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Editorial: Autumn 2019 – The most comprehensive issue this far

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Another issue of the *Nordic Journal of Vocational Education and Training*, NJVET, is finalised! This is the first issue with a partly new editorial group, and we are happy to continue the development of the journal together. Eight peer-reviewed research articles means that this is the most comprehensive issue of our journal this far. Seven of the present articles are written in English and one in Danish. This means good opportunities for readers from beyond the Nordic countries to take part of Nordic VET research. And, if you are not familiar with the Nordic languages, we want to point out that even our articles that are written in Danish, Norwegian, or Swedish, always have an English abstract, English keywords, and an English translation of the title. There through, all our authors make their contribution to the area of VET research in general, but particularly to the Nordic VET research.

Eight examples of Nordic VET research

This issue includes three contributions from Denmark, two from Finland, two from Sweden, and also one article that is written in cooperation between Sweden and Finland.

The first article is from Denmark, *'The mannequin is more lifelike': The significance of fidelity for students' learning in simulation-based training in the social- and healthcare programmes* by **Vibe Aarkrog**. Elaborating the concepts of fidelity and learning, the article investigates the factors that influence the students' perception of



fidelity and the relationship between fidelity and the students' learning processes. The result shows that employing a high technological mannequin has some positive effect on students' learning, moreover, that the students perceived the fidelity of the simulation differently depending on their experiences. Therefore the author argues that decisions on the degree of fidelity should be made considering the students' practical experiences.

In the second article, *Integrated teaching for vocational knowing: A systematic review of research on nursing-related vocational education and training*, **Maria Christidis** from Sweden presents a review of studies on subject integration or thematic approaches in VET. That is, the focus is integration between general and vocational subjects in school-based parts of VET. In the review, Christidis identifies three types of integrated teaching: 'through embeddedness or streaks, problem-based learning, and between school and workplace'. The methodological approach in the included studies was mainly quantitative, and it is argued that this influences the understanding of integrated teaching and vocational knowing. Thus, Christidis identifies a need for more qualitative studies on integrated teaching.

In the third article, *Transfer and reflection in the Danish dual model: Findings from development in the Danish vocational education and training programmes*, **Arnt Louw** and **Noemi Katznelson** from Denmark presents perspectives on the central question of transfer in the Danish VET-model. The article is based on a qualitative study of 21 development projects carried out at different VET school throughout Denmark. The article points out that transfer between school and work is all too often the student's individual responsibility to make. A central argument in the article is therefore that transfer established on an institutional level helps VET students create transfer and a sense of coherence in the education on an individual level. Finally, the article argues that the concept of reflection is a strong tool for the students' connection-making and sense of coherence between school and work.

The fourth article is written in cooperation between **Hamid Asghari** from Sweden and **Birgit Schaffar** from Finland. In *The human right to work: The tension between intrinsic and instrumental values in five teachers' stories from the industrial technology programme*, they elaborate on and discuss the tensions in the value of work for human life, starting with the UN Declaration of Human Rights. The article analyses in a narrative perspective data from the life stories of five vocational teachers. The findings show that the right to work can be seen as three tensions, where one is simultaneously an universal right and under conditions, and the second is the paradox of work as a place to belong under the logic of profit. The third tension is between doing a good job and maintaining professional pride and self care. The discussion in the article addresses how vocational teachers can prepare their students for work while installing also knowledge about civic rights and how to potentially influence structures in the labour market.

The fifth article, *Vocational students' identity formation in relation to vocations in the Swedish industrial sector*, is written by **Lisa Ferm, Daniel Persson Thunqvist, Louise Svensson** and **Maria Gustavsson**. The topic of the article is identity formation among VET students in the industrial sector. The empirical contribution is qualitative interviews with 28 VET students at four different upper secondary schools in Sweden. The analytical focus is on the students' learning trajectories as shaped by their social backgrounds, and by their views of work-based learning, industrial vocations and future plans. The findings show vocational identity formation as a non-linear process. One student group showed commitment and gravitated towards industrial vocations, group two were flexibility-oriented students that were open to careers outside the industrial sector, whereas the third group were ambivalent students with no coherent career plans. The authors conclude that their contribution to the discussion about vocational identity formation is that the vocational student's learning trajectory types and social categorisations must be included and understood in the context of the upper secondary school environment.

The sixth article is about *Motivational sources of practical nursing students at risk of dropping out from vocational education and training* in Finland. In their qualitative interview study, **Elisa Salmi, Tanja Vehkakoski, Kaisa Aunola, Sami Määttä, Leila Kairaluoma**, and **Raija Pirrtimaa** show a complicated pattern of motivational sources among the practical nursing students. The motivational sources differ concerning the internal or external locus of control and are related to engagement in or disengagement from studying – or ambivalence towards studying. A consequence of the complicated motivational pattern is a need of variation in the ways of supporting students at risk of dropping out.

The seventh article, *Forhindringer for samarbejde om pædagogisk udvikling mellem skoleledere og lærere: Belyst gennem et aktions-forskningsprojekt i erhvervsuddannelserne* (Obstacles to collaboration on educational development between school leaders and teachers: Seen through an action research project on vocational education and training) is a Danish study by **Henrik Hersom** and **Dorrit Sørensen**. Based on an action research project, the article explores central challenges to educational development projects. A central argument in the article is that school management mainly focuses on strategy and objectives whereas teachers mainly focus on everyday practice and experiences. Thus, the article points out three central and interesting management related obstacles that need to be addressed in order for lasting organisational changes to be established from educational development projects and experiments.

The eighth and last article is a study from Finland by **Sanna Ryökkynen, Raija Pirrtimaa**, and **Elina Kontu**. In *Interaction between students and class teachers in vocational education and training: 'Safety distance is needed'*, they investigate Finnish VET students who receive intensive special support, and their perceptions of the interactions with their class teachers. They find that the students describe

interaction with their class teachers positively. Furthermore, the article shows that the interactions were study-oriented, while the discussions on the students' future such as career plans or finding a place in the society were excluded. The authors critically point out that there is a need to give the students a voice.

Now we are looking forward to our next volume, which is volume 10 of NJVET. The first issue of 2020 will be a special issue on technology-mediated learning in VET, but there will also be issues with a broad content of research in the field of vocational and professional education and training.



‘The mannequin is more lifelike’: The significance of fidelity for students’ learning in simulation-based training in the social- and healthcare programmes

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Abstract

The article concerns fidelity in relation to using mannequins in simulation-based training in social- and healthcare education. The article addresses two issues. What influences fidelity, and how does the degree of fidelity influence the students’ learning processes? Simulation-based training is organized in three phases; briefing, scenario, and debriefing. The article focuses on the scenario phase. A central issue in relation to the scenario phase is fidelity; i.e. the degree to which the scenario matches the practice it is intended to simulate. The article deals with the factors that influence the students’ perception of fidelity and with the impact of degree of fidelity on the students’ learning processes. The empirical data include observations, combining observations with interviews with students and teachers in social- and healthcare colleges. The analysis shows that a high degree of fidelity simulation in the sense of employing a mannequin has advantages, such as engaging students in learning and enabling them to try out practical skills. Moreover, the degree of fidelity should be adjusted to the students’ practical experiences in order to optimize their learning process. Lower degrees of fidelity may have a positive impact on developing creative thinking and reducing the students’ anxiety. The implication for developing practice is that the social- and healthcare colleges employ a multifaceted approach to fidelity based on ensuring optimal learning conditions for the students. The implication for further research is to specify and systematize the interrelation of learning outcome targets, students’ qualifications and the usages of different degrees of fidelity.

Keywords: fidelity, learning process, simulation, social- and healthcare programme.



Introduction

While high fidelity simulation is widely used within training of nurses and training of doctors, it has only recently been included in the social- and healthcare programmes. In this article, high-fidelity simulation refers to simulations using mannequins. As is the case with other new pedagogical tools, the teachers as well as the students are excited about the opportunities related to the use of high technological mannequins. However, it is important to specify the scope of usage of the pedagogical tool. In relation to this, one of the issues concerns the interrelation of fidelity and learning. The aim in this article is to discuss and clarify how degrees of fidelity influence social- and healthcare students' learning process.

Simulation-based training includes three phases: briefing, scenario, and debriefing. A great many articles deal with the importance of the briefing and debriefing phases for students' learning outcomes (Aarkrog, 2018; Johnston, Coyer & Nash, 2017; Loo, Krishnasamy & Lim, 2018).

However, the challenges for simulation-based training, for instance concerning reflection in the debriefing phase, do not appear to differ significantly from the challenges in other kinds of practice-based training. What distinguishes simulation-based training is the simulation activity, which takes place in the scenario phase. The central issue in this article concerns the fidelity of the scenario.

This article presents results from an empirical study of simulation-based training in social- and healthcare education, 'SIMU at SOSU'¹, that runs in the period 2017–2019. The research project is part of a developmental project, conducted at five Danish social- and healthcare colleges. In 'SIMU at SOSU' teachers develop and try out technologically based simulations with the aim of strengthening the quality and effectiveness of simulation-based training in the social- and healthcare programmes. This article focuses on the data that concern how the degree of fidelity in the scenario influences the students' learning process. The argument is that the learning outcome targets as well as the students' qualifications should decide the degree of fidelity.

Research into simulation-based training

A number of studies show that simulation-based training improves the learners' learning process and learning outcome, e.g. the learners' motivation (Dennis, Sainsbury, Redwood, Ng & Furness, 2016) and ability for reflection (Poikela, Ruokamo & Teräs, 2015), and it has been argued that simulation-based learning leads to relatively more resilient learning (Akroyd, Jordan & Rowlands, 2016; Cook, Brydges, Zendejas, Hamstra & Hatala, 2013). Research also questions the effect of simulation-based learning (Arafeh, 2017; Kinney & Henderson, 2008) or points to the difficulties in assessing the effect of simulation-based learning (Atesok, Satava, Marsh & Hurwitz, 2017).

Definitions and clarifications of fidelity

Fidelity concerns the realism of the scenario, i.e. the degree of correspondence between simulation and real practice: 'The concept of simulator fidelity is usually understood as the degree to which a simulator looks, feels, and acts like a human patient' (Hamstra, Brydges, Hatala, Zendejas & Cook, 2014, p. 387).

It is common to distinguish between high-fidelity simulation and low-fidelity simulation. High-fidelity simulation refers to scenarios that include multiple elements identical to the real-life situation that is being simulated. High-fidelity simulations often, however need not, employ advanced technology, e.g. by using mannequins. Low-fidelity, meanwhile, refers to scenarios that deviate from the real-life situation that is being simulated; while mannequins may still be employed, the technology is likely to be less sophisticated (Lee, Grantham & Russell, 2008).²

However, a number of studies show that the distinction between high-fidelity simulation and low-fidelity simulation is more multifaceted than just a question of the degree of technology. Several differentiations of fidelity have been suggested. Hamstra et al. (2014) distinguish between structural fidelity (appearance) and functional fidelity (behaviour). Lioce, Meakin, Fey, Chmil, Mariani and Alinier (2015) identify three aspects of fidelity. 1. 'Physical fidelity' refers to the physical environment, corresponding to structural fidelity. 2. 'Conceptual fidelity' refers to the coherence of the various elements in the simulation, e.g. that symptoms displayed by the patient match the diagnosis. 3. 'Psychological fidelity' concerns the realism of events and conditions in the scenario, e.g. that it is possible to communicate with the patient, time pressure and that the noises and smells in the room correspond to real life (Lioce et al., 2015). Dieckmann, Gaba and Rall (2007) distinguish three modes of realism in the scenario: physical mode referring to the physical characteristics of the equipment including the mannequins, semantic mode referring to the realism of concepts and their relationships, e.g. theories or information, and phenomenal mode concerning the participants' experiences in the simulation, including their accept of differences between the simulation and the clinical practice (ibid., pp. 184–185). Likewise, arguing that the assessment of the level of fidelity of the simulation should be based on the learner's experience rather than on the kind of simulators, Tun, Alinier, Tang and Kneebone (2015) propose a three-dimensional framework for fidelity including the three axes patient, clinical scenario, and healthcare simulation facilities. 'Patient' includes all forms of interaction with patients, including physical treatment, communication and other social acts. 'Clinical scenario' refers to the progression and complexity of the scenario, including the teachers' role in the scenario. Finally, the 'healthcare facilities' dimension concerns the clinical equipment and environment (Tun et al., 2015). This framework can be used to adjust the degree of fidelity according to particular learning objectives and to the learners' competence levels. For example, a novice learner may benefit from learning

in a scenario that does not include a high degree of fidelity concerning 'healthcare facilities' and thereby does not demand an understanding of the highly complex equipment found in real situations. This framework is useful in relation to SIMU at SOSU, the students' differing in relation to their practical experiences.

The elaborations of the concept of fidelity reflect that fidelity should be defined through the learners' experiences and produced by the learners (Ahn & Rimpiläinen, 2018).

Eventually, as indicated above, high-fidelity simulation may also be established without employing high technology. In a study of nurses' and doctors' engagement in the learning process, a high-fidelity simulation of a 'humanistic nature', i.e. a live person, was applied, the teacher playing a patient. With the teacher's insight into the illness, the teacher was not only able to play the role convincingly, but also guide the learners in the scenario. The study shows that a teacher with knowledge about an illness 'can suspend the disbelief that often happens when manikins or actors seem unrealistic' (Dwyer, Searl, McAllister, Guering & Friel, 2015, p. 431). Furthermore, a scenario using a live person was shown to reduce students' anxiety, simply because they were asked to perform in a scenario that more closely resembled a real clinical context than scenarios using a mannequin (*ibid.*, p. 435). These results have also inspired the analysis of the data in SIMU at SOSU.

Thus, fidelity can be established not only through the equipment in the room but also through the actions there, the learners' experiences of fidelity being central. Consequently, the analysis of the interrelation of fidelity and learning will focus on the equipment, the teacher's role and the students' actions.

Research-based literature about the impact of fidelity on learning

Research into fidelity mostly examines which kind and degree of fidelity best supports students' learning outcomes, often the students' transfer of learning into practice, with some studies indicating that high-fidelity simulation is crucial to students' learning outcome (Kirkman, 2013; Presado, Colaco, Rafael, Baixinho, Felix, Saraiva & Rebelo, 2018; Spetalen & Sannerud, 2013; Walsh, Tran, Waseem, Khan & Haase, 2017).

Other studies - comparing high- and low-fidelity simulation in health professions - show that compared to low-fidelity, high-fidelity simulation does not in particular yield the learners' transfer of learning into practice (Bredmose, Habig, Davies, Grier & Locky, 2010; Chen, Grierson & Norman, 2015; Kinney & Henderson, 2008; Norman, Dore & Grierson, 2012) or develop their knowledge and skills, the low-fidelity simulation group even showing a higher level of self-confidence than the medium-fidelity group (Bowling & Underwood, 2016).

Among the reasons for taking an interest in comparing high- and low-fidelity simulation, a study shows that compared to high-fidelity simulations, low-fidelity simulations are cost effective compared to high-fidelity simulations (Lapkin & Lewett-Jones, 2011).

Thus, the studies show that high-fidelity simulation does not necessarily result in a better learning outcome than low-fidelity simulation. An explanation is that, in order to establish high-fidelity, it is necessary to simulate all elements from the real practice, including all aspects of the patient, the context and the activities. However, when the aim is to provide the learner with realistic experiences, the simulated practice becomes complex and stressful. From a learning perspective, these realistic situations may bring about an extraneous cognitive load that is not conducive to the learning process (Chen et al., 2015; Grierson, 2014; Norman et al., 2012; Tosterud, Hedelin & Hall-Lord, 2013). Concerning students' learning processes, a study addressing the technical aspects of high-fidelity simulation in particular showed that high fidelity is valuable for the students' engagement, realism producing an urgency in the situation (Lawrence, Messias & Carson, 2018).

In a study of nursing students' perceptions of the learning methods in high-fidelity simulation and low-fidelity simulation, high-fidelity simulations involved realistic, holistic patient situations using technology, while low-fidelity simulations were pen and paper studies or used either prosthetic limbs or static mannequins. The results showed that the students were most satisfied with the pen and paper-based simulation (Tosterud et al., 2013).

Also focusing on the learning process, Grierson argues that the advantage of simulation-based training is that one can establish learning situations that are not possible in real practices. In simulations, it is possible to construct a variety of situations and experiences and to learn through error. With the aim of optimizing skills acquisition and transfer to other situations, it is not necessarily important to establish contextual realism, i.e. high fidelity: 'simulations should ensure that learners engage information that is fundamental to the desired skill performance, even when practice conditions are manipulated to increase the variability and/or complexity of the learning experience' (Grierson, 2014, p. 287). The implication is that the fidelity of the simulation should not be so high that it prevents the manipulation of practice to create optimal learning conditions.

Thus, the degree of fidelity should be based on the desired learning outcome goals. According to Hamstra et al. (2014), the current assumption within simulation-based training is that the higher the degree of fidelity, the better the learning. Furthermore, the primary aim in simulation-based training has been to develop high-fidelity technological solutions rather than focusing on educational goals. Hamstra et al. reject this approach, arguing that the question teachers need to ask themselves is: "What are we going to teach?" rather than "How will we use the existing platform to teach this skill?" (ibid., p. 389). Hamstra et al. argue that

functional fidelity has greater impact than structural fidelity in relation to a number of learning goals, such as goals that involve communication and teamwork (ibid, p. 388–389). Furthermore, when considering the balance between structural fidelity and functional fidelity, it is crucial to remain focused on the primary educational aim, i.e. the transfer of what is learnt to real-world situations (ibid., p. 389–390).

The lesson learnt from the literature review above is that the definitions of high fidelity is multifaceted and that the point of departure for specifying the optimal degree of fidelity should be a combination of the educational goals and the students' experiences of fidelity. In relation to developing simulation-based training in the social- and healthcare programmes, knowledge is needed about what influences the students' experiences of fidelity as well as how degrees of fidelity influence the students' learning process.

Consequently, the aim in the analysis is to examine the following two questions:

1. Which factors are important for the social- and healthcare students' experience of fidelity?
2. How do degrees of fidelity influence the students' learning process?

Research design

The research project studies the impact of technologically based simulations on students' learning processes and learning outcomes, using an action research approach. The teachers at five colleges developed and tested simulation-based training. Data were collected regarding the students' learning processes and learning outcomes from this training. The findings were discussed with the teachers, who then used these findings to develop and improve the simulation-based training. The empirical data in this article stem from the first round of data collection in spring 2018.

The empirical data include observations conducted in five social- and healthcare colleges (Kragelund, Moser & Zadelhoff, 2015). Observation is a contraction of observation and interview and implies that the researcher first observes and then conducts interviews with participants in the observed situations, focusing on discussing and reflecting on the observations. One simulation-based lesson (briefing, scenario and debriefing) was observed at each of the five colleges. Each lesson lasted 40 minutes: 10 minutes for briefing, 10 minutes for scenario and 20 minutes for debriefing. In three of the five simulations, the students were attending the one-year school-based basic course of the social- and healthcare programme and therefore had no practical experience with training or working in real workplaces. In the remaining two simulations, the students were attending the main course of the social- and healthcare programme, in

which students alternate between college-based and work-based training, so these students did have such practical experience.

The data were collected by two researchers, one collecting data at two of the five colleges, the other at the remaining three. At each of the five colleges, a group of four students participated in the simulation that was studied. In the scenario, two students treated and interacted with the patient while the other two observed the scenario. At each college, one group of students and one teacher were followed, meaning that the data collected included a total of 20 students and five teachers.

Concerning ethical issues, the teachers were responsible for selecting the students for the observations. Participation was non-compulsory. The teachers were instructed to inform the students about the data collection process and analyses and to ensure the students that they would be anonymous in the presentation of results. Parental consent was not needed, all students being over 18 years old. In the beginning of the interview, the interviewer informed the students about the purpose of the project and about the focus in the analysis and dissemination, including that the students would appear anonymously in any publication from the project.

The observations focused on the teacher's way of organising the briefing and debriefing phases and on the students' reactions to that. During the briefing, the observation concerned how the teacher prepared the students for the scenario, introduced the students to or reviewed theory or theoretical concepts, and summarized the learning outcome goals. The observations of the debriefing phase concerned the teacher's way of conducting the reflection process and the students' responses to that. The observation of the scenario that is in focus in this article concerned which forms of fidelity were employed, the teacher's role in the scenario, and the students' performance.

The interviews with the students as well as with the teachers took their point of departure in the observations and were conducted immediately after the observations. The focus group interview with the students included two themes, one being how the students perceived that the various activities in the three phases influenced their learning process. The other theme was the students' perceptions of the teacher's activities in the three phases. In the individual interviews with the teachers, they were asked to argue for their planning of the three phases and for their decisions throughout simulation. The interviews with the students and the teachers were recorded and transcribed partly as resume, partly in direct quotation.

The two researchers, who collected the data, also did the analysis. The analysis for this article has focused on the students' experiences of fidelity and of the impact of fidelity on their learning process. A comparison of the analysis of the two researchers' data showed that the students' experiences of fidelity and the impact of the simulation-based training on the students' learning processes were largely

the same across the five colleges, with some differences between students attending the basic and main courses.

Results

In the analysis of data, the aim has been to clarify how the social- and healthcare students experience fidelity, and how the degree of fidelity affects the students' learning processes.

When quoting passages from the interviews, it is indicated whether the students and teachers are affiliated with the basic course (BC student, BC teacher) or the main course (MC student, MC teacher). This distinction is made due to some variation in the two groups' perception of fidelity, in particular based on whether they have practical work experience or not, cf. above.

As mentioned above, the observed scenarios have a duration of ten minutes. In the observed scenarios, the high technological mannequin, suffering from an illness, lays in a bed in a room that – depending on the kind of patient – has been furnished as a hospital ward or as a room in an old people's home. The furnishing is not perfect; for example, in one of the scenarios, the students want to offer the patient a glass of water, but have to make do with an imaginary glass. However, in each scenario it is easy to see what the room is supposed to represent. In some of the scenarios, the room is divided into two spaces: a treatment room and a technical room for operating the mannequin's speech, breathing and symptoms. A teacher voices the mannequin, including coughs, expressions of pain etc. In the scenarios with no technical room, the teacher does this while sitting at the sick-bed. The students must wear professional uniforms. The door to the scenario room is closed; when the students enter the room following the briefing phase, they transform from students to professional social- and healthcare workers.

