online, 8-9 April

Also a submitted manuscript to an international journal

What about the teachers? Are they needed?

- Multiple teaching locations - simulation training consists of ongoing activities alongside other learning activities.
- Students can train without real machines or teachers being present. However, teachers professional bodies are enacted in different ways:
 - Included into students learning progression
 - Framing of the training
 - Simulator becomes an extended teacher body

Manuscript submitted to an international journal

Other publications

Ahn, S-E. & Nyström, S. (2020). Simulation-based training in VET through the lens of a sociomaterial perspective. *Nordic journal of vocational education and training*. 10(1), 1-17.

Some publications from other projects:

Abrandt Dahlgren, M., Rydstedt, H., Felländer, L., & Nyström, S. (Eds) (2019). *Interprofessional Simulation in Health Care*. Springer: Cham

Nyström, S., Dahlberg, J., Edelbring, S., Hult, H., & Abrandt Dahlgren, M. (2017). Continuing professional development: The pedagogical practice of interprofessional simulation in healthcare. *Studies in Continuing Education*. 39(3), 303-319.

Nyström, S., Dahlberg, J., Edelbring, S., Hult, H., & Abrandt Dahlgren, M. (2016). Debriefing practices in interprofessional simulation with students: A sociomaterial perspective. *BMC Medical education*. 16 (148), 1-8

Thank you!
Questions?

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