Which factors are important for the social- and healthcare students' experience of fidelity?

Comparing simulations to scenarios involving role-play, the students all agreed that using a mannequin is much better than role-play. One of the students went so far as to say, *'The mannequin is more lifelike'* (BC student). This was mainly due to the mannequin's appearance, but also to the room's furnishing and equipment.

Furthermore, fidelity was strengthened by teachers voicing the mannequin, compared to scenarios where the role of the patient is played by a student. Unlike the teacher, the students do not generally know much about the illnesses they are portraying and are consequently unable to realistically illustrate the symptoms:

It is good that the teacher and not the students does the voice of the mannequin. The teacher knows much more about how the patient reacts and she can direct us to try out specific things. I was challenged (in the scenario), which I would not have been if a student had done the voice-over. (BC student)

When the students have difficulties in authentically illustrating the patient's illness, it is difficult to maintain fidelity and, according to the students, role-play scenarios often end in laughter.³ As such, the relatively high fidelity when using the mannequin compared to role-play is partly due to the structural fidelity, but, perhaps even more so, to the functional fidelity of the simulation (cf. definition above), the crucial distinction being that a person with knowledge about the particular illness voices the mannequin in the scenarios.

Another observation from the scenarios was that the students perceived the fidelity of the situation differently depending on how far they were in the programme. The novice students, with no practical experience within social- and healthcare, were more apt to perceive the tasks in the scenario as highly credible, than were those with practical experience. As an example, a first-year student with no practical experience, who was trying to put a compression stocking on a patient (the mannequin) for the first time, said: *'In the scenario, I learnt to put on compression stockings. It reassures me that I have tried it, even though there were nails in the leg'* (BC student). The student feels that she has learnt to put compression stockings on a patient, and she feels reassured that she will now be able to do so in a real-world situation. She feels that the situation reflects realism. Another student from this group who had previously worked at an old people's home, smiled, signalling that she knew that you have not learnt to put on compression stockings by trying it out in a simulated practice. The simulation cannot capture the complexity of real practices, where even a seemingly straightforward task, such as putting compression stockings on a patient, can require a wide array of different knowledge and competence.

Related to this observation, the distinction between having and not having practical experience led the students to focus on different factors in the scenario. Whereas students with no or limited practical experience focused on treating the patient's physical ailments, more experienced students also focused on the communicative aspects of the interaction with the patient. These differing focuses were mirrored in differing perceptions of fidelity. For novice students with no practical experience, a realistic depiction of the patient's illness was sufficient, whereas the more experienced students pointed out that the scenario should also accurately reflect the way the patient communicates, and the interior and facilities in a hospital ward (cf. Tun et al., 2015).

Fidelity depends on the students' willingness to be deceived. The observations of the scenarios showed that, in most of the scenarios, the students were fully engaged and accepted the deception. For example, in one of the scenarios where the teacher was voicing the mannequin from a bedside position, the students remained focused on the patient even though the speech and expressions of pain came from the teacher's mouth. Afterwards, one of the students said, *'I did not even notice the teacher during the simulation or that the teacher was doing the voice'* (BC student). In another scenario, one student in particular resisted being deceived.

The student distanced himself from the scenario, for instance by not wanting to wear a uniform, arguing: *'It is not important to wear a uniform in a simulation; in real life, it is'* (BC student). Asked about whether he noticed the teacher at the bedside during the scenario, he replied *'I certainly noticed that'* (BC student). Thus, the students themselves contribute to the degree of fidelity by being more or less willing to be deceived.

Apart from playing the patient authentically, the teacher can maintain fidelity in the scenario by making the patient guide the students. In one of the scenarios, the mannequin, as voiced by the teacher, complained that she had difficulties in breathing. With the student at a loss, the teacher-as-mannequin said: *'Yesterday I had a different social- and healthcare assistant, and she put pillows under my arms and that helped a lot'* (BC Teacher). The student smiled and placed pillows under the mannequin's arms.

Thus, the analysis shows that the equipment in the room, the use of mannequin, as well as the teacher voicing the mannequin, are all important factors for the students' experience of fidelity. Furthermore, the data show that the students differ in their perceptions of credibility on whether they have practical experiences from real workplaces or not. The students' willingness to be deceived contributes to the degree of fidelity.

How do degrees of fidelity influence the students' learning process?

In the second part of the analysis, I examine how the degree of fidelity in simulation-based training affects students' learning processes.

According to the interviews with the students, they have to take a number of issues into account when performing in the scenario, *'There are so many things you have to pay attention to and remember: respiration, ergonomics and so on'* (BC student). On the one hand, a high degree of complexity ensures high fidelity by presenting students with a realistic situation in which they, for example, have to measure the patient's blood pressure while communicating with the patient and, at the same time, being aware of factors such as ensuring the room is well-aired. On the other hand, the students find it somewhat stressful having to cope with the various demands in the room. Students in the basic course, who have not yet had practical experience working on a ward, are especially likely to feel this pressure. The feeling of pressure may interfere negatively with the learning process: the many impressions confuse the students and obstruct a focused performance.

A high degree of fidelity makes the students feel that they are in a real practice. Their main ambition being to perform well in real practices the students want to perform at their very best in the scenario. Therefore, the students are nervous when entering the scenario. According to the interviews with both teachers and students, many of the students have reservations about or even refuse to partici-

'The mannequin is more lifelike'

pate in the scenario, their main worry being that they will make fools of themselves. The simulation-based training means that the students, as in real-world situations, are thrown in at the deep end:

You realize that the patient [the mannequin] is getting worse, and so you try to do something and communicate with the patient to see if that helps. You will not learn how to communicate until you are in the situation. (BC student)

The students must suddenly demonstrate their manual and communicative skills. As one teacher says:

Most of the students will be opposed to this kind of training. It oversteps the students' boundaries to participate in simulation, partly because they have to be actors, partly because they are not yet ready to demonstrate their practical skills. (BC teacher)

This may also be part of the explanation, why the students, who observe the scenario, find that they learn a lot from observing without taking part. Released from the anxiety of performing and demonstrating their actions, the observers are able to concentrate on learning by observing practice.

The students take simulation-based training seriously because such simulations test their ability to perform in real-world situations. The students try to simulate real situations as closely as possible, thereby ensuring high fidelity. Consequently, it is important for them to accomplish the task given in the scenario with no interruptions, perceiving interruptions as a sign of being unprofessional. The observations showed that, due to the students' anxiety about the scenario, some of them would have preferred a dress rehearsal before entering the 'real' scenario, in order to perform as professionally as possible. Thus, a relatively high degree of fidelity engages the students in the simulations; however also establish an exam-like atmosphere.

The data also point to advantages of simulations employing a lower degree of fidelity. In one of the group interviews, the students were annoyed that there was no glass or water in the room when the patient asked for a drink. At the same time, however, they were proud that they reacted by inventing an imaginary glass and water. Thus, the students produce reality through their actions (Ahn & Rimpiläinen, 2018). Low-fidelity events or situations may develop students' creative thinking and adaptability – competences that will be useful in their future jobs.

Finally, the data show that the teacher, voicing the mannequin, has an important impact on the students' learning process. This raises the question whether the teacher playing the patient in a role-play could substitute the mannequin. Do the social- and healthcare colleges need to invest in high technology mannequins? The interviews with the students and the teachers show that it is relevant to invest in mannequins. According to the teachers, the mannequins are able to display e.g. shortness of breathing for a much longer time, than the teacher

would be able to manage physically. According to the students, they are more comfortable treating a mannequin than their teacher: *'It would be awkward, touching and treating the teacher'* (BC Student).

Summing up, the analysis shows that the use of a mannequin strengthens the students' engagement in the scenario. They experience a better learning process using a high-tech mannequin than, for instance, role-play. However, high fidelity, in the sense high complexity, should be adjusted to the students' qualifications, e.g. to their practical experiences. A relatively low degree of fidelity may benefit the students' creative thinking. High fidelity can have a negative influence on the learning process, particularly for novice students. Students who are relatively far in the educational programme can cope with a higher degree of fidelity, in the sense of greater complexity reflecting real-world situations, than novice students. In general, the students try to maximize fidelity because they want to appear as professional as possible when observed in the scenario. Ironically, however, reducing fidelity may enhance students' learning processes, the observer students perhaps having greater opportunities for learning. Focusing on the scenario more as a learning opportunity than as professional performance may also reduce students' anxiety.

The results point to defining the optimal balance between on the one hand experiencing a realistic demand on acting in a practical situation, and on the other hand ensuring a conducive learning environment.

Discussion

The results of the analysis are that the mannequin combined with the teacher voicing the mannequin are important for the students' experience of fidelity. The students' qualifications, i.e. their practical experiences, influence their experience of fidelity as well as does their willingness to be deceived. The students express that the mannequin supports their learning process, however strengthened by the teacher ability to support the learning process through voicing the doll. Thorough high fidelity in relation to all aspects of the simulation can put a pressure on the students, and lower degrees of fidelity can have a positive impact on the students' creative thinking as well as taking the load of anxiety from their shoulders.

The results of the analysis of simulation-based training of social- and healthcare students are in line with results of previous research, even though this research mainly deals with the training of nurses or doctors. Thus, in terms of enhancing the learning process, the analysis confirms that it is useful to distinguish between various forms of fidelity, e.g. between structural and functional fidelity (Hamstra et al., 2014). Furthermore, that a focus on producing reality instead of merely imitating reality (Ahn & Rimpiläinen, 2018) benefits the students' learning process and consequently their learning outcome. As found in relation

to nurse students (Lawrence et al., 2018), the students in the social- and healthcare programme enjoy learning in a high-fidelity setting. The analysis shows that structural fidelity seems to have some significance, with students taking simulations with a mannequin more seriously than those based on role-play. However, what the mannequin does (functional fidelity) seems to be even more important; it is important that the mannequin's actions reflect the disease it is supposed to simulate and that the students are able to communicate with the mannequin. Consequently, high fidelity depends on the competences of the person voicing and controlling the mannequin. He or she must have knowledge about and experiences with the condition. In the study, this role is played by the teacher, which means that the teacher is to some degree responsible for ensuring high fidelity. This raises an interesting issue, which could be investigated further: Would the students' learning processes and learning outcomes be the same or even better, if a human-based high-fidelity simulation (cf. Dwyer et al., 2015, above) replaced a technology-based high-fidelity simulation? The analysis shows that the mannequin plays an important role in the students' learning process.

The analysis also confirmed findings in previous research showing that high fidelity means high complexity and extraneous cognitive load (e.g. Grierson, 2014). Complexity has a negative impact on students' learning processes, in particular among novice students, suggesting that the degree of fidelity should be adapted to students' competences and experiences (Tun et al., 2015).

One important aspect of the findings concerns the students' anxiety in relation to simulation-based training. This aspect has been addressed in previous research, with one study even arguing that low-fidelity simulations, such as case studies, are best suited to developing students' self-confidence, as they do not require students to mimic professional performance (Bowling & Underwood, 2016). In relation to the students in the social- and healthcare programmes, however, substituting high-fidelity simulation with low-fidelity case studies would deprive the students of the opportunity to learn through practical training in realistic environments, which is the main motivation for the students to engage in this kind of training.

Nevertheless, because the students have a great deal of respect for practical training and improve their self-confidence through practical performance, they are also nervous about this kind of training - an anxiety that may impede their learning processes. The analysis shows that the optimal degree of fidelity for motivating students for learning may differ from the optimal degree of fidelity for ensuring the best learning outcome. Preparing students for simulation-based training includes motivating them to assume a hybrid role, switching roles between identifying as professionals, fully engaged in simulations of complex real-world situations, and as students, critically reflecting on their own performance. The results of the analysis show that the 'observation students' appreciate learn-

ing through observations. Consequently, it may benefit students' learning processes and learning outcomes if the role-switch is incorporated in the scenario, instead of postponing 'the student identity' to the debriefing phase.,. However, this needs to be investigated, for example in a quasi-experimental study comparing simulation-based training that alternates between practical performance and theory-informed reflection *in* the scenario with simulation-based training in which the scenario only includes practical performance with theory-informed reflection postponed to the debriefing phase.

The study of simulation-based training at the five social- and healthcare colleges has a potential methodological weakness. The experiences with technology-based simulations among twenty students and five teachers from five social- and healthcare colleges can be argued not to be a representative sample. However, the colleges do not differ from other social- and healthcare colleges in Denmark with regard to diversity in size, the teachers' educational backgrounds and practical experiences or the student population. Furthermore, the studies at each of the five colleges have more or less the same results; results which also correspond to results from previous research in other parts of the health sector. As such, it seems fair to assume that the findings can be applied, at least to some degree, at a more general level.

Conclusion

In the study of students' learning in technology-based simulations that use mannequins, the article has focused particularly on the interrelation of fidelity in the scenario and students' learning processes. The study shows that simulation-based training using a mannequin appeals to the social- and healthcare students because this method enables them to learn through the performance of practical tasks. Compared to role-play that also involves the performance of practical tasks, the advantage of the simulated scenario is that it enables a high degree of fidelity concerning the mannequin's appearance and behaviour, as well as the furnishing of the room. The study also shows that the degree of fidelity rests on the participants' actions, not least the teacher voicing the mannequin.

Furthermore, the study shows that the students, depending on their practical experiences, can cope with different degrees of fidelity.

Showing that the students benefit from learning in technology-based high-fidelity simulations, (with the caveat that there is no clear-cut definition of high fidelity), the study concludes that teachers within the social- and healthcare education – in further development of simulation-based training – should seek to combine fidelity through high technological equipment with other degrees of fidelity, the focus being on the students' qualifications and the learning outcome targets. Furthermore, the teacher should develop practices that in the scenario

enable a systematic alternation between being students and students playing professional practitioners.

An implication for further research is to specify the interrelation for various levels of fidelity with the students' engagement in learning. Furthermore, to compare the outcome of separating scenario and debriefing with integrating reflection in the scenario.

Endnotes

¹ SIMU is an abbreviation for simulation and SOSU is the Danish abbreviation for social- and healthcare education.

² A number of studies also refer to medium or mid-level fidelity (Seropian, Brown, Gavilanes & Driggers, 2004). The distinctions are somewhat imprecise; however, medium fidelity generally involves the use of some kind of advanced technology, whereas the low-fidelity simulators are statics (ibid.), however may include using some kind of technology, e.g. an interactive CD-ROM (Kinney & Henderson, 2008).

³ Students may also be more apt to laugh in role-play scenarios than in mannequin-based simulation due to the more theatre-like aspects. Laughter abates the students' anxiety at exposing themselves as actors. Thus, using a mannequin establishes a sense of seriousness among the students that – compared to role-play – enhances the fidelity of the simulation.

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Integrated teaching for vocational knowing: A systematic review of research on nursing-related vocational education and training

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Abstract

The aim for this review was to systematize, describe and critically analyse previous research concerning school-based integrated teaching for vocational knowing in nursing-related training in upper secondary and in higher level education. Searches were conducted in four databases, two specifically for Swedish hits, and two for international hits. Also, search was made in a Nordic journal on vocational education and training. References in included studies were also assessed for further inclusion of studies. Altogether, 14 studies were included and assessed for quality and coherence with GRADE CERQual. Review findings comprised three types of integrated teaching, through embeddedness or streaks, problem-based learning, and between school and workplace; vocational knowing relating to a professional and academic context; and methodological significance for the vocational knowing highlighted in the studies. In conclusion, the methodological approach typically used in the primary studies related to a quantitative approach, which was also discerned as quality measure. The primary studies brought forward a partial understanding of integrated teaching and vocational knowing, which is dependent on the methodological approach. In order to enhance understanding about the research topic, there is a need for more studies on integrated teaching utilizing a qualitative approach.

Keywords: integrated teaching, nursing, vocational education, vocational knowing, systematic review



Introduction

Integrated teaching challenges the traditional notion of didactics concerning the organization and method of teaching to a specific discipline, the actual teaching and learning content, as well as the teacher and student relationship (Comenius & Kroksmark, 1999; Kansanen, Hansén, Sjöberg & Kroksmark, 2017; Kansanen & Meri, 1999; Werner & Meyer, 1997). Consequently, integrated teaching is surmised to have implications for the type of knowing that is made available for the students. In relation to these aspects of divergence from established ideas of teaching, the purpose of this study was to explore the didactical significance of integrated teaching between school subjects, for the development of vocational knowing, specifically in nursing-related education and training, mainly targeting nursing assistants and nursing students. The purpose was also to understand the current research field on vocational didactics in terms of integration for vocational knowing. For this, previous research on 'integrated teaching' for 'knowing' in nursing-related education and training was systematized, described, and critically analysed.

Integrated teaching is a didactical approach in which teaching and learning content is organized towards a shared focal point, and performed in a varied organization of horizontal, vertical and parallel order within a school context. While horizontal order includes the traditional organization of educational courses, vertical and parallel order goes beyond tradition and includes innovation. Thus, vertical order involves the integration between the same or different subjects, across different school semesters, while parallel order involves the integration between the same or different subjects in the same school semester (Wraga, 2009). Even though teaching is delimited by the school context and specifically by the classroom walls, the organizational variation enables teaching in conformity with nature (Comenius & Kroksmark, 1999). The combination of disciplines to a point of contact through a varied set of didactic techniques (Beane, 1995; Comenius & Kroksmark, 1999; Dewey, 1996; Engeström & Middleton, 1998; Tanner & Tanner, 1980) enables students to encounter real-world issues. These issues may be explained as related to students' everyday life. In the school context, they are incorporated and strengthened by the addition of material and resources from everyday life to teaching.

In integration, the role of the teacher as facilitator is to contribute with a knowledge-base of the subject matter, and to genuinely engage and communicate with the students (Hmelo-Silver & Barrows, 2006; Kjellén, Lundberg & Myrman, 2008; McNergney, Ducharme & Ducharme, 1999; Schmidt & Moust, 2000). Main responsibility of the learning process is placed on the student, which is characterized by a continuous negotiation and collaboration between the individual student with other students, and in which knowing is made available (Kjellén et al., 2008; McNergney et al., 1999).

The concept of knowing adopted here, and referred to as vocational knowing, relates to the requirements of a vocation, specifically the nursing vocation (Lindberg, 2003). Knowing involves theoretical and practical aspects, that are intertwined (Billett, 2001; Carlgren, 2015; Lindberg, 2003; Moxey, 1994). Theoretical aspects are acquired through formal education and instruction, and practical aspects are acquired through practice, and experience (Berner, 2010). This notion of knowing separates from the perspectives of knowledge as declarative and procedural, and from knowledge detached from its true context (Billett, 2001; Hiim, 2017). Instead, knowing is highlighted as a dynamic and reciprocal activity engaged with the world, and here specifically within a nursing context (Billett, 2001). Integrated teaching performed in a school context was here expanded with a vocational context, i.e. connecting school and vocation (Gessler & Moreno Herrera, 2015). In research on workplace learning, integration is processed through the concept of connectivity, which specifically highlights the relation between learning in school and work experience (Guile & Griffiths, 2001; Virolainen, 2014). Connectivity is surmised to make for students available a development related to situational flexibility and polycontextual knowledge that in turn may give rise to new practices and forms of knowledge (Griffiths & Guile, 2003; Guile & Griffiths, 2001, 2002, 2006). Altogether, the connection between school and workplace is highlighted as significant for the enhancement of learning in both environments (Tynjälä, 2008, 2013). However, the connection between school and workplace made here is based on a school context.

Basic principles of integration are valid for education and training of all educational levels, making integration a shared didactical approach. However, differences in integration may be related to the levels of specialization in education and training, affecting the character of teaching and learning content. In basic education (compulsory and upper secondary) teaching and learning content, of discipline-based and of integrated character, are organized in general subjects. However, in vocational education, content that is linked to the students' future vocation is specifically arranged in vocational subjects (Beane, 1995). In higher-level education of nursing, teaching and learning content is organized in subject areas (nursing, medicine and public health) (The Swedish Red Cross University College, 2015). Certain content, such as ethics and person-centred care, may be organized in the format of streaks permeating a nursing programme (Currie, Bannerman, Howatson, MacLeod, Mayne, Organ, Renton & Scott, 2015; Milton, 2004). Aspects concerning literacy and numeracy may be contextualized to (Mazzeo, 2003) or embedded in (Alkema & Rean, 2014) a vocational context in upper secondary as well as in higher vocational education and training.

Integrated teaching requires an organizational support, which is not apparent neither equal in all cases. In the Nursing programme, the teaching environment may be described as specialized towards the students' future vocation and vocationally strengthened with longer periods of workplace training. Thus, there is a

clear organization that supports specialization. However, in upper secondary nursing assistants' education and training there is a lower degree of specialization. Requirements of balancing general subjects with workplace-training make vocational strengthening non-plausible. Instead, vocational contextualization is made dependent on resources in the specific school context. Two previous case-studies (Christidis, 2014, 2019) on a Swedish upper secondary Health and Social Care programme, for future nursing assistants, highlighted the vocational teachers' experience and resources from a vocational context as a contribution significant for the vocational contextualization of teaching. The following example on the three recent curricula from 1970, 1994, and 2011 for the Swedish upper secondary nursing assistants' education, illustrates the influence of educational organization on the conditions of integration.

The Swedish Case

In the three recent curricula (1970, 1994, and 2011) for the Health and Social Care programme there are recommendations on integrated teaching that promote a holistic understanding on the teaching and learning content (Skolverket, 2006, 2011; Skolöverstyrelsen, 1971). However, conditions for integration have been dependent on educational reforms (change of curriculum), that have affected the overall aim of the programme, and caused organizational changes.

In the 1970s curriculum (Skolöverstyrelsen, 1971), the overall aim of the programme was vocationally focused. This was reflected in the organization of subjects. The vocational subjects were few, but substantial, and had coherent time for teaching, whereas the general subjects comprised a smaller number and had to adjust schematically to the vocational subjects. Integration was referred to as collaboration (Swe. *samverkan*) and was most probably, in regard to the aim and schematic conditions, performed in favour of the vocational context.

In the 1990s curriculum (Skolverket, 2006) the overall aim for the programme was expanded. It now comprised a focus on the vocation, on social responsibility, and eligibility for further and higher education (Berglund, 2009). The programme was expanded in time (2 years in the 1970s, 3 years in 1994), and in content. Vocational subjects were divided into minor courses, which increased their number in total. Time was schematically distributed between general and vocational subjects. Integration was called infusion (Swe. *infärgning*) and involved the support of general subjects by vocational subject, for instance by the exchange of teaching material. Integration of this kind enabled students to approach general subjects from a vocational perspective, to highlight the importance of general subjects for the students' future vocation, and for motivating them to further studies (Lindberg, 2003).

In the present curriculum from 2011 (Skolverket, 2011), the general aim of the programme has a vocational emphasis. Eligibility for higher and further educa-

tion is directed to areas of Health and Social Care. Although the vocational context has been strengthened through the aim, the organizational conditions established by the curriculum of 1994 remain, which affects integration. Integration referred to as interaction (Swe. *samspel*) implies an equal value between general and vocational subjects, but within a vocational framework. A mapping performed in a previous study (Christidis, 2014) on the Swedish upper secondary Health and Social Care programme in Stockholm county during spring 2012, showed that integration between vocational and general subjects was a recurrent and dominating feature, while integration between vocational subjects was in minority.

However, recurrent recommendations on integration in Swedish curricula does not seem to correspond to the research field, in which the issue of integration appears to be scarcely explored.

Defining nursing-related education and training

The term nurse refers to a person whose primary responsibility is caregiving (Cambridge Dictionary, 2019). The nurse may historically be traced to international nursing orders, motivated by spirituality, religion and culture, and primarily focusing on practical aspects, while contemporary nursing can be argued as inspired by the Nightingale school, with focus on theory as well as practice (Anderson, 1981; Nelson & Rafferty, 2012). A nursing assistant refers to the category of health care personnel that works in close relation to registered nurses (Cambridge Dictionary, 2019; Nurse.org, 2018). The relationship between a nurse and a nursing assistant is based on issues of leadership in school and in the workplace, and vocational responsibilities (Andersson, 2002; Derbring, 1993; Emanuelsson, 1990; Erlöv, 1992). Drawing on the Swedish context, when medical care expanded, this entailed a development of the health care system, and a need for workers qualified within nursing care (Rehn, 2008). Nursing assistants were introduced as an additional health care category, to nurses and care givers. Nursing assistants shared responsibilities of caregiving with nurses and worked under their supervision. Initially, training was workplace-based, but formalized in 1958 and since then conducted on upper secondary-level (Gaaserud, 1991; Herrman, 1998). In line with workplace tradition, nurses were responsible for the teaching of future nursing assistants. However, a recent educational reform changed this position.

While the term 'nurse' is understood in general sense, the term 'nursing assistant' is specific to a Swedish context, with education and training on an upper secondary level, as an unlicensed and unregulated vocation (Socialdepartementet, 2017). The responsibilities of a nursing assistant comprise a primary focus on caregiving, supervision (over the care assistant), technology, communication and service (Socialdepartementet, 1962; Törnqvist, 2006). There are also other terms signifying the same health care category with an equivalent educational

level and vocational responsibilities, and these occupational titles depend on variations in national educational systems (Høst & Larsen, 2018; Laiho & Ruoholinn, 2013). In order to find relevant research that used other terms than nursing assistant, search terms that enabled a wider expansion of search area were used.

Purpose and review questions

The purpose of the review was to explore the current research field of vocational didactics concerning integrated teaching in nursing-related education and training, and vocational knowing made available in integration. Focus was mainly put on the integration of school subjects, and on shared approaches of integration in the education and training of nursing assistants and nursing students. Thus, the following research questions were posed for this review: a) What kind of integration was conducted within a school context in nursing-related education? b) What in terms of vocational knowing was highlighted as a result in the studies through integrated teaching? c) What was the relation between study aim and analytical method for the vocational knowing that was highlighted?

Method and material

Considerations concerning search strategy for Swedish and international research in relation to review questions, assessment tools, and guidelines are hereby presented.

Defining and expanding the search

For Swedish search in databases National Library Systems (LIBRIS), and Academic publications at Swedish universities (Swepub), and in Nordic Journal of Vocational Education and Training (NJVET) there were no thesaurus, terms or keywords as resource. However, there was a resource for international search in databases EBSCOhost and ProQuest Social Sciences. Possibility of combining keywords with 'AND' was available in EBSCOhost and ProQuest Social Sciences, but not in LIBRIS, Swepub, and NJVET. Therefore, in Swepub and in LIBRIS every keyword was applied for search in isolation, and consequently enabled hits partially relevant. NJVET did not provide an electronic search engine, therefore a manual search of all issues published up until 2018 was performed.

Searches for Swedish and international research was based on keywords that related to the review questions on nursing, integrated teaching, and vocational knowing. In the Swedish search, to increase the possibility for hits, the search area was widened with the keyword 'subject integration', to include more variation of integrated approaches, also relevant for upper secondary level education. Also, the keyword 'vocational education' was used to include terms and occupational titles corresponding to nursing assistants. In the international search (see

Table 1), the search area was widened with keywords concerning educational integration relating to curriculum and teaching, specifically ‘fused curriculum’, ‘integrated curriculum’, ‘integrated teaching method’, and ‘thematic approach’. In addition, the search area on nursing was widened with keywords relating to ‘nursing assistants’, ‘nursing’, ‘education, nursing’, ‘nursing education’, and ‘vocational education’. The widening of keywords, and the combination of keywords with ‘AND’ in (international) searches, aimed to increase the possibility of including research concerning nursing assistants, but only in the case that other equivalent terms and occupational titles were used.

Table 1. Specification of keywords for the international database search. Presentation of keywords, thesaurus, and MESH-terms retrieved and processed in EBSCOhost, and in ProQuest Social Science Database.

Keywords	Thesaurus
Integration in education	
Integrated curriculum	ProQuest, ERIC, CINAHL
Fused curriculum	ERIC
Integrated teaching method	ERIC
Thematic approach	ERIC
Health care education	
Nursing education	ProQuest, and ERIC
Nursing assistants	ProQuest, ERIC, CINAHL
Education, nursing	MEDLINE, CINAHL
Vocational education	
Vocational education	ProQuest, ERIC, CINAHL, MEDLINE

Delimitations

The delimitations in both Swedish and international research were made to integration performed in an educational and in a school context, also referred to as school-based integration, this in relation to nursing – for nursing assistant students and nursing students, and subjects of nursing. Publication date for both searches was delimited to the present century, 2000–2018. Another delimitation for both was Case Method and Problem-based learning, as they are admitted approaches of integration in higher education. The intention was to identify school-

based integrated teaching that was shared between upper secondary level and higher level of education and training within nursing, and that contributed to the development of vocational knowing. This is another reason for the use of keyword 'subject-integration' in Swedish search and 'thematic approach' in international search. Subject integration denotes integration between subjects that is performed in Swedish upper secondary level education and training, while thematic approach is a corresponding term that involves the integration of subject areas, which is valid for education and training in both upper secondary and higher level. Both integrations are performed in terms of a point of contact, which often comprises of some sort of theme.

Other delimitations concerned filter options. For Swedish search, there was an inadequacy of filter options, but set to articles in Swepub and articles/book chapters for LIBRIS, the latter demanding a manual sorting process. NJVET had no filter options at all. For international search in ProQuest Social Sciences and in EBSCOhost, delimitations in the mode of advanced search were made to keywords in abstracts, peer-reviewed and scholarly articles, and abstracts (for the first sorting only). Concerning language options, in Swedish databases the Swedish language was selected. In ProQuest Social Sciences the filter was set to Danish, English, Greek, Norwegian and Swedish, while in EBSCOhost only English as language could be and was chosen. Search hits that could not be read, as they were written in a language not mastered, were excluded. Doctoral theses were excluded because of their limited presentation of the subject matter in terms of perspective/view.

Swedish hits concerning vocational education, integrated teaching, or vocational knowing, that did not relate to nursing were also excluded. Excluded articles comprised for instance of studies on teacher education, actors, librarians, mathematics, preschool teachers, and areas of construction, as well as workplace-related nursing issues such as palliative and elderly care. The reason for excluding these search hits was for delimiting hits to school-based integration, and this in relation to nursing.

International hits that were not relevant to the review questions concerning school-based integration related to nursing, and vocational knowing were excluded, with few exceptions. This included research that partially or indirectly matched the review questions.

Excluded articles concerned for instance studies on simulation, inter-professional collaboration, students' and teachers' perspectives, attitudes and evaluation on teaching, evaluation of job satisfaction, stress, gender, power relations, technology integration and the use of digital platforms, meta analyses of a subject matter, collaboration between school and workplace, in-service/workplace-based learning/distance learning, and professional identity.

Swedish research

Searches for Swedish research within the subject area of nursing, integrated teaching, and vocational knowing was performed in two databases, LIBRIS, and Swepub. Also, a manual search in NJVET was conducted in November 2018, covering the first issue in 2011, to the most recent issue in 2018 (vol. 8, issue 3). Table 2 presents the keywords used for search, the hits for each database, and included hits. There were no hits assessed adequate for inclusion. Note that the presentation of initial hits for LIBRIS includes both articles and chapters, and that the Swedish keywords are translated into their English counterpart.

Table 2. Search in Swepub and in LIBRIS. Keywords, initial hits, and included hits.

Keywords	Swepub - Initial hits	Included (N)	LIBRIS - Initial hits	Included (N)
Subject integration (Sw. ämnesintegrering)	3	0	3	0
Integrated teaching (Sw. Integrerad undervisning)	0	-	3	0
Nursing (Sw. Omvårdnad)	0	-	53	0
Vocational knowing (Sw. yrkeskunnande)	0	-	21	0
Vocational education (Sw. Yrkesutbildning)	0	-	69	0
Σ 152	3		149	
Σ 0		0		0

Table 3. Search in ProQuest Social Sciences and in EBSCOhost. Keywords, initial hits, and hits included.

Keywords	ProQuest - Initial hits	Included (N)	EBSCOhost - Initial hits	Included (N)
Integrated curriculum AND nursing education	70	0	-	
Fused curriculum AND nursing education	1	0	-	
Integrated teaching method AND nursing education	22	0	-	
Thematic approach AND nursing education	59	1	-	
Integrated curriculum AND education, nursing	-	-	49	8
Fused curriculum AND education, nursing	-	-	12	0
Integrated teaching method AND education, nursing	-	-	37	2
Thematic approach AND education, nursing	-	-	133	0
Integrated curriculum AND nursing assistants	2	0	35	0
Fused curriculum AND nursing assistants	0	-	22	0
Integrated teaching method AND nursing assistants	1	0	117	0
Thematic approach AND nursing assistants	8	0	12	0
Integrated curriculum AND vocational education	-	-	4	0
Fused curriculum AND vocational education	-	-	8	0
Integrated teaching method AND vocational education	-	-	2	0
Thematic approach AND vocational education	-	-	18	0
Integrated curriculum AND vocational education	43	3		
Fused curriculum AND vocational education	0	0		
Integrated teaching method AND vocational education	5	0		
Thematic approach AND vocational education	10	0		
Σ 670	221		449	
Σ 14		4		10

International research

Searches for international previous research within nursing, integrated teaching, and vocational knowing was performed in two databases, ProQuest Social Sciences and EBSCOhost. ProQuest Social Sciences includes databases related to a varied range of subject areas, for instance Arts, Business, Health and Medicine, Literature and Language, while EBSCOhost relates to areas of nursing, health, medicine, education and profession. Table 3 illustrates the search in EBSCOhost and ProQuest Social Sciences in terms of initial hits and included number of articles for the review.

Snowball search

For the included hits, a snowball-search was performed, which involves an evaluation of the reference lists of each of the included articles in terms of inclusion. None of the references were judged as relevant to include.

Limitations

The most evident limitations of this review were the absence of search hits in all databases used here concerning upper secondary level nursing education and training that in a whole matched the review scope, and thus combined the issues of nursing, integrated teaching, and vocational knowing. A first strategy to overcome this issue was widening the search area with the use of search terms connecting to vocational and integrated education, but also specifying admitted approaches of integration in upper secondary level, namely thematic (international databases), and subject-integration (Swedish databases). A second strategy, that could only be applied in searches in EBSCOhost and ProQuest Social Sciences was the use of 'AND' for the combination of search terms, and through this include the variation of terms and occupational titles equivalent to nursing assistants. This was performed manually in LIBRIS, Swepub, and NJVET. Thus, it was proven necessary to include hits for sorting and assessment that were partially relevant to the review scope. However, there were more relevant hits that matched the review scope in whole for research conducted in higher education. Altogether, search results did not show any relevant previous research in Sweden, and sparsely relevant international research, which were conducted on a higher level of nursing education and training. This indicates a serious gap of research in upper secondary level nursing education and training.

Also, in Swepub and LIBRIS the filter options were not as adequately detailed as in EBSCOhost and ProQuest Social Sciences, so articles could not be separated from book chapters, which demanded a manual sorting process. In NJVET there was no search engine available and thus no filters, therefore all issues were manually assessed in relation to the review questions.

GRADE CERQual

The assessment of confidence in the review findings was performed with an approach referred to as Confidence in the Evidence from Reviews of Qualitative research, shortened to CERQual. This approach draws from the principles that developed the GRADE approach, that is used for assessment of quality of evidence in systematic reviews (Schünemann, Brożek, Guyatt & Oxman, 2017). Taken together, the approach utilized here is referred to as GRADE CERQual. The primary studies that were included in this review were all assessed by four components, and these are methodological limitations, relevance, coherence, and adequacy. Methodological limitations refer to concerns on the design and conduct of the primary studies. Relevance involves the extent to which the body of data from the included studies is applicable to the context of the review question. Coherence focuses on how clear and cogent the fit is between data from the included studies and the review findings that synthesize that data. Finally, adequacy of data concerns a general determination of the degree of richness and quantity of data that supports the review finding. The assessment of each primary study was performed in terms of concerns, from no concerns to high concerns.

The Microsoft Office 365 Excel-software and the structure of sheets, were used for deconstructing and sorting information from each of the studies. The information comprised the motivation of the study, i.e. problem formulation, aim, selection of data, data collection, ethical considerations, data analysis, including analytical presentations, results, and discussion. The information from each study was judged in isolation, and in relation to each other for the assessment of alignment, for instance the alignment between aim, methodology and results. Also, there was an assessment performed of the four components for all articles taken together. Support for the assessment was offered by textual resources comprising definitions and examples retrieved from the GRADE CERQual project group. Also, support was provided by a number of articles authored by members in the project group, that elaborate on the methodological application of GRADE CERQual, and give further examples on analysis and presentation of results (Lewin, Bohren, Rashidian, Munthe-Kaas, Glenton, Colvin, Garside, Noyes, Booth & Tunçalp, 2018). After assessment of the four components, a final assessment was performed concerning the overall confidence in each review finding. Confidence may be described as the understanding that each review finding should be a reasonable representation of the focal point of the inquiry, here comprising the purpose of integrated teaching in nursing-related education and training for vocational knowing. Confidence is judged as high, moderate, low or very low, depending on factors that weaken the assumption of confidence in the review findings (Lewin et al., 2018). These factors depend on the assessment made by the four components presented previously. Taken together, areas of concern were diverse, and comprised of alignment issues between aim, method

and results, and sometimes concerned ethical considerations, or an inadequate presentation of the data collection, of a problem formulation, of methodology, or of analysis. Overall, the assessment of confidence in the review findings was here valued as moderate.

Findings

Review findings concerned school-based integrated teaching within nursing-related education, the vocational knowing made available through integrated teaching, and the relation between study aim and methodology for the results on vocational knowing.

Integrated teaching

Review findings brought forward three types of integrated teaching, integration through: embeddedness or streaks, problem-based learning, and between school and workplace. Integration was performed through case studies, simulations, classroom instruction, clinical experiences, and workplace-training. Integrated teaching is managed as a given didactical approach.

Predominantly, the primary studies bring forward integrated teaching as an approach that enables an addition of knowledge, which was described in terms of a specific content, skills, abilities and competences, that can be prepared for in teaching, measured and evaluated. Thus, integrated teaching is motivated by a varied usage of the following descriptive terms: to establish, promote, sustain, develop, arouse, understand, facilitate, build, enhance, influence, strengthen, apply, and to provide depth (Arthur, 2001; Barrere, Durkin & LaCoursiere, 2008; Chan, 2013; Cónsul-Giribet & Medina-Moya, 2014; Cook, Mccance, McCormack, Barr & Slater, 2018; Creese, Gonzalez & Isaacs, 2016; Hernández & Brendefur, 2003; Hiim, 2017; Holland, Tiffany, Tilton & Kleve, 2017; Li & Kenward, 2006; Meechan, Mason & Catling, 2011; O'Shea, Campbell, Engler, Beauregard, Chamberlin & Currie, 2015; Park, 2009; Whitehead, 2002).

Integrated teaching was performed through themes of which most common were connected to nursing care, concerning end-of-life, person-centeredness, pharmacology, and ethics (Barrere et al., 2008; Cook et al., 2018; Holland et al., 2017; Meechan et al., 2011; O'Shea et al., 2015; Park, 2009). Other themes involved more specific areas, such as academic writing, mathematics, alcohol, pharmacology, and ethics (Arthur, 2001; Hernández & Brendefur, 2003; Whitehead, 2002). Also, there were themes that concerned abilities and competency, such as creativity, critical and reflective abilities, and nursing competency (Chan, 2013; Cónsul-Giribet & Medina-Moya, 2014).

The primary studies referred to integration as an approach, that focuses on organizing a content, rather than to a concrete method. The approach is characterized by the process of a content in a classroom-setting facilitated by teachers

and occasionally by students. The integration is structurally held together by learning objectives formulated in a school context. Thus, the school context is the starting and the ending point for integration. The approach is different from other approaches considering the choice of processing a content, for instance in terms of a problem, an issue, and/or in connection with the workplace. Also, there are differences in where integration is performed, while problem-based learning may be performed regardless of context, integration in connection to the workplace specifies a performance related to this context. The studies convey integrated teaching as a given didactical approach and emphasize a particular content, or subject matter that relates to nursing practice. In Table 4, the distribution of the three main types of integrated teaching identified in the primary studies are illustrated. Hereby follows an example of each approach of integration identified in the review findings.

Table 4. The distribution of the three main approaches of integration identified in primary studies.

Integrated teaching	<i>Embedded/integration through streaks</i>	<i>Problem-based learning</i>	<i>Integration between school and workplace</i>
Number of studies*	3 out of 12	3 out of 12	6 out of 12
Study author/year	Hernández et al., 2003; O'Shea et al., 2015; Whitehead, 2002	Arthur, 2001; Chan, 2013; Cónsul-Giribet et al., 2014	Barrere et al., 2008; Cook et al., 2018; Hiim, 2017; Holland et al., 2017; Li et al., 2006; Meechan et al., 2011

* Two studies (Creese et al., 2016; Park, 2009) were not included in the table, because they did not offer any information on classroom implementation of integrated teaching.

Embedded integration, or integration through streaks was highlighted in the study by O'Shea et al. (2015) with focus on an integrated curriculum of a 4 years programme, with content concerning palliative and end-of-life care for paediatric and perinatal patients. Two intervention groups with baccalaureate nursing students, each group from different schools, received basic education on palliative and end-of-life care on two occasions, during their second year (3rd and 4th semester), and during their third year of training (5th and 6th semester). Basic education was related to the adult patient and included definitions, theories, and background information. During students' third year (6th semester), they could

choose between two courses, paediatric nursing or maternal child health. Teaching was performed by faculty members with long experience (25 years) in the subject area and with training according to the end-of-life education consortium (ELNEC). In each course, the students received a total of 35 hours of teaching over 14 weeks, and 42 clinical hours. In the maternal health course, integration was performed with simulations and scenarios. In the paediatric course, integration included three modules on communication, pain and symptom management, processed with PowerPoints, lectures, case studies, and a simulation scenario. The courses ended in the students' fourth year (7th semester). The end-of-life content was thus processed through different perspectives (adult, paediatric, perinatal) and courses during the entire programme, with a didactical variation.

Problem-based learning was brought forward in the study by Arthur (2001) in relation to an alcohol early-intervention education package at a nursing programme. Students processed teaching/learning content in relation to weekly objectives. Each week had a first seminar for introducing problem scenarios for the identification of learning needs and directions, and a second seminar for exploring issues, findings, and for clarifying direction in studies. The teaching material related to vocational situations and included case studies and patient data. Students met regularly with their teachers, for addressing consistency issues, and for discussing and reflecting on compatible attitudes for work with problem drinkers. Five weeks into integration, students met a simulated client, for which they stepwise identified own learning needs, built up a case history, and prepared to interview. Problem-based learning gives emphasis to processing a problem, which requires students' active participation, and motivation, as well as the facilitation of the learning process from teachers and fellow students.

Holland et al. (2016) exemplify integration between school and workplace with focus on Patient-centered-care coordination (PCCC) at a nursing programme. PCCC involves the support of patients in the management of health, and improvement of outcomes, by development of quality, safety, and efficiency of care. Integration lasted 5 weeks, and comprised a conceptual framework, a didactic content, and five clinical experiences with related assignments. These experiences comprised ambulatory care, home care, hospice, support groups, and transitions of clinical care experiences. Students received preparation material for the clinical experiences, that comprised recorded presentations of educational character, videos, electronic health records, and a selection of readings. For instance, the ambulatory care clinical experience was linked to Second Life® virtual simulation, that focused on chronic illness self-management support. The virtual simulation included students' interaction with an avatar patient, and face-to-face clinic patient encounters. Also, students engaged in a simulation of a telephone message follow-up, linked to a next-day telephone contact with one of the patients. The completion of the ambulatory care clinical experience included

development of a teaching plan for an individual patient. This approach highlights the students' active participation, and student connection between the didactical facilitation of the learning process in school, and vocational situations.

An organizational perspective on integration focusing on preconditions for integrated teaching was offered by four studies (Creese et al., 2016; Hernández & Brendefur, 2003; Hiim, 2017; Park, 2009). The study by Creese et al. (2016) analysed integration in the curricula of six high-performing countries, according to OECDs 2009 PISA assessments, and in two US-states. Creese et al. (2016) forwarded that curriculum organization is moving towards an integration across disciplines and moving away from a discipline-based structure. In addition, the integration of 21st century skills in the curriculum (abilities and skills, or a combination of these to competences) was regarded significant for the future knowledge society. For secondary vocational education, connection to real-world issues were stressed for the development of skills required professionally. Park (2009) focused on the integration of ethics as described in legal requirements of five US-states. Ethics, in licensure regulations for nurses, was related to a professional nursing practice and associated with un-/professional actions. Generally, ethics in curriculum was indirectly referred to. Continuing education was required by most of the selected states, such as end-of-life and domestic violence, but concrete areas were not always defined. Park (2009) highlighted the use of integration by most nursing programmes but criticized the integration of ethics with other nursing content as failing an adequate systematic approach of ethical core content, thus arguing for the need of isolated ethics courses. Hiim (2017) stressed the connection between school and workplace for the relevance of educational content for students' future profession. As an example, Hiim (2017) used the Norwegian 2+2 model built on a rationalist understanding, which assumes that theoretical knowledge can be learned isolated in the first part of training, and then applied in vocational practice. The study by Hernández and Brendefur (2003) provides insight in the conditions for collaborative work between teachers, in their aim of integrating mathematics with vocational subjects. Basis for successful collaboration comprised a reflective dialogue on the understanding of authentic integration, experience of collaboration and organizational resources, and teaching focusing on professional concepts.

Vocational knowing

Review findings on vocational knowing discerned that vocational knowing was understood as skills, abilities, and competencies for a professional context. The studies investigated the integration of a content in terms of measuring and evaluating enhancement of this specific content. A conceptual description of vocational knowing was brought forward on a curriculum level. Generally, vocational knowing was focused in terms of professional responsibilities and academic qualities.

Table 5. Vocational knowing as described in the primary studies, the mode of formation for a vocational knowing, and the character of vocational knowing.

Study author, year	Vocational knowing - What?	Vocational knowing - How?	Character
O'Shea et al., 2015	The nursing care of pediatric and perinatal palliative and end-of-life-care	Enhancement	Professional
Whitehead, 2002	Academic writing as a special style to adhere to	Understanding	Academic
Arthur, 2001	Knowledge concerning clients that consume alcohol, on attitude and nursing role-related activities	Influencing	Professional
Chan, 2013	Creative, critical thinking, reflexivity, analytical reasoning, adoption of patient perspective, and empathy	Arousing, developing, promoting	Professional
Cónsul-Giribet et al., 2014	Team cooperation, communication skills, critical thinking, autonomy (independence), responsibility, confidence, and in-depth knowledge of selected themes for integration	Understanding	Professional
Barrere et al., 2008	Attitudes of end-of-life care of the dying person	Affecting	Professional
Holland et al., 2016	Person-centered care coordination specifically relating to communication and assessment skills, and to the nursing role and responsibilities	Developing	Professional
Meechan et al., 2011	Competent pharmacology decision-making skills in nursing practice	Promoting	Professional
Cook et al., 2018	Caring attributes within person-centred care	Sustaining, further developing	Professional
Hiim, 2017	Professional knowing in an authentic relation between school subjects and the vocation	Developing	Professional
Li et al., 2006	Evidence-based nursing education elements that prepare students or enhance their feeling of preparedness for professional nursing practice	Establishing	Professional
Park, 2009	Ethics	No information on classroom implementation	Professional
Creese et al., 2016	21 st century skills in relation to national and international requirements	No information on classroom implementation	Academic and professional

* The study by Hernández et al. (2003) did not specifically address the issue of vocational knowing and was therefore not included in table 5.

Vocational knowing primarily comprised specific areas of nursing care, such as end-of-life-care, alcohol consumption, person-centered care coordination, and pharmacology (Arthur, 2001; Barrere et al., 2008; Cook et al., 2018; Hiim, 2017; Holland et al., 2017; Li & Kenward, 2006; Meechan et al., 2011; O'Shea et al., 2015). Vocational knowing was also presented in terms of skills and abilities, such as creativity, critical thinking, reflexivity, analytical reasoning, empathy, communication, collaboration, autonomy, responsibility and confidence (Chan, 2013; Cónsul-Giribet & Medina-Moya, 2014). All these specific areas were related to various patient groups, from perinatal to adults. In addition, a more neglected part of nursing was brought forward through the issue of academic writing (Whitehead, 2002). These findings are further presented in Table 5. Next follows a presentation of four primary studies, with different integration approaches, for highlighting what integration made available in terms of vocational knowing.

In the study by O'Shea et al. (2015) the application of embedded integration, or integration through streaks, enabled students to process the issue of end-of-life care from a variety of patient groups, adults, paediatric and perinatal. Students were thus offered three different perspectives that contributed to a progression in their learning process and probably to an in-depth understanding of the subject matter.

Integration through problem-based learning in the study by Chan (2013) focused on students process and production of poetry, composition of songs, and role-play. The purpose was to develop abilities of creativity, critical thinking, reflexivity, analytical reasoning, and patient empathy, as part of nursing competency. Students appreciated the creative activities and experienced a development towards a higher degree of patient empathy. However, they were uncertain of the connection between creative ability and their future vocation. For them, nursing was equal to critical thinking and not creativity. In this case, the composition of nursing competency in relation to creativity needed to be further explored.

Integration between school and workplace was emphasized in the studies by Holland et al. (2016), and Meechan et al. (2011). Both studies forward the notion of vocational knowing as highly complex and comprising of intertwined aspects that students need to regard and be able to manage equally efficient. In Holland et al. (2016) vocational knowing was highlighted primarily as communication and assessment skills, and role-related aspects. Communication skills involved communicating clearly, in a concerned and caring manner, self-management and lifestyle changes to the patient. Assessment skills included assessment of patient needs for determining self-management resources. In addition, vocational knowing was discerned as identifying and understanding the role of the professional nurse as educator, as patient resource, resource gatherer and provider, as care coordinator, and as patient advocate. Also, this included under-

standing the responsibility of valuing the patient and family experience as a factor that may impact on the patient's health. Other role-related aspects included the need to be flexible, to adapt honing skills of time management, autonomous decision making and interprofessional communication.

In Meechan et al. (2011) vocational knowing was described as the ability to recognize, identify, manage, undertake and interpret pharmacological requirements and results in nursing care. This included the ability to recognize contraindication of drug treatment in terms of deviation, to identify the right drug from case and charts, to be able to manage effects of medication in terms of nursing management, to perform mathematical analysis, and accurate calculations, to interpret visual results from patient observations.

Vocational knowing was also forwarded from an organizational perspective. The study by Park (2009) and the study by Creese et al. (2016) emphasized curriculum level integration. Park (2009) highlighted ethics in legal requirements of nursing education as integrated but in need of isolated attention, and Creese et al. (2016) brought forward 21st century skills as related to national and international requirements, and comprising of for instance creativity, innovation, critical thinking, communication, collaboration and team work, information literacy, personal and social responsibility, cultural awareness, and cultural competence.

Methodological concerns

The relationship between study aim, and methodology was shown to be of significance for what was highlighted in terms of vocational knowing in the primary studies. Thus, this result section brings forward findings from a methodological analysis.

The study aims were generally descriptive in character and the following terms were used variedly: to evaluate, compare, investigate, describe, examine, illustrate, to provide an overview, to determine and identify, to contribute, to explore (Arthur, 2001; Barrere et al., 2008; Chan, 2013; Cónsul-Giribet & Medina-Moya, 2014; Cook et al., 2018; Creese et al., 2016; Hernández & Brendefur, 2003; Hiim, 2017; Holland et al., 2017; Li & Kenward, 2006; Meechan et al., 2011; O'Shea et al., 2015; Park, 2009; Whitehead, 2002).

Altogether, six studies used a quantitative character of analysis (Arthur, 2001; Barrere et al., 2008; Cook et al., 2018; Li & Kenward, 2006; Meechan et al., 2011; O'Shea et al., 2015), while five studies used a qualitative character of analysis (Chan, 2013; Creese et al., 2016; Hiim, 2017; Park, 2009; Whitehead, 2002). There were three studies that combined a qualitative and a quantitative analysis (Cónsul-Giribet & Medina-Moya, 2014; Hernández et al., 2003; Holland et al., 2017). Based on the included studies, a quantitative character of analysis was consequently identified as the main quality measure for investigating the issues of vocational knowing in classroom studies.

Consequently, the aim of the study combined with the choice of data collection and analytical approach may as quality measure have influenced what kind of vocational knowing could be discerned in the study. In studies by Arthur (2001), Barrere et al. (2008), Cook et al. (2018), attitudes concerning a particular patient group (alcohol, end-of-life), or how students perceived caring attributes, was measured with questionnaires, forms and inventories. These were complemented with pre-formulated areas of inquiry, that could be answered by scoring or other type of gradation, or with a range of pre-determined answers. This design limited the range of answers that could be included in the results. Consequently, narrowly defined areas of inquiry put focus on a specific aspect of vocational knowing but risk excluding a holistic understanding of the subject matter. In table 6, each study aim is put in relation to analytical approach and to results on vocational knowing. The analytical approach includes method for data collection and character of data analysis.

There is a difference between quantitative and qualitative studies in how they choose to describe vocational knowing and what aspect is brought forward. In the qualitative studies by Whitehead (2002) and Chan (2013) vocational knowing was approached in terms of understanding a phenomenon (academic writing), or in terms of arousing, developing and promoting the type of vocational knowing that is made available by three approaches of teaching (composition of songs, role-playing, poetry writing). On the contrary, in quantitative studies by Arthur (2001), Barrere et al. (2008), Cook et al. (2018), Li and Kenward (2006), Meehan et al. (2011), and O'Shea et al. (2015) terms used include to enhance, to influence, to affect, to promote, to sustain and further develop, to establish, a specific subject matter (end-of-life, alcohol, pharmacology, person-centered care, evidence-based elements). There is a predetermined aspect of vocational knowing, in terms of a particular content or subject matter, that is investigated in quantitative studies, whereas in qualitative studies the investigation can go beyond a subject matter. For instance, in Whitehead (2002), focus on academic writing is expanded by a phenomenological framework that seeks to understand student experiences of the phenomenon, which can include more aspects than the one initially focused on. In qualitative studies, nothing is ruled out, but treated as related to the focal point of study. The study by Cónsul-Giribet and Medina-Moya (2014), and Holland et al. (2016), combined quantitative and qualitative methodology, which resulted in an analytical triangulation enabling a descriptive but also in-depth understanding of the study aim.

Ultimately data collection and analytical approach are matters of choice in relation to study aim but contribute to what perspective of vocational knowing that is brought forward. The review findings show a predominance for quantitative studies, that bring forward certain aspects of vocational knowing. This finding argues for the need of more qualitative studies for understanding vocational knowing as a whole.

Table 6. Each study aim, here simplified for reasons of clarity, is put in relation to keywords describing the analytical approach in terms of method for data collection, the character of data analysis, and the type of vocational knowing discerned.

Study author, year	Study aim	Analytical approach - keywords	Analytical character	Vocational knowing
O'Shea et al., 2015	To evaluate knowledge of end-of-life (EOL), and to compare with control group	Control groups, pretest and posttest, statistical analysis	Quantitative	Enhancement of student knowledge of the nursing care of pediatric and perinatal palliative and end-of-life-care
Whitehead, 2002	To investigate experiences of academic writing	Unstructured open conversations, hermeneutic process, thematic analysis	Qualitative	Understanding academic writing as a special style to adhere to
Arthur, 2001	To examine attitudes, ability for brief counseling and knowledge on alcohol-related problems	Longitudinal, statistical analysis, Questionnaire - pretest and posttest, A principal component factor analysis for reliability issues	Quantitative	An influence on knowledge concerning clients that consume alcohol, on attitude and nursing role-related activities
Chan, 2013	To examine experiences of teaching activities song composition, role-playing and poem writing, and to illustrate student participation	Focus groups, semi structured interviews, thematic analysis	Qualitative	Arousing, developing and promoting creative, critical thinking, reflexivity, analytical reasoning, adoption of patient perspective, and empathy
Cónsul-Giribet et al., 2014	To identify and describe nursing competency strengths and weaknesses after PBL	Questionnaire, numerical assessment, discussion groups, constant comparison method - category coding and units of meaning	Quantitative, Qualitative	Understanding team cooperation, communication skills, critical thinking, autonomy (independence), responsibility, confidence, and in-depth knowledge of selected themes for integration
Barrere et al., 2008	To evaluate the influence of EOL education on attitudes working with the patient group	Transformative Learning theory, quasi-experimental, longitudinal, questionnaire, pretest and posttest, scale assessment, statistical analysis	Quantitative	Affecting attitudes of end-of-life care of the dying person
Holland et al., 2016	To provide an overview of the development of a person-centered care coordination module, and to investigate the influence on	Quasi-experimental, mixed-methods, surveys - pretest and posttest, demographic form, inventory - baseline value. Focus groups -	Quantitative, Qualitative	Development of person-centered care coordination specifically relating to communication and assessment skills, and

	student learning outcomes	semi structured. Statistical analysis. Qualitative narrative analysis, thematic analysis		to the nursing role and responsibilities
Meechan et al., 2011	To examine the efficacy on the acquisition of applied drug/pharmacology knowledge.	Assessment tools, Online testing, statistical analysis.	Quantitative	Promotion of competent pharmacology decision-making skills in nursing practice
Cook et al., 2018	To determine perceived caring attributes and identify what nursing actions are ranked as most caring	Inventory, yearly, comparison	Quantitative	Sustaining and further developing caring attributes within person-centred care
Li et al., 2006	To identify educational elements that best prepare nurses for practice.	2-tiered process – stratified random samples, surveys	Quantitative	Establishing evidence-based nursing education elements that prepare students or enhance their feeling of preparedness for professional nursing practice
Hiim, 2017	To contribute with an epistemological conceptual framework, for the development and research on a vocationally relevant curriculum.	Epistemological investigation, rationalism, pragmatism	Qualitative	*
Hernández et al., 2003	To examine, to describe interdisciplinary, collaborative approach between mathematics and vocational subjects	Ethnographic approach, semi structured interviews, evaluations, descriptive statistics, systematic comparative method, thematic analysis	Quantitative, Qualitative	*
Creese et al., 2016	To examine the instructional systems and intended curricula of six high-performing countries and two US-states.	Desk research, policy documents.	Qualitative	*
Park, 2009	To explore the legal basis of nursing ethics education, and to examine whether there are legal requirements for nurses to complete ethics courses.	Manual search, categorization of key concepts	Qualitative	*

* Four studies were excluded in table 6, in column vocational knowing because their study aim had another focal point of investigation, namely, on the process of team collaboration (Hernández et al., 2003), on curriculum level (Creese et al., 2016), on legal documents (Park, 2009), and on an epistemological investigation (Hiim, 2017).

Summary of results

The main findings concerning school-based integrated teaching in nursing-related education comprised three types of integration, namely, integration through embeddedness or streaks (Hernández et al., 2003; O'Shea et al., 2015; Whitehead, 2002), problem-based learning (Arthur, 2001; Chan, 2013; Cónsul-Giribet & Medina-Moya, 2014), and integration between school and workplace (Barrere et al., 2008; Cook et al., 2018; Hiim, 2017; Holland et al., 2017; Li & Kenward, 2006; Meechan et al., 2011). Main findings concerning vocational knowing related to professional (Arthur, 2001; Barrere et al., 2008; Chan, 2013; Cónsul-Giribet & Medina-Moya, 2014; Cook et al., 2018; Hiim, 2017; Holland et al., 2017; Li & Kenward, 2006; Meechan et al., 2011; O'Shea et al., 2015; Park, 2009) and academic character (Creese et al., 2016; Whitehead, 2002). Finally, methodological issues concerning the relation between aim, method for data collection and analysis (quantitative/qualitative), were proven significant for the results, in terms of the type and perspective of vocational knowing that were highlighted in the primary studies.

Concluding discussion

Generally, methods within research are not regarded neutral, but connected to specific perspectives of ontological, epistemological, and axiological character (Cohen, Manion & Morrison, 2017; Larsson, 2005; Åsberg, 2001). An ontological perspective relates to the individual's sense of reality and the world, and an epistemological perspective connects to the foundation and validity of knowledge, linked to ways of researching a phenomenon, while axiology involves the individual's values and beliefs (Cohen et al., 2017). Together, they bring forward an understanding of the phenomenon that is studied, not only from an individual, but also from a sociocultural perspective which in turn makes the understanding valid in present time. Here, the phenomenon of interest concerns integrated teaching in nursing, and vocational knowing, and what kind of understanding is brought forward by previous research. Apart from including a statement on reflexivity, it is important with a clarification on method, on whether it is about an ontological springboard, a theory of knowledge (episteme), or a methodological aspect (empirical). It is also important to clarify the relationship between philosophy and research as overlapping disciplines that benefit from interaction (Johansson & Lynøe, 2008; Åsberg, 2001). Here, methodology is particularly brought forward in the completion of the literature review with respect to the primary studies and to the review results. Epistemological and empirical aspects are critically analysed to measure the quality of the primary studies.

Epistemological considerations on integrated teaching are briefly commented upon, and in relation to constructivism (active participation, conversation, and facilitation) in the introduction of only two studies (Chan, 2013; Cónsul-Giribet

& Medina-Moya, 2014). Thus, the limited attention on the relationship between learning theory and integration gives the impression that integrated teaching is an acknowledged didactical approach, that does not need any epistemological introduction or further elaboration. Another aspect that confirms the notion of integrated teaching as an acknowledged didactical approach, is that integration was briefly or partially brought forward in the primary studies. For instance, Hiim (2017) highlighted the value of integrated teaching between school and workplace for vocational knowing, but through an epistemological (pragmatic and rationalistic) elaboration, and no empirical ground. Also, six studies particularly stressed the importance of the faculty teachers and educational connection to the workplace as significant aspects for integration, but none elaborated further on these components in relation to vocational knowing (Barrere et al., 2008; Cook et al., 2018; Hiim, 2017; Holland et al., 2017; Li & Kenward, 2006; Meehan et al., 2011). Conclusively, integrated teaching was sparsely described in the primary studies, and consequently the didactical process and its value could not be properly highlighted. Also, integrated teaching could not be analysed or discussed regarding what it made available in terms of vocational knowing as it was not addressed empirically. Thus, a holistic perspective linking integrated teaching to vocational knowing was neglected.

Considering the epistemological perspective of positivism, there are no data included in the primary studies comprising observations of integrated teaching (see Table 6). Positivism is a philosophical perspective on knowledge from the 16th century, that claims the validity of observations as empirical ground on studies concerning human social life (Benton & Craib, 2010; Cohen et al., 2017; Johansson & Lynøe, 2008). Instead, data comprised written and/or verbal verifications, on integrated content and on integration, which cannot be argued to entirely represent social actions performed in integrated teaching that may be significant for understanding integration and its link to vocational knowing. If the studies had included observations on integrated teaching, it would have enabled the perspective needed to perform a relational reading, which is suitable for studying a human in a social situation. Instead, the type of data that the primary studies included, only brought forward specific aspects, and thus provided with partial understanding about integrated teaching, and consequently on vocational knowing. The primary studies share a focal point of pre-defined areas of study, concerning a particular content, a theme, and abilities, that are integrated in teaching. Accordingly, the methodological approach in the primary studies contributed to a notion that vocational knowing is something that can be measured, defined, and prepared for in teaching, and not something that can be holistically shaped and understood in the didactical situation, considering sociocultural, and historical aspects (Engeström, 2006; Engeström & Sannino, 2010).

All the primary studies either present, treat or remark upon integrated teaching as a didactical approach that enables vocational knowing, but they do not

represent a sufficient epistemological background or an empirical ground to substantiate these statements. Clearly there is a methodological contradiction. A plausible explanation may be remnants of an early attempt by the social sciences to capitalize cultural authority originating from the natural sciences (Benton & Craib, 2010). The capitalization of methodology may probably have had implications for what could be highlighted from the object of study. Some parts, that maybe significant for understanding the phenomenon of integrated teaching, may have had to be compromised for claiming reliability, objectivity and usefulness of the knowledge offered by social studies (Benton & Craib, 2010). However, this should not be the case today, when social studies have reached a cultural authority of its own. Most probably, we deal with remnants of the early attempt that lingers on in present time. In addition, we deal with a limbo concerning research area. Higher level nursing education and training connects primarily to medical education, while upper secondary level nursing education and training relates to pedagogical and didactical research together with basic education (primary and lower secondary education). Thus, the research tradition involves educational boundaries, in which integrated teaching is a shared didactical process.

Since the majority of the included studies had an quantitative approach one can speculate this to be the quality measure of the research area (Arthur, 2001; Barrere et al., 2008; Cook et al., 2018; Li & Kenward, 2006; Meechan et al., 2011; O'Shea et al., 2015). Ultimately, the choice of aspect is defined by the aim, which in turn directs the theoretical and methodological underpinning (Larsson, 2005). However, it is important to be aware of and to clarify that any type of delimitation on the method, here including data collection and analysis, contributes to the promotion of a certain aspect of the phenomenon that is studied (Åsberg, 2001). A plausible explanation for choosing a quantitative method may be validity through a large data sample. Statistical analysis, shown as a predominant analytical approach in the primary studies, may manage the large amount of data but not be able to regard nuances, or other aspects than what can possibly be identified by a statistical analysis (Cohen et al., 2017). The review results show that integrated teaching and vocational knowing have been investigated in terms of specific aspects, and not as a whole. Thus, there is a gap concerning qualitative research on integrated teaching for vocational knowing. Qualitative research involves the addition of methods for data collection and analysis, that can provide further perspectives, nuances, and that can enable a relational reading, bringing about an in-depth and whole understanding of the phenomenon. A suggestion for future research would be to focus on studying a minor group of students in a specific didactic situation, in the format of a case study. This would enable a triangulation of data, that is the collection of different kinds of data on a studied phenomenon, to include sociocultural, and historical aspects in the analysis (Denscombe, 2010; Denzin & Lincoln, 2000; Yin, 2009). This would also help expand the notion of quality in research, as not only related to quantitative methods

with a large amount of data, but also to qualitative methods with minor, however more comprehensive data on the phenomenon studied.

Note on contributor

Maria Christidis is a doctoral student in didactics, in a collaboration between Stockholm University and the Swedish Red Cross University College. The working title of the thesis is *Integrated teaching for vocational knowing*, which is studied in the Swedish Health and Social Care programme. Maria's research focuses mainly on didactic issues regarding teaching and learning, with a specific focus on Health-care education. Maria is a registered nurse, and an upper secondary teacher in the subjects Swedish, English, Greek and Healthcare, as well as an author of course literature for the upper secondary Health and Social Care programme. She is currently a lecturer at the Swedish Red Cross University College.

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Transfer and reflection in the Danish dual model: Findings from development projects in the Danish vocational education and training programmes

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Abstract

This article deals with the question about transfer between school and work in the Danish dual vocational education and training (VET) model. The article is based on an evaluation of 21 development projects carried out by VET teachers and internship supervisors aimed at improving the connections between school and internship periods. The evaluation provides a case for discussing the students' connections making and the function of the Danish dual model on a general level at the end of the article. Connections between school and work in VET relying on the dual model are of great importance. They help the students create a sense of coherence in their education and support transfer of learning from one setting to another. Nevertheless, these connections are not easily established. The central point of this article is that the task of establishing these connections is too often individualised, making the student responsible for a successful establishment of an internship connection, rather than having that task dealt with at the institutional level. The article argues that when connections are established at an institutional level it helps VET students create a sense of coherence in their education. For instance, increasing the cooperation between VET teachers and internship supervisors enables students to better reflect upon the connection between the professional experience of their internship and the more general learning obtained at school.

Keywords: VET, reflection, workplace learning, transfer, internship, collaboration, dual model



Introduction

This article deals with the core question about how to create a link between school and work learning in the Danish dual Vocational Education and Training (VET) model. This question is of general concern to educational models that rely on connecting work and school learning. The specific research question guiding the article is: How can VET students make meaningful connections between what they learn in VET school and what they learn during their internship periods?

This specific research question is discussed based on a research evaluation of 21 development projects carried out in 2015 by 18 different VET schools in Denmark, aimed at improving the connections between the periods students spend in school and at their internships. The participating schools worked on ways to establish and utilize a common language between school and work and the schools developed different exercises to link school and work together. Thus, this article presents the central findings of the evaluation and relates this to the general question about how to link school and work learning together in the Danish dual VET model.

VET systems vary throughout Europe: School-based systems like the Swedish one-string system, dual systems such as those found in Germany, Austria, and Denmark, and combinations of these two systems, such as the Norwegian 2+2 system (two years in school followed by two years in a company). Specific historical and societal developments have laid the foundations for different countries' particular VET systems (Michelsen, Olsen & Høst, 2014). Whatever the differences, the current trend is moving towards the dual system, just as there has been a renewed interest in skill-based apprenticeship learning in the US and many EU countries (Guile & Young, 1998).

The Danish VET system is divided into a basic programme¹, which is normally school-based, and a main programme, which consists of long internship periods and shorter periods of school-based learning. The length of internship and school periods varies for the different VET programmes. Completing a full VET programme typically takes four years, but this may vary in length from two to five and a half years.

The Danish VET system relies on the dual model and has done so since this VET education model was introduced with the Apprentices Act in 1956 (Sigurjonsson, 2010). Since then, the dual model has been the cornerstone of the Danish VET system and in the latest reform of this system (The Danish Ministry of Education, 2014), the dual model remained largely unchanged, indicating that there is broad political backing for the dual model to remain a cornerstone of the Danish VET system. The case of Denmark, then, because of the country's long tradition for having a dual model, may be useful in providing valuable insights into the benefits and challenges inherent in the dual model.

The dual model has some fundamental benefits, which undoubtedly have contributed to the durability of this model in Denmark. The benefits are apparent during the internship period where VET students take part in the daily running of a company. These periods ensure a practice-based education. Furthermore, they ensure a smooth transition from school to employment when VET students obtain their journeyman certificate (Hamilton, 1987; Juul & Jørgensen, 2011). The school periods further ensure that VET students also acquire the broader theoretical horizon fundamental to their chosen trade (Koudahl, 2007).

As such, both internship and school periods offer important, but different, learning opportunities to VET students, which is a strength of the dual model. However, the real strength of the dual model has to do with the connections between what VET students learn in school and in their internship periods, respectively. Yet, these connections are often entirely dependent upon the individual student's ability to make sense of the insights and learning dynamics inherent in the relation between the two different contexts: school and work (Aarkrog, 2007; Hamilton, 1987; Juul & Jørgensen, 2011; Jørgensen, 2010; Jørgensen, Christensen & Hansen, 2009; Koudahl, 2007; Tanggaard, 2004).

Thus, even though the dual model holds strong learning opportunities for VET students, the model does hold some inherent challenges, too, when it comes to connecting what is learned during, respectively, school and internship periods.

From a student's perspective, VET schoolwork and practice-based learning in the internship company too often seems disconnected. VET students quite simply do not understand how what they learn in school and during their internship periods link together and they often struggle to make these connections themselves during their VET programme. Furthermore, VET students experience a clash of cultures between school and work, and they are met with two different sets of expectations: As students in school and as workers in internship positions (Aarkrog, 2007; Juul, 2005; Jørgensen, 2010; Nielsen, 2009; Simonsen, 2004; Sjøberg, Ewald, Fjelstrup, Morgenstjerne & Schick, 1999). The same challenges in relation to the dual model have been identified in other contexts and can be found in various forms in other countries with strong dual model systems, such as Germany, Austria, and Switzerland (Linten, Prüstel & Woll, 2014). Similar issues also exist in other variations of the dual model, such as the Norwegian 2 + 2 model, which combines school-based and company-based training in a different way (Michelsen et al., 2014).

Another challenge faced by VET students concerns their motivation in relation to, respectively, school and internship. In general, VET students are mainly motivated by the practice-based learning of their internship periods and expect what they learn in school to be directly applicable to the tasks and demands of their internship. Thus, when VET students experience disconnections between what they learn in school and in their internship, it is primarily perceived by students as the apparent failure of theoretical perspectives to address the reality of work

rather than a possible lack of content coordination between school and internship suppliers (Aarkrog, 2001; Hansen, 2010; Koudahl, 2007; Nielsen, 2004; Tanggaard, 2006).

This hierarchy between school and internship poses a challenge for VET teachers when it comes to creating learning processes and courses in school that address practice-based experiences in a meaningful way, perceived by students, and that can motivate students without risking them losing sight of the broader theoretical perspectives that are also essential to the trade in question (cf. the benefit of the dual principal as described above) (Aarkrog, 2007, 2011; Tanggaard, 2006). Conversely, the internship supervisors struggle to visualise and document what the VET students learn from the internship. Furthermore, the internship supervisor's lack of knowledge about VET school content (practice as well as theory) makes it hard for them to relate the workplace activities to what the VET students work on during their periods in school (Hansen, 2010; The Danish Evaluation Institute, 2013; Wilbrandt, 2002).

As mentioned in the beginning, these core challenges inherent in the dual model are analysed in this article based on a research evaluation of 21 developmental projects carried out by 18 Danish VET schools in 2015.

Theoretical perspectives

As an overall theoretical frame, the concept of 'transfer' is applied. Transfer of knowledge and competences between different learning contexts, as in the case with the development projects in question here, requires some sort of adaption of knowledge from one context to another (Aarkrog, 2015). However, students' connection-making is not only a matter of connecting theory with practice (school-to-work). Rather, relations between school and work have to do, fundamentally, with connecting two different practices with each other (Tanggaard, 2008). The concept of reflection-on-action (Schön, 1983) is also diploid as a way of understanding what goes on in some of the activities analysed in the article. As introduced by Schön the point of reflection-on-action is that when we are able to take a step back from the immediate action and deliberately reflect upon what we did and how this might make sense, then we are able to look at our actions, understand, and develop them and thereby learn from them in new ways.

The theoretical concept of reflection-on-action from Schön is thus applied in the analysis in order to frame a central empirical finding: The VET students' connection-making between school and work can be supported by a conscious framing of VET students' reflections about their actions and theory in both school and workplace, by VET teachers and internship supervisors. Thus, based on the empirical findings the concept of reflection-on-action theoretically frames the general point that the students' connection-making between school and work has as much to do with connecting actions as it has to do with connecting reflections.

The development projects of the VET schools

The aim of the development work was to create different concrete educational tools and concepts that could create opportunities for connections between school and internship periods for the VET students. In the following, the VET schools' development projects and the research evaluation work carried out in relation to this development work is briefly outlined.

In 2014, the Danish Ministry of Education established a framework programme for development work at vocational schools². A ministerial framework programme such as this is initiated when the expected effects of the schools' development work are uncertain but there are several assumptions about which kind of development work may lead to certain kinds of effects. In this framework programme, the main question for the involved schools and developers was this: Which kinds of connections can be developed by the schools that will enhance VET students' school-to-work and work-to-school learning as well as their motivation for acquiring theoretical knowledge? Within the framework programme, 18 vocational schools carried out 21 different development projects within 3 different overall professions: Social and Health care, Business, and Technical trades (e.g. carpenter, bricklayer, or electrician).

The participating vocational schools could choose between two different kinds of sub framework for their development work:

Sub framework 1) Establishing and utilizing a common language: In these projects, the schools worked on developing and improving communication between the school and internship companies about the student, as well as about the objectives, content and organisation of the vocational programme in question. Thus, the schools worked on developing common concepts and understandings across school and work contexts, as well as clear lines of communication. 3 overall themes of the schools' development work within this sub framework were identified: 1) Matching and concretisation of the schools' learning objectives and the learning objectives of the internship providers; 2) Development of new forms of communication and increased dialogue between school, workplaces, and VET students; 3) Making the students' learning processes and results in school as well as in internship positions more visible with the use of portfolio in a variety of formats (pictures, video, voice messages, products etc.).

Sub framework 2) Exercises to link together school learning and practice: In these projects, the schools and the internship supervisors worked together to develop a variety of tasks and exercises, on which the VET students then worked during a school period, an internship period, and a second school period. The different projects within this sub framework are very varied and thus hard to categorise. However, 3 overall approaches could be identified: 1) Working (in school) on the students' expectations for the coming internship, e.g. through

playing out and reflection upon different situations that might arise during a student's internship period; 2) Development of different tools to bring the (mostly) theoretical knowledge from school into play in the internship period, and the (mostly) practical knowledge from internships into play in school, e.g. by designing small quality development projects in school for the students to carry out in their specific internship company afterwards; 3) Developing small tasks for the students to solve in their internship companies based on competence objectives from school, in order to make visible how school learning applies meaningfully to the busy life of an internship company (e.g. making hairdresser students do four specific haircuts during their internship period or making business students create a specific kind of display of goods in the shop that hosts their internship).

The study

As described in the beginning, this article deals with the general question about the link between school and work learning in the Danish dual VET model. In the article, analysis of the 21 school development projects is used as a case to shed light on this general question about the Danish dual system.

The research evaluation of the schools' development work is based on 23 qualitative interviews with key participants in the school development projects. The participants were chosen in order to represent three perspectives: 1) Project management; 2) Hands-on experience from VET schools; 3) Hands-on experience from internship companies. Thus, a mix of teachers, project managers, educational leaders, internship supervisors and -coordinators participated in the interviews. 13 interviews were conducted as group interviews at the schools with a total number of 45 participants. The group interviews lasted between 1 and 1½ hour. In order to supplement the group interviews, an additional 10 interviews were conducted as individual telephone interviews with the project managers. The telephone interviews lasted 30–45 minutes. The interviews were transcribed. All interviews revolved around the participants' experiences from working with the development projects as well as the overall organisation of the project.

The analytic process

The analytic process of coding the interviews can best be described as a process of switching back and forth between the data and the question of how the schools' development work supported the students' connection-making between school and work. Thus, on the one hand, a bottom-up strategy was used in order to allow themes and central points to emerge from the data. On the other hand, this process of letting themes and points of interest emerge from the data was not driven completely without presumptions about what to look for, as is, e.g., the case in grounded theory (Charmaz, 2011). The outset for the research evaluation

– a focus on knowledge from the development work in the 2 sub framework settings in relation to VET students' connection-making during their VET education – guided the investigating eye. Thus, an analytic code such as *cooperation between school and work* may be inspired by the overall aim of the development projects but is still open to be adjusted by the empirical data. On the other hand, an analytic code such as *student reflection* is derived from the empirical data and then framed within the aim of the schools' development work. Such an analytic coding process, going back and forth between research aim and empirical data, is a central part of the methodology of qualitative research processes (Søndergaard, 1996).

These analyses of the schools' development work with linking school and work together are then used in this article to point to 1) Concrete actions VET schools can take in order to establish better connections between school and work. 2) A general discussion about the function of the Danish dual system and what the evaluation points to as general points of attention.

Finally, it is important to note that the study builds solely on interviews with the participating professionals and does not give voice to VET students.

Findings: Connections around the students create connections within the students

As will be pointed out, the study shows that connections 'around' the students create connections 'within' the students. These connections are made possible by various means. We shall in this presentation of our analytical findings first address examples of how this connection-making has been made possible at, first, an institutional level and, secondly, a didactical level.

The institutional level

When schools were working with developmental exercises to link school learning and practice together (sub framework 2), this was most often a joint venture between a teacher and an internship supervisor. In order to develop tasks that were meaningful both in the school and work context, an exchange of experiences and knowledge between the teacher and the supervisor regarding the content of their respective work was necessary. Commenting on connections on an institutional level, a teacher expresses the benefits of this way of working together: *'Knowledge about each other's work creates tolerance and better understanding and connection. That is reflected in the students'* (Teacher, social and health school). According to the teacher, this strengthened connection at the institutional level improved students' ability to perceive connections themselves, because the two learning contexts, work and school, were brought closer together. A teacher from one of the social and health schools put it this way: *'It's about playing the ball to each other*

rather than playing past each other. You have to look at the students together, without there necessarily being a problem with them'.

This experience resonated with the business schools too. Furthermore, it leads us to another interesting point: The teacher and the supervisor's mutual interest in each other's work placed the students at the centre of positive attention whereas, in the past, VET students had usually only been the centre of attention when problems arose during the internship (Jørgensen, 2010). This joint positive attention from the teacher and the supervisor increased the students' professional pride as well as their pride in their work, according to the teachers:

Interviewer: Does the fact that you [teacher and supervisor] are talking together also matter to the connections the students make between school and work?

Teacher 1: Yes, it matters a lot that they know we have been out talking to their boss. It lifts their spirits – they look forward to our visit and are excited about what is being said about them.

Teacher 2: They [the students] are really excited when we come – they want to show us their store. Because we get a picture of 'this is my daily work life'. It gives them a sense of pride to tell us about what they are doing every day. I think that is important to the students.

As indicated above, communication between school and work historically only took place when problems arose with the students during the internship. In general, the schools' development projects led to increased collaboration between teachers and supervisors. This increased collaboration led to increased positive communication and exchange of experiences between the supervisors and the teachers, to the benefit of the students. A municipal education coordinator – working with one of the social and health schools – put it this way:

We are looking for different things. The schools are looking for: Is there a potential for development? The companies are looking for: Is there a potential for practical work? But the fact that we sit together and communicate about what we do makes room for the development of a joint understanding of how best to support the students in their vocational education. I think that is one of the greatest qualities of this.

As outlined above, making connections have to do with the transformation of knowledge and competences from one context to another, and it has much to do with connecting different practices to each other (Aarkrog, 2015). When the supervisors and teachers gain insight into each other's practices, this builds better possibilities for students to transform knowledge and competences from one practice to the other: The supervisors will know what students work on in school and how they do it, while teachers will know what the students work on during their internship and how that work is done. Thus, a key point here is that in relation to students' ability to make connections between different practices, the nature of the development task – whether within sub framework 1 or 2 – is not as important as what the development task implies; i.e. collaboration between teachers and supervisors. In itself, this collaboration leads to a greater mutual

understanding and use of each other's learning contexts on the part of supervisors and teachers, which in turn strengthens students' ability to make connections:

Teacher: I think that the fact that they [the teacher and the supervisor] sit together in the same room gives the students the feeling that we are working together for them. This is a joint effort. Ultimately, I think it matters a lot to the students.
Project Manager: Clearly, the students feel special – that we care. Both parties. And we work together around them [the social and health school].

Strengthened collaboration on an institutional level

Historically, internship supervisors have struggled to link what the students work on to the learning objectives for the internship period, as set by the school (Sjøberg et al., 1999). One of the problems is that learning objectives are formulated in a formal 'school learning language', which is a poor match for the students' actual learning experiences during the internship, where learning is often intertwined with the students' participation in a professional community of practice (Juul, 2004; Tanggaard, 2005). As such, learning is hard to separate from participation and difficult to describe in formalised learning language. To address this problem, a concrete list for checking off the learning objectives of the internship period was developed by one of the agricultural VET schools working with developing a common cross-context language (sub framework 1). The checklist was designed to be used by internship supervisors during students' work at a company. In developing the checklist, the school took great care to 'translate' the formal learning objectives into operational objectives that were better suited to the everyday working practices of the company in question. Prior to a student's internship period, the teacher, the supervisor, and the student would sit down and discuss and adjust the objectives in the checklist. Hence, a formal agreement was made concerning what the student should work on at the company in order to meet the adjusted learning objectives that had been jointly agreed upon.

Another example of addressing this transfer problem is how one of the participating business schools developed a small pamphlet with operational and concrete objectives for the students' internship period. The pamphlet was small-sized and with short sentences, so that supervisors could carry it around in their pocket and make use of it in specific situations where a student was actually working with one of the objectives. For example, when encountering a student filling up the shelves in a shop, the supervisor would pull out the pamphlet and discuss with the student the different ways of placing different goods on a shelf in order to maximise sales. This is also a good example of how an internship supervisor can work with the students' reflection-on-action, thus supporting the VET students' ability to connect the theory and practice of the company and the school to each other. The schools' experiences of working with these kinds of *transformation of learning objective-tools* were positive, these tools having a motivating effect upon both the students and the supervisors:

We saw the enthusiasm of the store managers. On one of our first visits, they showed us the pamphlet and said: 'I have to tell you, this is worth its weight in gold, instead of all the internship folders with learnings goals up on the shelves, which we never use.' (Teacher, business school)

These 'transformation-tools' serve a dual purpose. They make the learning objectives of the internship period, as formulated by schools, manageable for supervisors, and they build better lines of communication between teachers and supervisors, not least because these tools match the two practices (school and work) to each other by means of a common cross-context language.

A different kind of tool also developed by schools within sub framework 1, was the *logbook*. In their logbooks, students could document what they had been working on and learned during their internship period. This documentation had many different formats: pictures, videos, text etc. Often, students used their smart phones for documentation purposes. When the students returned to school, the logbooks were brought into play in prospective professional development conversations between teachers, supervisors, and students. This can be theoretically understood as framed reflection-on-action conversations and the benefit of these kinds of conversation was, amongst others, that students would better remember and understand what they had been working on during their internships and were better able to talk about it and make meaningful connections between school and work:

When they [the students] fill in their logbook during their internship period and return to school, they remember in an instant what they did and what they learned back then. Thus, in their final basic course exam, they are able to use some of this work from their internship period. (Teacher, technical school)

In summary, then, both the school and the workplace experienced 'a shorter distance' between each other as a result of the development work. This resulted in a better understanding of each other's work, which in turn led to concrete contacts between school and workplaces, the creation of specific *transformation tools*, and improved coordination, and lines of communication. All of this rubbed off on the students and, within the teachers' perception, students experienced improvements in the connection between their school and internship periods and enhanced their opportunity for transfer of knowledge and experience between the two contexts. Thus, on a general level, increased collaboration on the institutional level, between teachers and supervisors, should be considered a key field of action in the future in order to increase VET students' ability to perceive and make meaningful connections between school and work during their VET programmes.

However, connections are not only facilitated on an institutional level – activities on a didactical level can be of great importance and value, as well.

The didactical level

On this level, the evaluation shows that learning activities aimed at creating reflective thinking skills can work as a key driver for students' ability to make connections between school and work. Reflective thinking is in this context to be understood as students' increased awareness of theory and ability to consciously reflect upon practice (Schön, 1983). In the following, we show that the institutional and didactical levels are closely linked.

A supervisor has this to say about the specific learning activities aimed at making the participants increase their reflections and understandings of the various settings of learning: *'One student said to me she felt that she had become smarter from this. Reflecting upon it during her internship period brought her to a new level'* (Internship supervisor, social and health school).

The quotation refers to a didactical experiment, in which teachers have developed different plays and acted them out within a framework of *Forum Theatre* (sub framework 2) as a way of working with students' experiences and expectations at school and in their workplaces. In short, the Forum Theatre was a way of working with different scenarios or cases, which troubled the students in relation to their coming internship period. The point is that the 'play' can be paused at any time by the teacher, the students or the supervisor in order to discuss the possible different reactions to the dilemma at hand and the different ways to move the play forward.

According to the teachers, the Forum Theatre proved to be a very eye-opening way for the students to work with their fears and anxiety in relation to the coming internship. Because of the way the plays were designed it provided a safe environment for the students to discuss and think about their coming internship period which opened up new horizons of action in practice to the students as well as an increased awareness of the progression of their own learning. The concept of reflection-on-action provides a theoretical understanding of these kinds of situations. Thus, it highlights the teachers' and the internship supervisors' responsibility to frame the VET students' reflections professionally in order to support their connection-making between school and work. According to the following quote, from the interview of a supervisor at a social and health school, this meant that students were able to focus on learning from the very start of their internship period, rather than fear or concerns:

Supervisor: Often, when the students start their internship, they hardly dare to walk down the corridor, because: 'No, a dangerous guy will probably come along any minute'. The students felt isolated with these thoughts and didn't tend to share them. Now they have learned: 'Well, a lot of my classmates feel the same way. And my supervisor knows about it as well, because we played it out in school'. So they are much more open from the get-go. They are less afraid.

Interviewer: What does that mean?

Supervisor: It means they get started on their learning much faster.

Research suggests that VET students often expect school activities to be meaningful in relation to their internship and become frustrated if this is not the case (Aarkrog, 2001; Hansen, 2010; Nielsen, 2004; Tanggaard, 2004). Thus, this way of working with VET students' expectations and providing reflective tools to deal with the dilemmas and challenges of their internship is exemplary despite the great differences between various parts of the VET system. The findings here resonate with other studies, where the enhancement of VET students' reflective thinking skills is highlighted as one key element among others for students to experience better transformations between school and work practices in health care education (Christensen, 2012; Dalsgaard, Nielsen, Dau & Grønkjær, 2004).

As mentioned in the previous section, logbooks were also used by some of the schools in their development work, thus supporting VET students' connection-making and reflection skills. One of the business schools also explicitly used logbooks as a way of increasing students' reflective thinking skills in relation to the question of how schoolwork could best be applied during their internship.

It is a reflective thinking tool. We ask them [the students] to reflect upon the past week. Reflect upon how they might use this in their work life. So, we teach them to reflect. And we use the logbook as the basis for conversations after the school period - between supervisors and students. (Municipal education manager, business school)

The logbook was often used by the schools that were working on developing a common language (sub framework 1). And, as the quotation below indicates, using logbooks had a great impact on students' actions during their internship periods. Their *reflections on past actions* opened up new possible ways for them to act in the future:

Project manager: The logbook is a brilliant tool to maintain and reflect upon practice. You are not just acting but you act reflectively.
Interviewer: And how does that increase connections between school and work?
Project manager: Well, reflection is the connection. When they experience something in practice, they act upon it and move towards the next thing. If they pause to evaluate the situation and reflect upon it, they have a chance to link it to theory. (Project manager, social and health school)

A project manager from one of the participating agricultural schools had similar experience:

Interviewer: How does the logbook become a connecting tool between school and work?
Project manager: I don't know if it is too concrete, but I would say that the benefit is in the reflective way of thinking. That's the value of it. That's what it's all about.

Student reflective thinking skills, then, is a key empirical finding in relation to their connection-making between school and work. However, the question is: What is 'student reflection skills' actually about? Why does the project manager quoted above express the idea that 'the reflection is the connection'? What is

meant by that? First, it is important to note that this is a teachers' or professional perspective. How students view this matter remains, as yet, undetermined. Secondly, the concept of 'student reflection skills' implies that reflection forms and takes place within the heads of students, when in reality such reflection skills is connected also to external organisational practices, to actions and experiences, and to concrete tools such as the logbook or the Forum Theatre. Reflection skills and actions are, thus, linked together by tools developed by the schools in this study. The concept of reflection-on-action helps us to understand how these tools makes it possible for the students to step back from their immediate actions while still having these actions central to their reflection. Thereby inspiring students to become 'reflective practitioners' (Schön, 1983) and helping them transform knowledge and competences from one context to another.

As mentioned above, the logbook functions as a tool for the VET students to preserve and document their work and learning. It makes it easier for them to bring their work and learning into play in other contexts, including fora of reflection and conversation with supervisors or teachers.

However, in order to benefit from a reflective thinking tool such as the logbook or Forum Theatre, it is crucial that teachers and supervisors assume responsibility for bringing such tools into play and frame the reflections professionally. In this sense, the potential for strengthening VET students' reflective thinking skills by way of e.g. the logbook is highly dependent on close cooperation between VET teachers and internship supervisors on an institutional level.

The value of reflections in VET

It should be mentioned that the focus suggested here, a focus on facilitating reflection skills in relation to the interplay between different contexts within VET and among the VET students, has been met with a certain criticism. The criticism has to do with the move towards an academisation of VET, which has been noted in Denmark over the past 10-20 years, emphasising VET students' academic skills at the expense of their practical skills. Furthermore, the latter voiced concern that this move towards a stronger academic focus might undermine the attractiveness of VET, which for many young people has to do with being allowed to *perform* concrete work and not having to *reflect* on life in abstract terms. Thus, simply put: According to critics, supporting VET students' reflection skills is not a goal that aligns well with the nature of VET or VET students' motivations.

At face value, such criticism seems warranted and in line with a common-sense understanding of the vocational professions. However, a closer look at the criticism reveals at least two shortcomings in this line of argumentation. The argument that thinking (reflecting) is a privilege of the well-informed upper secondary students only serve to support the valorisation of such education over VET. This makes the *parity of esteem*, which the VET sector is struggling to achieve, even more elusive.

However, a perhaps more serious implication is that such criticism ignores the important fusion between academic and manual labour that is so central to the VET professions. Indeed, creativity and innovation are reliant on the ability *to do* at a highly skilled manual level as well as the ability to adapt and transfer the key principles of such *high level doing* to other situations. This is what Schön refers to with the concept of ‘reflection in and over practice’ – the ability to step outside of the immediate situation and reflect upon it within a broader perspective of alternative choices (Schön, 1983). Reflexivity is a prerequisite for the ability to do so.

This fusion between academic and manual skills is manifested in different ways in the various VET professions. The use of *Forum Theatre* at one of the social and health schools, as mentioned above, is one example, pointing to the general powerfulness of such fusions with regards to the opening up of new opportunities for action in practice for VET students (Senneth, 2009; Tanggaard, 2014; Tesfaye, 2013). Furthermore, VET in Denmark is a *general education* and, as such, obliged to support the transferability and adaptability of the students’ skills in order to ensure their educational and professional mobility (Aarkrog, 2015). Supporting and developing VET students’ reflective thinking skills is vital in this regard.

Conclusion

In conclusion, then, what can be learned from the 21 different development projects in relation to VET students’ connection-making during their VET education and in relation to the Danish dual system in a wider sense? Two points stand out.

First, it can be concluded that in order to support VET students’ connection-making between school and work, a strong cooperation between the supervisor of the internship company and the teacher of the VET school is needed (Louw, 2015). School and work have different perspectives on VET students and what they need to be able to do and know (Louw, 2018). When connections between these perspectives are not being helped forward it becomes up to the individual participant – the student – to create ways of transforming and transferring knowledge and competences between school and work. The findings presented in this article illustrate how helpful it is to students when connections are being established on an institutional level – ‘around’ the students, so to speak – aiding students in establishing a sense of coherence in their education.

On the institutional level, such connection-making may be brought about through face-to-face talks between a teacher from a VET school and a supervisor from an internship company co-developing tasks for students to work on. This creates room for exchange of perspectives and experiences, and establishes a stronger common frame of understanding between supervisors and teachers. This common frame of understanding on the institutional level means that VET students are no longer individually responsible for transforming and transferring

knowledge and experiences between school and work (something that has traditionally been challenging for them), because both contexts are now guided by similar concepts and goals. In this way, teachers and supervisors – acting on an institutional level – are able to develop a common frame of reference for the benefit of VET students. Thus, supporting the students' ability to make cross-context connections on an individual level during their VET programme.

Secondly, it can be concluded that working with students' reflection skills, in relation to how tasks from school and work connect to each other, helps the students transform knowledge and competences from one context to the other (Aarkrog, 2012). This is brought about by, among other things, creating better opportunities for students to reflect on their professional actions during their internship in relation to the more general learning in school - and *vice versa*. The study shows examples of how such cross-context reflection might be professionally framed and take place by means of for example Forum Theatre activities, the pamphlet, or the logbook. With a point of departure in these activities, the students' reflective thinking skills are enhanced and they are being animated to *think backwards* and *think ahead* between school and work periods. It should be stressed, at this point, that supporting VET students' reflective thinking skills should not be seen as a replacement for the acquisition of practical competences but rather as an integrated element of their overall practical skills – a fusion of academic and manual competences.

On a general level, the article demonstrates how dialogue and collaboration between schools and workplaces, as well as didactical activities aimed at enhancing reflection among the students, strengthen students' ability to make connections between school and work. Finally, from an education policy point of view, the findings reported above hold an important message. As outlined in the beginning of the article, the Danish dual model has a long and proud history. However, VET teachers, supervisors, and VET students are still struggling to bridge the gap between school and work. The recent reformation of the Danish VET system addressed this point by stressing the importance of strengthening teachers' and supervisors' cooperative competences as well as structural connections between school and work. Based on the findings reported here, it can be concluded that in order to strengthen the results and attraction of the Danish dual model and inspire other countries heading in the same direction, a strong and obligating collaboration on an institutional level between teachers and supervisors, including the active support by school managements, is vital.

Endnotes

¹ After the reform of the Danish VET system in 2015, the basic programme was divided into two: Basic Programme 1 (GF1) and Basic Programme 2 (GF2). GF1 is for students who come directly from lower secondary school or with a maximum of one gap year

between lower secondary school and VET school. GF2 is for students younger than 25 with more than one gap year between lower secondary school and VET school. Students older than 25 enter a special VET education for adults (EVU). Before the reform of 2015, all students would start at the same basic programme.

² In 2014, the Danish Ministry of Education formulated a strategy for development work in three different types of programmes: 1) *Inspiration programmes*: Initiated when knowledge about a specific field is limited and no assumptions can be made about which activity leads to which effect. 2) *Model programmes*: Initiated when knowledge about a field is uncertain but one or more assumptions can be made as to which activity leads to which effect. 3) *Systematic programmes*: Initiated in order to provide certain knowledge about the effects of an activity in several local contexts.

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The human right to work: The tension between intrinsic and instrumental values in five teachers' stories from the industrial technology programme

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Abstract

In this article, we discuss a tension between the intrinsic and instrumental value in relation to work and human life. This tension is reflected in the UN Declaration of Human Rights, which regards work as an intrinsic value for a human life, as well as in the (neo-liberal) labour market, that values work and workers for their instrumental ends. In the light of this tension, we analyse how five vocational teachers' life stories express it through descriptions of their experiences, decisions and teaching. The methodological starting point of our study is based on a narrative perspective, where vocational teachers' stories are at the centre. Our analytical tools are taken from Bamberg (1997), who discusses how people position themselves in their own stories. In light of four positions as outlined by Bamberg, we discuss three tensions: 1) The right to work as universal and under conditions at the same time, 2) Work as a place for belonging under the shadow that only profit counts, and 3) Performing a good job, while balancing professional pride and the concern for oneself. In our conclusions, we suggest that vocational teachers should provide their students with wider civic knowledge about their rights as well as about possible forms of influencing structures in the labour market that vocational teachers are in part preparing their students for.

Keywords: vocational teacher, human rights in VET, life stories, intrinsic and instrumental values, industrial technology programme



Introduction

The first paragraph of Article 23 of the UN Declaration of Human Rights (1948) declares, 'Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment' (United Nations, 1948, § 23, 1). Countries that have ratified the UN Declaration of Human Rights commit themselves to taking these specified rights into account and applying them to everybody in every circumstance, indiscriminately. At the same time, however, work and working conditions are globally structured by the rules of a (neoliberal) labour market. With the aim of the (neoliberal) labour market ultimately geared towards profit, one consequence is a demand for industrial workers to offer their abilities in exchange for low salaries and efficient productivity. The incentives built into the neoliberal market's structures may, in many ways, collide with Article 23 of the UN Declaration on Human Rights.

In this article, we address this tension in the form of the question of how it might be possible to balance intrinsic and instrumental values. On the one hand the right to work is meant as a human right, i.e. as a right that someone possesses because they are a human being (intrinsic value). On the other hand, we work in certain professions, with certain tasks, and earn salaries due to specific abilities that we possess and have training in (instrumental value). In a similar way, we can apply intrinsic and instrumental value to work as a practice that has value in itself (a meaningful activity) and as a conduct that leads to certain ends (production, salary, profit) (Lindman, 2015).

Through the lens of the professional life stories of three Swedish and two Finnish vocational teachers, we analyse these tensions. We focus on the process in which they changed professions, from industrial workers to vocational teachers, and discuss how the balance between intrinsic and instrumental values in human life and work enter their life stories. In our concluding remarks, we suggest vocational education as a place to address these existential questions for future professionals.

The role of work in a human life

The declaration of universal and basic human rights is based on an idea of what a human life could and should be. Philosophers within an existentialistic approach, like Buber (2002), Heidegger (1996), Lévinas (1999) and Weil (1994) approach this subject from at least two perspectives. On the one hand, we need to have a place in the world; a place that is both a geographical place where we come from and live our lives, and an emotional place of belonging and of feeling at home. On the other hand, a human life is a life together with others in a dialogical way. It is only together with others that we develop and experience our own uniqueness and can pose questions that express our thoughts on the meaning of our existence.

From here it can be argued that there is a need for a place to be, and a need for meaningful interaction with others, and that these are also central aspects concerning both a person's personal and professional life (Schaffar, 2017). The Medieval craft and trade guilds could be regarded as examples that intimately combined the home, family and work, and offered a professional, economic and social-emotional place (Benner, 1995). In such close professional relationships, the question of a person's right to work, just conditions of work, and protection against unemployment, were not posed in the same way as they are in today's industrial and post-industrial societies, where it is crucial to discuss the role of work in human life. Here, especially in Western welfare states, a fight of interests has taken place between employers and unions to guarantee human working conditions, regulations for injuries, and the possible inabilities in relation to injuries and one's ability to work. After the Second World War, the UN Declaration specified these rights in the following way:

Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control. (United Nations, 1948, § 25, 1)

There is a link between the way in which a society's working life is structured and vocational education, e.g. the way the next generation of professionals will be fostered into the written and unwritten professional rules (see e.g. Engeström, Engeström & Kärkkäinen, 1995; Vähäsantanen, Saarinen & Eteläpelto, 2009; Woods, Lievens, De Fruyt & Wille, 2013). The teaching of a profession includes what kinds of expectations a student develops for their own private and working life, the working conditions that they will face and the plans that they will be able to develop for a meaningful life. In this respect, the UN Declaration of Human Rights also stresses the right to education (United Nations, 1948, § 26, 1), i.e., an education that explicitly 'shall be directed to the full development of the human personality' (United Nations, 1948, § 26, 2). As a consequence, the Swedish and Finnish policy documents about education in general, and about vocational educational programmes in particular, are based on the UN Declaration of Human Rights.

The responsibility to fulfil the right to work

The Declaration of Human Rights describes high ideals for a society's working life. There are at least four actors that bear responsibility for striving towards these standards, and for fulfilling them as extensively as possible:

1) Private or public employers create and provide work tasks to be completed, and have the means to shape the conditions for meaningful work (cf. Miller & Glassner, 1997). In most countries, it is the employer's duty to protect the employees' social and economic security, and to create development opportunities

for them. The ethical dilemma between intrinsic and instrumental values for employers lies in providing work tasks that do not only use the employee as an instrument to carry out tasks, but in addition, at least in the private sector, that create value from the work that is done. It is necessary to note that private employers have not signed the UN Declaration of Human Rights. Nevertheless, they operate in political and legal realms that fall under the Declaration of Human Rights. When industrial employers move their production to countries that have less control of workers' conditions, this can be seen as a way of escaping from the responsibility of offering work and conditions that are in line with the Declaration of Human Rights.

2) The responsibility to fulfil the right to work falls on the employee, whose professional competences should undergo continuous development for the employee to stay attractive on the labour market. The notion of lifelong learning has become a key concept in this discussion over the past 40 years. While the idea of a continuous striving towards the person's fulfilment as a human being has been associated with the history of education and is hence nothing new (cf. the continental notion of *Bildung*, e.g. Benner 1995), lifelong learning is much more of an instrumental concept (Biesta, 2010). It is less about the human being herself (intrinsic), but rather about how the individual can and should adapt to the changing demands on the labour market (Bathmaker, 2001). In this respect, it becomes the individuals' responsibility to fulfil their own right to work and to maintain employment.

3) The education system is central when it comes to fulfilling the demands from the Declaration on Human Rights. Through education, students are expected to gain the appropriate tools for their professional lives, in order to be able to obtain future employment. In national and international research on vocational education, it is often assumed that vocational education should lead to employment (Fejes, 2009; Hiim, 2013; Johansson, 2009). On the surface, this can be understood as an instrumental end, but in order to become and remain employable professionals, the knowledge that vocational students need to learn includes both concrete knowledge of the profession, and knowledge of how a professional worker should behave in the workplace (Hiim, 2013; Lindberg, 2003), which can be understood as an insight into the intrinsic value of work. That is to say, vocational education should lead to prominent professional identities for the vocational students, in which they also embrace occupational norms (Hiim, 2013). The notion of an occupational identity as a professional worker, and the motivation to cope with vocational education studies are considered, for example, by Hiim (2013) and Johansson (2009) as well as Tuomi-Gröhn, Engeström, and Young (2003), to be contributing factors for the employment of vocational students after their education. Vocational teachers play a central role. They can motivate their students for vocational education by showing them an interest in the profession,

e.g. through the vocational teachers' own professional experiences of working life (Asghari, 2014; Asghari & Kilbrink, 2018).

4) The right to work and to provide security from unemployment falls in the realm of the political system. The task of governments is to structure and enable the collective life of all citizens, which involves providing economic structures that, on the one hand, enable work opportunities and, on the other hand, ensure good human working conditions. During the past 30 years, it has been argued that the political discourse has changed. While earlier, politicians claimed that governments are responsible for creating work opportunities, today's discourse expresses the government's task as enabling the citizens to become employable via more or less publicly financed education programmes (Allais, 2014).

These four actors are intimately intertwined, and the responsibility for fulfilling the human right to work, as well as for providing human working conditions and security from unemployment, is based on an ongoing discussion between these actors, where different interests pull against each other, in an attempt to influence the discourse. The latest developments show that global actors from the labour market are increasingly influencing both the national political and educational systems (Allais, 2014; Jørgensen, 2018; Wahlström, 2015).

Purpose and research question

Considering both the high ideal of the Declaration of Human Rights, and these different responsibilities and interests to fulfil them, our question is how vocational teachers act in this field of force. To answer this question, we analyse life story interviews with vocational teachers. A life consists of many stories (Pérez Prieto, 2006), and our focus in this article is on the professional experiences expressed by those interviewed, as industrial workers and as vocational teachers.

In our sample, we chose five stories according to the following characteristics: The vocational teacher left their industrial profession and chose an alternative career as a vocational teacher. It was important for us that the change of career was experienced as the solution to a professional crisis. The teachers might be satisfied with their occupational situation now, but being a teacher was not their initial work/life-choice. This focus in our sample enables us to analyse the tension between intrinsic and instrumental values in work and in human beings, as their professional experiences can be understood as a part of the reality of working life, where industrial workers, due to occupational injuries and working conditions, are forced to change their professional career. Our research is based on questions on how ambitious professionals experience the dilemma of not being able to work with tasks that give meaning to their life on one hand, and how they, as teachers, aim to transfer their knowledge to the next generation of professionals who risk experiencing the same crisis throughout their professional career. To this end, our research questions are:

1. What positions are prominent in the vocational teachers' stories on vocational education, working life and vocational teaching?
2. How does the tension between intrinsic and instrumental values emerge in the teachers' life stories and their positioning?

Methodological framework

Our study is based on a narrative perspective in which the vocational teachers' stories are at the centre (cf. Mishler, 1999). The Swedish teachers have been called Henry, Leif and Anna, and the Finnish teachers have been called Kent and Ulf in this study. The vocational teachers' stories can be understood as both a theoretical framework, and a methodological framework. The theoretical framework concerns the understanding of what the vocational teachers express during their interviews. Based on a social constructionist perspective (Berger & Luckmann, 1966), we mean that vocational teachers, through narrative, and in interaction with the interviewer, create meaningful perceptions of themselves and their own world (cf. Mishler, 1999). The teachers highlight, throughout the interviews, what they consider relevant for the interviewer and/or what they think that the interviewer wants to hear (ibid.). When vocational teachers talk about vocational education, working life and vocational teaching, they look back on the life they have already lived, and on the occasions that they met and taught their students (cf. Bruner, 1986). In the narrative, they reflect on their experiences (cf. Freeman, 2010), and during their interactions with the interviewer, they construct their stories based on the interview situation (Asghari, 2014; Pérez Prieto, 2006).

The methodological framework (in the article, and the basis for our research) is a narrative approach. Anna, Henry and Leif have been part of a larger study on vocational teachers' life stories, including experiences from their professional careers, concerning teaching between 2009 and 2014 in Sweden (Asghari, 2014). All the interviews with the Swedish vocational teachers were conducted at the vocational teachers' schools, where they were recorded with a dictaphone, and the interviews were transcribed immediately after the sessions. Kent and Ulf belong to the Swedish-speaking population of Finland. They were Schaffar's students in 2016 and wrote about their previous life experiences in narrative form. Kent's and Ulf's written stories, as well as Henry's, Leif's and Anna's transcribed interviews, were analysed based on Bamberg's (1997) three levels of positioning, as described below.

Analysis of the vocational teachers' stories

According to Bamberg (1997), there are three different levels of positioning: 1) narrators positioning themselves in relation to other individuals and/or characters in the events described during the conversation, 2) narrators positioning

themselves in relation to the audience in the interview situation where the conversation takes place, and 3) narrators positioning themselves in relation to themselves. This means the conversation is used to claim truths about the interviewees that go beyond the interview situation. In our case, we use Bamberg's analytical tool to study the relationship between the characters, to see what intrigue it causes. More specifically, we use Bamberg's first level of positioning to study how vocational teachers position themselves in relation to other individuals and/or characters in the events described during the conversation. Based on Perrino (2015), we assume that when the teachers position themselves in relation to other individuals and/or characters, it means that they also position themselves in different times and spaces in their stories. The vocational teachers draw upon their experiences of past times, relate them to the present, and with what can happen in the future. In this way, they create relationships between different events in different times and spaces and construct their stories (cf. Ricoeur, 1991). Our analysis focuses on how the tension between intrinsic and instrumental values in work and human life is incorporated in the teachers' stories and positions, and how this might shape different professional ethical dilemmas.

Vocational teachers, their stories and positions

In our analysis, and in response to the first research question, we found four positions that we will present together with the five teachers' life stories. The teachers position themselves as 1) a dejected worker in relation to uncomfortable workshop work, 2) a good worker in relation to other friendly, helpful and loyal workshop workers, 3) an underestimated worker in relation to unsympathetic employer relations, and 4) a loyal industry worker in relation to a creditable industrial technical education.

A dejected worker in relation to uncomfortable workshop work

Henry is a 55-year-old Swedish industrial teacher who moved from an English-speaking country to Sweden when he was 26 years old. Henry was trained as a welder through a labour market educational programme in Sweden, before beginning work as a welder in a small industrial company in a big city in Sweden. Henry explains that for the 18 years he worked at the company, they were between 10 and 15 welders and 3 to 5 officials. In addition, there were 2 managers who owned the company. Henry says that all workshop workers in the company also worked with other work tasks, such as turning, milling and assembly if needed.

It was a varied work and it wasn't always bad, but as the years went by I thought I couldn't handle it, it was heavy work. I was then 44 years old and thought; I can handle the workload for a few more years, but then what? There was nothing that I could possibly do after the age of 50. I had started to feel pain in my body, and

what really kept me at work was my welder friends. We had very good contact with each other and we met outside of work, but the problem was the employer. The employer didn't have anything else to offer, and then I started thinking about changing jobs because there were no other options.

A similar positioning and change in life emerge from Kent's story. Kent is a middle-aged man who belongs to the Swedish-speaking population of Finland. He is a vocational teacher at the Heating, Ventilation, and Air Conditioning programme (HVAC) who has a technical education and work experience as a plumber for over 20 years. Kent says that he worked in a few different companies before he stepped into the teaching profession in Finland. In relation to his workplace, Kent says:

I worked as a plumber at a sailboat factory in 2000 and worked there for four years, but because of a knee injury that I have had since 1997, I stopped working at the factory. It was very tough on the knees on the boats, even though they are large, 30–40 meters long boats, they are still cramped inside. Later, I changed my job to a 'regular' company in the plumbing industry. [...] Unfortunately, the accident occurred again in 2008, and I had a series of knee operations and rehabilitation and retraining to become the group leader in the company.

Even Anna, a 37-year-old Swedish vocational teacher, who now teaches at the Electricity and Energy programme, had to leave her profession due to an injury that was caused by her work tasks. She worked as an electrician at an international installation company, with expertise in electricity, heating and sanitation, ventilation and automation, for 10 years, before she moved to the teaching profession. Anna says:

When I worked as an electrician, I was very comfortable with that profession, but I started to experience problems with my hands, I had a high workload, but tried to cope, but then I had muscle inflammation, my arms were inflamed. I worked as a cable carrier and I always kept my arms up, it was monotonous. It started to hurt and become a problem. [...] I felt pain in my arms. I sought medical treatment, and then the doctor told me that I had to change the work tasks and not to have my arms up, but when I told my boss what the doctor said, my boss answered; No, unfortunately, I only have this work, I can't help you.

Unlike Henry, Kent and Ann, the fourth and fifth teachers in our study, Ulf and Leif, mention several structural problems and changes in their companies that finally led to their decision to leave their profession. Ulf, a middle-aged tinsmith and welding teacher from the Swedish-speaking population of Finland, says he had various welding and metal work at various companies in Finland before he stepped into the teaching profession.

I led and organised Finnish and Swedish vocational workers during economic bad times. After 2004 when the new factory was completed, it was very challenging with mass dismissals, new approaches, a new payroll system and a new maintenance programme that would be put into use. The dismissals caused the morale to sink. The workers' absence increased and we were worried, what would happen to those of us who had to keep working? The new payroll system required you to be competent in several areas, and to handle several different tasks in order to have

top wages. The new data maintenance programme required several days of training per person.

Finally, Leif, a 53-year-old Swedish lathe teacher, worked until the age of 33 as a lathe worker for a multinational industrial company that produced industrial tools and equipment, and positions himself as a dejected worker in relation to uncomfortable workshop work. The heavy lathe work caused Leif bodily pain. But he also emphasised that the whole work situation was tiresome, which led to Leif changing jobs from lathe work to lathe teaching. He says that:

... the working hours weren't suitable for those of us who had families and young children at home. The wages weren't that high compared to other industries. There weren't many career opportunities either.

A good worker in relation to other friendly, helpful and loyal workshop workers

Henry positions himself as part of a strong and family-like working community. He describes how he, despite his pain, continued to work a little longer, due to the good relationships he had formed with his welder friends. Likewise, Leif highlights the importance of the good relationships he and his colleagues had in their company:

We, workshop workers at the company, we had a friendship relationship, a good way to communicate with each other. We helped each other. We didn't wait until someone said; you, come and help me. It was just good manners to help out. I help you, you help me. We were a team and everything was teamwork.

Despite his critique of the working conditions at his company, Leif emphasises the workers' joint commitment to each other and to the company.

We had a bigger perspective, we wanted a job to go to tomorrow. It was important to be a good lathe worker, and it was important to be able to produce right from the start. Focus was always on producing right, producing right and producing right. We did our best to do well for the company.

An underestimated worker in relation to unsympathetic employer relations

In the relation to their companies and employers, some of the teachers in our study position themselves as underestimated, while the employer is described as unsympathetic. Anna, for example, says that she 'was very comfortable' with her profession, but that she had a high workload that she tried to cope with. However, when she got muscle inflammation in her hands and wanted to change work tasks, in line with the doctor's recommendation, the employer told her that they had no other tasks and could not help her. Henry expressed a similar experience concerning his employer, who could not offer other working tasks when he was not able to conduct his ordinary duties due to the pain his work caused him.

Anna mentions that there were also other problems concerning the company and the employer's relation to the staff.

The company made a loss and they [employer] thought we [the staff] were the problem, that we had high salaries. They wanted to move the company from Sweden to cheaper countries, and then I began to think about what jobs are available for me, what I can work with, but still related to electricity and electronics. Then I thought; but teaching is probably not a bad idea, and it was good that I did it because a year later, they moved the company to Poland.

In a similar way, Leif says that he and other workshop workers did their best for the industrial company. However, in Leif's experience the employer did not listen to the workshop workers when they made suggestions on how to improve their tiresome work situations.

A loyal industry worker in relation to a creditable industrial technical education

Finally, the teachers in our study tell how they became interested in the opportunity to teach. Here, they position themselves as loyal industry workers in relation to a creditable industrial technical education.

Henry e.g. tells that he saw an advertisement in the newspaper one day that an upper secondary school needed a welding teacher. He applied for the job and he got it. Henry has been working as a welding teacher for 11 years at the time of the interview, and teaches all the welding courses at the Industrial Technology programme in Sweden. He emphasises that his goal is to be there for his students, because:

It is very important for me that my students will become employable, and that is also the goal of vocational education. They choose a vocational education to get jobs after the education, but at the same time, it is a fact that work in the industry goes up and down, sometimes there's plenty of work and then they hire people, sometimes not, and then they fire people. Then it is important that our students have such a good welding knowledge that they can get work elsewhere, even internationally, if the industry in Sweden goes down and they are dismissed.

Kent has been working as an HVAC teacher for five years now and enrolled in the teacher training programme a year before the interview. He says that he was contacted in 2012 by a local HVAC teacher who asked him if he wanted to become a vocational teacher at a vocational school. He accepted the offer, and describes what he considers important in his teaching:

Interaction with the industry is one of the things that is rewarding and interesting. [...] Students will learn heating systems, water systems, ventilation systems and drainage systems. All these systems should be linked to all the different points in a property. [...] Now, customer service has also come to play a greater role for the customer. [...] For example, a customer calls because of water damage in his house, the kitchen, the living room and a bedroom is damaged. Professionals come to the house from different professional sectors. They are damage reviewers from the insurance company, moisture meter professionals, electricians, builders, plumbers, Building Drying companies, planners. All these professionals have a meeting for

an hour in the house, and then they rush to the next job. [...] There is a lot of work to do there. I myself have been one of those professionals. I came into contact with customers who made me open my eyes for the customers' needs and the customers' questions. I usually address this problem with the students and we discuss the phenomenon.

Anna says that it is very important for her that companies are satisfied with the students who she has trained.

I want them to say yes, they are Anna's students who work with us and they are very good, take responsibility, and do their best. [...] I want a really good education for them [my students]. I want a quality education, so I require a lot [of the students]. Every Thursday I also meet the programme council [representatives from the companies that have contact with the school], and then we discuss what the students should learn and what skills the companies need.

In Leif's story, the importance of employability, both for himself and for his students, emerges. Leif says he trained as a lathe worker because he wanted a job. Likewise, his goal is now to help his students become employable.

That is why much of my aim is about teaching my students code of conduct. For example, I say to them; If I've said I'm coming in, then I'll come in. Because the boss expects these products to be delivered to the customers. If I fail to show up at work and don't inform the boss, he doesn't know it. Then he can never put another guy in my place either. So, there is a responsibility for everyone to communicate. That is why I want them to understand the importance of honesty and tangibility if they want to become employable.

Having good relations with both students and the industry is important for Ulf, too. He has been working as a teacher since 2012 and says:

I'm an organised person. I want things to be in order, especially in the workshop and also at home. [...] I have studied metal at a vocational school, worked as a tinsmith, installer, and group leader and now as a teacher, so I think I know how it feels to be in this industry. [...] With over 30 years of experiences in the metal industry, I feel confident about it; materials science, welding, tinsmithing, machining, occupational safety, hot work, reading plans; and I'm good at catching up with the students who need some extra help from me.

With these life-stories, structured along four narrative positions, we then turn to answering our second research question, analysing the tension between intrinsic and instrumental values in respect to three aspects in the teachers' respective experiences.

Three tensions between intrinsic and instrumental values

In our analysis, we discuss three conflicting aspects of the teachers' life stories. 1) There is a tension involved in stating the right to work as a universal right, as stated in the UN Declaration of Human Rights, and the insight that this right only applies under the condition that a person owns specific abilities and competences. 2) Work is a place for meaningful relationships in a person's life, yet these

relationships are overshadowed by the realisation that it is not these relationships, but the company's profit, that the company is concerned with in the end. 3) And finally, the aim of performing a good job as an expression of a professional's dedication and the insight that the professional must be responsible for their own wellbeing, too.

The right to work as universal and under conditions at the same time

As quoted above, the UN Declaration of Human Rights declares in § 23 that 'Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment.' This right applies to every person because of their own value as a human being. Still, as we have shown through the narratives of our five interviewees, not everybody is able to perform every profession – or able to continue to perform a profession one was once able to – and that several working tasks should not be performed by just anybody, as special training is required. The result is that the right to work pertains to every person as a universal right (intrinsic value of human beings), although it applies under restrictive conditions (instrumental value). In order to hold a job, or to be allowed to perform certain tasks, an individual is required to undergo professional training in which they have to give proof of being competent for the working-tasks in question. Also, they must be physically able to continue their working tasks after training. It is not the human being as such, but the employable human being that the labour market demands.

Although this point seems obvious, the teachers' stories show that this insight can be experienced as a crisis in an individual's life. The teachers in our study were all well-trained, dedicated and appreciated professionals in their industries. Based on their stories, it was important for them to have employment, a cooperative and friendly workplace, and meaningful tasks. In Leif's story, his loyalty to the industrial company he worked in shines through; he wanted to have 'a job to go to tomorrow'. But over the years, when the heavy work affected Leif's, Henry's, Anna's and Kent's health, and their bodies began to suffer from pains and injuries, the management of the industrial companies could not offer them other duties. If Henry, Leif, Anna and Kent had continued to work as workshop workers, it would have been likely that they eventually had been on long-term sick leave, through serious, potentially lifelong, bodily damage. In Ulf's case, it was rather the work situation in relation to the threat/risk of dismissals that caused reduced workplace morale and uncertain future employment possibilities for him and his colleagues in the industry.

In these stories, the industrial workers were faced with the risk of unemployment, although they were perceived to be competent and successful to begin with. Their bodily limitations in the continuously tiresome work situation and the economic stagnation in the industry, respectively, brought the tension between intrinsic and instrumental values to the surface. As human beings, they

should be treated as having value in themselves, but instead, they came to see their own value as instrumental, due to their abilities. It is what the person can do for the company, not the person as a human being, that is valued by the employer. What we can see from the stories that we have focused on is that the teachers express, in part, strong disappointment concerning the companies that they were working for. Still, the teachers do not expect the companies to act in a different way. The crisis is not experienced as a betrayal, as would be the case when someone is ignoring and neglecting a person's intrinsic value. The teachers accepted their situations when they developed health problems, and they started considering unemployment, and possible ways to avoid it.

From the stories that the five teachers in this study told, we see that, as employees, they ultimately took responsibility in maintaining their employability, and thus engaged in new careers when their current careers were no longer feasible. This is obvious in the light of mutual political agreement between employers and employees in the Nordic welfare countries. The social security and labour systems balance the costs of unemployment, and of further adult education, via taxes (Arbetsmarknadsekonomiska rådet, 2018). Both the companies and employees can rely on the public educational system in Finland and Sweden to provide employees at risk of unemployment with an adequate educational opportunity to regain employability at a low expense, in the cases presented here, as re-education as teachers. In the Nordic countries, it can be seen that the responsibility to fulfil the human right to work is still balanced between the four actors that we presented above: 1) employees, 2) employers, 3) the political system, and 4) the educational system. Still, faced with increasing pressure from private employers to lower public system taxes, while at the same time gaining from the public social and educational system, it can be seen that the costs and profits are less and less shared equally, and are in favour of private sectors (cf. Jørgensen, 2018).

Work as a place for belonging under the shadow that only profit counts

Above, we described work as an existential part of a meaningful human life. The life stories of the five teachers bear witness to this, too. Their work in the industry has been an important part, not only for the instrumental ends of work (e.g. a regular income), but also as part of their private life. Both Henry's and Leif's work has been a central part in their own and their families' social relations, and for Henry, it was hard to realise that he had to choose between his health, and the friendships that he experienced at his work. Based on the vocational teachers' positioning as a good worker in relation to other friendly, helpful and loyal workshop workers, we see that good relationships between workshop workers is central to a satisfactory working life. Likewise, in the stories of Anna, Ulf and Leif, it is apparent that straining relations between the staff and the management, as well

as between colleagues, can lead to exhausting working conditions that can eventually cause one to decide to change jobs. Another factor that can affect employees' working conditions is for example if a company decides to move their production abroad, as in Anna's case.

The tension that we want to highlight here is not only the individual tragedy that is implied when important relationships end due to different external problems (injuries, economic decisions, conflicts etc.). Rather, a friendly atmosphere at the workplace is necessary for delivering results of good quality. Leif's disappointment with his former workplace expresses not only a sadness over the fact that he risks losing the friendship with his colleagues, but also an irritation directed towards the management. He contrasts the statement that 'we did our best to do well for the company' with his critique that 'there were many managers, and above all, they didn't listen to us workers'. These statements express an asymmetry in how good relations at the workplaces are valued. While it is considered a key condition for a company's performance to value good relationships in their working environment, these relationships are still only seen as having an instrumental value for the companies, at least as it was experienced by the industrial workers in our study. Yet for the workers in the company, it is clear that some of the relations have intrinsic value in their lives. In Leif's and partly in Anna's case, the team even made suggestions to the management, for how to improve the performance of the company. These suggestions were based on their high level of collegial cooperation, but in their cases, due to reasons that we do not have data about in our study, the management was not able – or was unwilling – to consider these suggestions. The company in Anna's case was moved to another country, and Leif quit his job. While good working relations between colleagues are central for a company's performance, ultimately, only measurable (instrumental) values are seen as important when considering decisions relating to the continuity of a team of workers.

Performing a good job, while balancing professional pride and the concern for oneself

Finally, we argue that our analysis sheds light on a tension in the teachers' stories that was not addressed by them directly. They all found a meaningful professional alternative to their (bodily) exhausting or non-profitable work in a career as a vocational teacher. As teachers, they stress the importance of passing on the pride and dignity of their profession as it is seen from the position of loyal industrial workers in relation to a creditable industrial technical education.

The vocational students' employability is most important for the teachers in our study. Their aim is to try to create opportunities for their students to gain employment after their vocational education. For Henry e.g., good welding knowledge can create opportunities for students in terms of national and international employment. But most important for the teachers is to pass on good

manners, responsibility for each other in the team, responsibility for the quality of their products, and a high code of conduct, as it can be seen in Leif's, Anna's, Ulf's and Kent's cases. Their teaching aims to provide an as good as possible education that is tailored to the industry's competency needs.

The tension that we want to address is the question how to pass on the values in the professional practice (intrinsic), while taking into account that, on the one hand, the body may suffer from the ambition of delivering good quality, or on the other hand, that striving for and cherishing professional pride will not protect someone from unemployment. Becoming a teacher might be interpreted as a welcome alternative for those who cherishes their own professional knowledge, and who cannot not use their knowledge in the industry in person anymore. Being a teacher and passing on the knowledge to a next generation equals a possibility to still serve the profession. Still, the teachers in our study experienced (bodily and from a management position) limitations to this intrinsic value of the professional knowledge, which could have consequences for the results of their teaching ambition. Their own life stories tell their students about possible risks in the profession. If not addressed openly and honestly, these work-related risks may influence a student's ambition towards a particular profession negatively, and may cause the student to ask: Why should I aim for an outstanding performance if the consequence is an early sick leave due to bodily injury, or unemployment due to outsourcing of labour? And why should anyone perform as good as possible if increasing quantities are valued more than quality? (cf. Schaffar, 2017). Here, the teachers have to address the difference between striving for the values of a practice (instrumental values like profit, results, concrete products) and the value in a practice (intrinsic value of a good performance and the dedication to one's profession) (cf. Higgins, 2010).

Concluding remarks

In this article, we began with a focus on a section of the UN Declaration of Human Rights, which states that everyone has the right to work, and then contrasted this with the instrumental value that work has in the (neoliberal) labour market. In the light of this tension, we analysed the life stories of five vocational teachers and discussed how this tension is expressed through their own experience, decisions to ultimately leave their professions and turn to re-education as teachers.

As teachers, they viewed it as their responsibility to educate the next generation in accordance with the industry's demands; and in return, they relied on the political and educational systems to provide possibilities that could help when they were in need of a change of career. The importance they express with regards to their teaching in relation to their students becoming successful employees shows that they basically neither question nor demand the companies and employers to be more active in engaging in the employee's health and alternative

career developments. We interpret this as both an expression for the trust in the Nordic welfare system and as a lack of knowledge and educational competence to address these questions more openly with their students. Their focus in teaching can be summarised by saying that they want their students to learn how to navigate in these given structures. Their positive experience as employees and entrepreneurs in the labour market is used as an example, and as learning content, but their adverse experience of their own bodily limitations, and the instrumental, solely profit-oriented economic systems and decisions that lead to the outsourcing of work and the risk of the loss of one's job, seem to be left aside.

Our analysis suggests that teachers should be more aware of their duty to educate students even in participating in (global and national) political decisions about their future working life and give a realistic picture of the given structures of work they once did.

The Declaration of Human Rights demands that society is engaged as much as possible in trying to fulfil them. In our context, this could mean that teachers could be more engaged in bringing up questions on just and healthy working conditions as a task for everyone in society to strive for. That would include e.g. critically analysing the working conditions of the companies in the local region and to engage together with the companies – both managers and employees – in developing better conditions in those cases where this is necessary.

Of course, given the industry's orientation towards a more neoliberal and competitive labour market, industrial teachers face different occupational ethical dilemmas in order to implement the UN Declaration of Human Rights in education. These dilemmas will essentially be about addressing and balancing the intrinsic and instrumental values in work and in human beings. Vocational teachers need to ask themselves e.g. how they can address the need to speak openly and honestly with their students about their future plans, the chances of employability for students in the neoliberal labour market, and the working conditions of industrial companies (Schaffar, 2017). This in turn would involve rethinking both vocational education and training as well as vocational teacher training in relation to a much broader curriculum. This would include political engagement in one's own and the company's working conditions, and the communities' duty to engage in everybody's health and avoidance of unemployment (cf. Rönnerberg, Lindgren & Lundahl, 2019). This is not only a realistic and possible way of organising vocational education; it is a necessary (and desirable) consequence of our obligation towards the UN Declaration of Human Rights. Still, the global trend in vocational education and training is developing in the opposite direction, towards an increased focus on technical skills and narrow competencies (cf. Allais, 2014; Jørgensen, 2018).

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Vocational students' identity formation in relation to vocations in the Swedish industrial sector

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Abstract

This article investigates vocational identity formation among students studying vocational education programmes that focus on vocations within Sweden's industrial sector. The empirical material is based on twenty-eight qualitative interviews with students enrolled on industrial programmes at four upper secondary schools. Taking a situated learning perspective as our starting point, the study reveals how the students' vocational identity formation can be understood by examining their learning trajectories, which are shaped by their social backgrounds, their perceptions of workplace-based learning and industrial vocations, and their thoughts about their vocational futures. The findings demonstrate that students' vocational identity formation is not a single linear process. On the contrary, three learning trajectories emerged which correspond to three different student groups. The students oriented towards commitment intended to work in industrial vocations, while the students oriented towards flexibility were open to the possibility of careers outside the industrial sector, and the students oriented towards ambivalence had no obvious plans for their vocational futures. In conclusion, this article suggests that in order to better understand the formation of vocational identities, the notions of learning trajectory types and social categorisations need to be considered in greater depth and understood in relation to the upper secondary school environment.

Keywords: vocational education, industrial programme, vocational identity, trajectories, social categorisation



Introduction

Students who are enrolled on vocational education programmes often prefer workplace-based learning to classroom learning, taking a fast-track route to the labour market (Beck, Winum & Bøje, 2014). In order to support smooth transitions between school and work, recent policies and reforms enacted in Sweden have given a higher priority to workplace-based learning in vocational education in order to bridge the gap between school and working life. Such pathways can be examined as part of a broader process of identity formation (Wenger, 2010), including the shift from a student identity to a vocational identity. In this article, a vocational identity is defined as a determination to commit to the values of a vocation (Armishaw, 2007), while understanding and articulating the reasons for wanting to take up the vocation (Evans, Guile, Harris & Allan, 2010).

Research into vocational students' identity formation is still scarce, and the students' perceptions of their own vocational identity formation have not been fully investigated (Virtanen, Tynjälä & Stenström, 2008). Nor has attention been paid to their experiences of what prepares them for an uncertain vocational future (Kilbrink, Bjurulf, Baartman & de Bruijn, 2018). Billett (2014) argues that there is a tendency to disregard students' perspectives of their vocational identity formation, and that their voices should be taken into consideration to a greater extent. From a student perspective, our ambition is that this article should contribute knowledge about students' vocational identity formation. An empirical example is used, based on interviews with 28 students enrolled on the industrial vocational education programme at four Swedish upper secondary schools. More specifically, the aim is to investigate vocational students' perceptions of their identity formation in relation to a vocation within the industrial sector. The industrial sector is of particular interest because previous research has paid little attention to industrial programme students at Swedish upper secondary schools in connection with teaching and learning within the programme (Berner, 2010). An exploration of students' learning trajectories in industrial vocational education is timely, given that the Swedish industrial sector has a shortage of skilled labour and applicants for the industrial programme are too few in number and often have low grades (Gustavsson & Persson Thunqvist, 2018). Similar tendencies have been observed in industrial sectors and vocational programmes across the Nordic countries (Jørgensen, Olsen & Persson Thunqvist, 2018).

The article is structured as follows. In the next section, there is a focus on the current debate regarding identity formation, and three different lines of argument are presented. The subsequent section introduces a theoretical framework informed by a situated learning perspective (Lave & Wenger, 1991; Wenger, 2010). The theoretical argumentation here is that vocational identity formation is closely interlinked with students' learning trajectories, which are shaped by different conditions. Later, the research setting and methodology are described.

Then follows a presentation of the findings in connection with the students' vocational identity formation, which is not a single linear learning trajectory. Instead, three different learning trajectories emerged, corresponding to three distinct groups of students. The differences between these groups can be traced back to the students' social backgrounds, their perceptions of workplace-based learning and industrial vocations, and their thoughts about their vocational futures. Finally, the findings are discussed and summarised in a few conclusions, with practical implications for the vocational education system.

Vocational identity formation in changing times

In research into identity formation within the field of education and work, at least three different lines of argument can be identified in connection with the significance (or insignificance) of identity formation for young people and students during the initial phase of their vocational development and their commitment to a specific vocation or vocational field. The first such line of argument suggests that vocational identity is irrelevant in today's flexible working life, as individuals' futures are influenced by a discourse of individualisation and flexibility (Beck, 1992; Giddens, 1990; Sennett, 1998). In a policy context, this line of reasoning is driven by the idea that more people with general academic skills are required to meet the demands of a post-industrial knowledge society and to create a flexible labour market. Neo-liberal trends within education policies also emphasise that students have a personal responsibility to make themselves employable (Michelsen & Stenström, 2018). The question of the relevance of vocational identities in initial vocational education is also part of the general picture within research into the increasingly prolonged and complex transitions between school and work (Jørgensen, 2013; Walter, 2006.) This is due in part to the changed conditions in terms of socialisation and identity formation in the 'late modernity' (Bauman, 2000; Giddens, 1990). In a society that features flexibility and high levels of mobility, the solidity of a vocational identity is undermined by the ideals of lifelong learning (Nielsen & Pedersen, 2011). Consequently, young people's changing approaches to work and careers mean that general competencies are valued above specific vocational skills and orientations (Walter, 2006).

The second line of argument, which stems from research into the development of vocational identities in different working practices, suggests that strong vocational identities continue to develop even during unstable periods of work (Doherty, 2009; Ulfsdotter Eriksson & Linde, 2014). In particular, this is seen in sectors where there is a strong traditional identification with vocations that are tied to specific workplaces and work tasks (Doherty, 2009; Kirpal, 2004). 'What do you do for a living?' is a common question when meeting other people for the first time, since skilled work and identity still seem to be closely linked (Ulfsdotter Eriksson & Linde, 2014). However, long-term commitment to work

can sometimes imply an acceptance of a job simply because of the security it offers (Kirpal, 2004).

The third line of argument is rooted in the field of vocational education. The argument here is that vocational students' identification with a specific vocation is highly heterogeneous (Reegård, 2015), and students' vocational identity formation features significant diversity (Jørgensen, 2013). This diversity is partly due to differences in the institutional arrangement of vocational education, which affects students' attitudes towards work. In a Nordic context, research also reveals how vocational students' attitudes towards work differ between individual labour market sectors. Vocational upper secondary education in Norway aimed at 'weak-form occupations' (Reegård, 2015) within the service sector largely promotes flexible strategies for dealing with uncertainties in working life. However, whereas some vocational students are motivated by a desire to keep on moving, lacking an orientation in their work, others are highly ambitious and are committed to a career within a specific field (Reegård, 2015). Nevertheless, the conditions for identity formation in the service sector are quite different to those within vocational education that targets technical and industrial vocations (Jørgensen, 2013). Even so, research into students' vocational learning in connection with becoming a skilled worker suggests that the students studying technical and industrial programmes have a wide range of different motivations and future orientations (Fjellström, 2017; Jørgensen, Olsen & Persson Thunqvist, 2018). Billett (2011, p. 238) emphasises the need to give students a voice, in order to see the variations among students and to capture 'students' interests, readiness and bases by which they participate in and learn through vocational education'.

Vocational identity formation – a theoretical approach

The vocational students included in this study are at the beginning of their vocational learning, and are therefore in an initial transition phase of forming a vocational identity within the industrial programme, in which they alternate between the school and the workplace, or – in Wenger's (1998) words – between two communities of practice. The industrial programme also represents a wider institutional setting: it is part of the upper secondary school system and is oriented towards vocations in the industrial sector. The vocational identities thus derive from schools and workplace-based learning. Therefore, students' vocational identity formation is here understood as 'an initial or novice phase in their future vocational identity as employees' (Virtanen et al., 2008, p. 1).

On a more conceptual level, vocational identity and identity formation are closely linked to the notion of a learning trajectory (Wenger, 2010). A learning trajectory ties together the students' background, their present situation and their vision of a future vocation. It implies that the past, the present and the future shape vocational identity through participation in a community of practice,

which is defined by its common activities and engagement, and is where students develop a vocational identity by interacting with more experienced workers (Lave & Wenger, 1991; Wenger, 2010).

A learning trajectory should not be understood as a fixed timeline, but rather as a process of constant movement towards a vocation (Wenger, 2010). Pointing to the diverse types of learning trajectories, Wenger (2010) distinguishes between different trajectories that relate to different forms of movement to and from a community of practice. An inbound trajectory refers to the learning that occurs when the learner's ambition is to become a full participant in a community of practice, although his or her present participation may be peripheral (Wenger, 2010). For various reasons, some learning trajectories never lead to full participation and instead remain peripheral. Nevertheless, the experiences achieved by a peripheral learning trajectory may still affect the individuals' vocational identity formation. The learning trajectories that lead away from one community of practice to another are known as outbound trajectories (Wenger, 2010). Although an outbound trajectory leads away from the current community of practice to another, it can still provide important relationships and vocational knowledge that affect future work. However, not only do newcomers follow the learning trajectories of experienced workers, they also have the potential to create new ways of participating in a community of practice (Wenger, 2010) by taking own initiative and ensuring that they are invited to participate in more advanced tasks (Akre, 2003).

Learning trajectories – and thus also vocational identity formation – are shaped by past and present experiences, and by future plans. When studying students' vocational identity formation, past experiences are an important condition as most young people's future vocational choices seem to hark back their social and family backgrounds (Ball, Macrae & Maguire, 1999). An important finding in Lehmann's (2005) study of young people in apprenticeship programmes was that socioeconomic status, such as their parents' educational background, and the family's attitudes towards theoretical knowledge and practical skills had a significant impact on the young people's career paths.

Several studies emphasise that the formation of a vocational identity can best be understood in the context of work (Jørgensen, 2013; Klotz, Billett & Winther, 2014; Tanggaard, 2007). However, Virtanen et al. (2008) argue that students' vocational identity formation can never be compared to employees' identity formation, because of the short periods students spend in the workplace. Nevertheless, students' workplace-based learning is seen as an important part of vocational education programmes and forming a vocational identity (Billett, 2011). During workplace-based learning, students learn about who they are in the work community and gain an awareness of their strengths and weaknesses (Virtanen et al., 2008). Much of students' learning is informal, and participating in daily work activities together with more experienced co-workers is therefore of

paramount importance if students are to learn the necessary skills for the vocation and form a vocational identity (Billett, 2011; Evans et al., 2010; Gustavsson & Persson-Thunqvist, 2018). Ferm, Persson-Thunqvist, Svensson and Gustavsson (2018) have noted that students take on a great deal of responsibility during workplace-based learning, by participating in work activities and positioning themselves as resources within the work community, and by adapting to the ideals of the workplace. By asking questions, seeking advice and searching for role models, students can advance their vocational identity formation (Ferm et al., 2018; Virtanen, Tynjälä & Collin, 2009). Students who reflect on workplace practices are more likely to develop a vocational identity of their own (Baartman, Kilbrink & de Bruijn, 2018; Chan, 2014). Vocational learning also includes the internalisation of vocational behaviours, attitudes and values directed towards a specific vocational identity and a sense of what is required in order to be considered: 'the right person for the job' (Colley, Diment & Tedder, 2003, p. 488).

Vocational education is often proposed as a good choice for students who struggle with more theoretical courses, and this perspective further lowers the status of vocational education (Billett, 2014). These issues may be linked to class and other social conditions as well as power and hierarchy beyond the community of practice. The theoretical perspective of situated learning has been criticised for paying too little attention to these aspects (Sawchuk, 2003) or for neglecting them (Hughes, Jewson & Unwin, 2007). The concept of categorisation as defined by Jenkins (2000) can further develop the framework of analysis by contributing towards an understanding of how vocational identity formation is expressed, through the social processes of labelling and reacting to the labelling of both oneself and others. The social categorisation of oneself and others helps individuals to define who they are and who they are not (Jenkins, 2000). Jenkins (2000) argues that a community's identity may be strengthened by the members' responses to other groups' categorisations of them. For example, the image of students in vocational education has, as Billett (2014) suggests, historically been held in low esteem by the societal elite, and this disparaging view of vocational education and its low status is still a prevalent view. Other aspects are also related to identification, such as the labelling of vocational education, participating in a work community, the development of competencies and the student's ability to work independently (Jørgensen, 2013).

The image of the future vocation can also affect students' vocational identity formation through their understanding of the particular vocation they aspire to and whether or not they see a future in it (Virtanen et al., 2008). Ball et al. (1999) found that young people have different views of the future. One group had a clear picture of the future as stable and positive, while another group viewed the future as unclear and uncertain. A third group had no image of their future at all, considering themselves to be simply 'getting by', and not active producers of their own future. Students' ability to imagine a future based on learned

vocational skills can be a sign that they have reached the final state of 'being' their vocation (Chan, 2013). To sum up, the students' identity formation can be analysed via the concept of learning trajectories which are shaped by the students' past experiences, their present experiences of workplace-based learning and industrial work, and their visions of the future.

Research setting

Initial vocational education in Sweden is an integral part of a state upper secondary school system that targets almost all 16- to 19-year-olds. There are eighteen three-year national programmes, twelve of which are vocationally oriented and comprise a combination of school-based education and workplace-based learning. The students who participated in the study were all enrolled on the industrial programme, one of twelve Swedish upper secondary vocational education programmes. The research was carried out at four different schools which all shared the same courses and learning goals, and led to the same vocational qualifications for vocations in the industrial sector. There are two different models for studying on the industrial programme. One is a school-based model, which must include at least fifteen weeks of workplace-based learning during the three-year programme. The other model takes the form of an apprenticeship, where at least half of the total education time is spent on workplace-based learning. The time spent on workplace-based learning takes very different forms in the two models, but in practice, each school has considerable autonomy to determine how much time students will spend on workplace-based learning. At the studied schools, the required 15 weeks were interpreted loosely, ranging between fewer than 15 weeks and up to one year. For this reason, we decided not to separate the two models in this study.

Regardless of the education model in which the students participate, they are always the responsibility of the school. The workplace-based learning is intended to provide a pedagogical environment for the students, as it simultaneously constitutes an authentic production environment. The aim of the workplace-based learning is to prepare students for their future vocational identity by giving them access to a workplace community. Schools and workplaces can interact in different ways, for example through individual or tripartite meetings, and through teachers visiting the workplaces (Köpsén & Andersson, 2018).

Method

The empirical material consists of qualitative interviews with 28 vocational students (22 male and six female) aged 18 to 20, all of whom were enrolled on the industrial programme. Nine of the students were in the second year of the programme, with the remaining 19 being in the third and final year. The selected

students all had experience of workplace-based learning at different sized manufacturing companies or in process industries. The four schools were selected strategically. Those responsible for the industrial programme at each school were contacted by e-mail with a written description of the research project. If a positive response was received, information about the study was sent to the students who signed up on a voluntary basis. The students were reassured that they had the right to withdraw their participation at any time, without having to give a reason. The project was approved by the regional ethics board in Linköping (ref. 2014/438-31).

Three of the researchers conducted the interviews, which took place at the schools and lasted approximately 60 minutes each. The interview guide included the following overall themes: past (e.g. social background and reasons for choosing the industrial programme), present situation (e.g. workplace-based learning) and vocational future (e.g. plans for after graduation). The intention was that these themes would reveal more about the process of identity formation over time. The interviews were recorded and transcribed verbatim.

Data analysis

First, the interview transcripts were carefully and repeatedly read to ensure familiarisation with the empirical material (Braun & Clarke, 2006). The next stage involved examining each interview individually to analyse the students' vocational identity formation. The concept of a learning trajectory (Lave & Wenger, 1991; Wenger, 2010) was used as a theoretical lens through which to study each student's experiences concerning the past (background), their present situation (with a focus on workplace-based learning), and their plans for future work. The concept of social categorisation – as developed by Jenkins (2000) – was also used to gain a deeper understanding of how the students labelled themselves and others in response to the status of the industrial programme and vocations within the industrial sector. After analysing each learning trajectory, the students' trajectories were compared to identify similarities and differences. Three main learning trajectories emerged from this analysis, representing collective patterns in students' orientations towards their future vocations which capture important aspects of vocational identity formation. The students' orientations towards future vocations were analysed in relation to other characteristics in terms of their backgrounds, their current experiences of workplace-based learning and their perceptions of their vocations, as well as their thoughts and ideas about the future.

Findings

The findings reveal three different learning trajectory types: students oriented towards commitment, students oriented towards flexibility and students

oriented towards ambivalence. Each learning trajectory is connected to vocational identity formations and vocational fields within the industrial sector.

The students oriented towards commitment

The students oriented towards commitment communicated a vision of their future as long-term employees within the industrial sector. They were committed to devoting themselves to a vocation and a career in the context of industrial work.

The previous industrial experiences of students oriented towards commitment were connected to male family members who had worked in the industrial sector, or to their desire to carry out manual work rather than sitting in a classroom. Their main reason for choosing the industrial programme was the practical nature of the work. They appreciated the contrast between practical work and classroom studies, which – in their words – simply involved ‘sitting at a desk, writing all day’. The richness of employment opportunities following the programme was also an important explanation for the students oriented towards commitment having chosen vocational education aimed at working in the industrial sector.

The students oriented towards commitment perceived workplace-based learning as an important gateway that could lead to a job in the industrial sector which they regarded as being highly advanced and challenging, requiring both technical and social skills.

It's a bit like studying Chinese and Japanese at the same time. Which word belongs to which language? It's kind of like that. What material wasn't I allowed to do what with?

The vocational identity of students oriented towards commitment was gradually formed at different workplaces through gaining knowledge about what it was like to work in the industry. Mastering industrial work was seen as highly skilled and time-consuming. The students oriented towards commitment generally said that becoming a skilled industrial worker involved a lot of time spent learning, which implies inbound learning trajectories towards a vocational identity as an industrial worker in the community of practice (Wenger, 2010). The students' commitment was expressed through their loyalty towards – and engagement in – their prospective vocation, but this loyalty was displayed in different ways. Some of the students oriented towards commitment openly showed an active interest in the vocation, while others focused more on working to secure their future employment in industrial work. In general, the students oriented towards commitment enjoyed their future vocation, and some even expressed a passion for industrial work, as shown in the quotations below:

It kind of fascinates me, that you can melt things together with today's technology. It feels really special.

S (Student): The first time I did it (welded), I fell in love.

R (Researcher): What is it about welding that's so special and made you fall in love?

S: Well, it's so much... the chemical processes, the technology, seeing how it happens, how the material melts... seeing the results. Seeing how I improve and develop... Welding is so tremendously, well it's such a big part of society, you don't realise that. I remember after that semester, the second semester in first grade, I kind of walked around the city looking for welding jobs to inspect.

As shown in the quotation above, mastering manufacturing processes could be seen as fascinating and something that students could be passionate about. Even though the students oriented towards commitment regarded themselves as skilled workers within a demanding and interesting vocation, they underlined the low status of industrial work, and this was paradoxically intermingled with referring to industry as lucrative and important for society.

R: What about within society generally, what is the status of working in industry?

S: Well... we build a lot of balconies for houses in Sweden and Norway, so we play an important role... Anyway, lots of welders and industrial workers do a lot for society, that's my opinion, they build foundations for houses and everything. Then there are the construction workers, and we do all sorts of things, not only for houses. We make things for cars, for boats, and all kinds of things. There's a lot that we do for... society.

The students oriented towards commitment clearly identified with the vocation, and they often envisioned a career as in management or as experts in the field, rather than working on the shop floor. Some students even planned to work abroad as specialist welders, such as underwater welders or welders at nuclear plants.

It's when you become a licensed welder and work abroad, where they require the skilled stuff, like at nuclear plants and so on, that's the goal, that's where I want to be and that's why I chose this programme.

The students oriented towards commitment had an explicit self-image of their identity as industrial workers, and hence their learning trajectories seemed to lead to a future as long-term employees within the industrial sector.

The students oriented towards flexibility

The students oriented towards flexibility communicated being open to careers outside the industrial sector. They would work for a few years within the industrial sector, and then change career paths later on. Unlike the students oriented towards commitment, they expressed their intention to leave the industrial business for another vocation. The perceptions of the students oriented towards flexibility in relation to industrial work were linked to their family working in the industry.

Well, I've virtually been raised in a workshop, dad has one at home and... he has three cars that he tinkers with all the time... And I've always enjoyed working with my hands rather than theory.

The reasons the students oriented towards flexibility gave for choosing the industrial programme varied. Some emphasised the good work opportunities, while others described it as a safe alternative. Others suggested that it represented a brand new world or a 'plan B' if they failed to achieve their primary goal. Some of the students oriented towards flexibility said that they had begun studying another programme and then changed to the industrial programme.

Moving on to their present perceptions of workplace-based learning, the students oriented towards flexibility – much like the students oriented towards commitment – spoke about the complex aspects of work. The words they used to describe the nature of their vocation included open, wide, challenging and responsible, constantly offering opportunities to learn new things. The students oriented towards flexibility also underlined the low status of industrial work at school, and categorised the students on preparatory programmes for higher education as snobbish people who belittled manual work. The students' focus on status between their own and other student groups can be interpreted as a sign of their identification as students rather than workers, thus implying a more temporal identity than that shown by the students oriented towards commitment. The quotation below illustrates this common way of talking about *us* and *them*:

Well, they're the fancy people; they want everything to be all neat and everything. We're like this: We can go to the canteen with dirty hands and everything – we don't care.

The students oriented towards flexibility felt that the students enrolled on preparatory programmes for higher education looked down on them. This categorisation also included discussions where vocational students positioned themselves and their territory in opposition to other groups of students, and referred to segregated places at their schools. For example, it was said that their own classmates on the industrial programme were free to be who they wanted, while students on preparatory programmes for higher education had to behave and dress in a certain way.

S: If you look at the other school building, it's a bit fancy or whatever.

R: Is that where the theoretical programmes are?

S: Yes, the technology programme, natural science, and the health and social care programme and all that. It's the people with shirts and slicked-back hair and so on. And here (in the school building with vocational programmes), everybody is the way they want to be. Nobody tells you that you can't wear certain clothes; you can wear whatever you like. And that's nice, because... everybody gets to be the way they want to be. I think that's pretty good.

A common categorisation among the students oriented towards flexibility was that they came from 'the bad side' of the school, while the students on

preparatory programmes for higher education represented 'the good side'. The students oriented towards flexibility described this division and the status hierarchy between theoretical and vocational students in great detail.

R: How would you describe the status (of the industrial programme)?

S: (Laughter) That we – well, we're at the bottom.

R: Do you think so?

S: Yes, I do, I believe a lot of people see it that way... they think they're better than us. Because they don't need to... we do the work, we do the dirty work or whatever, on this side (the vocational 'side' of the school).

This way of categorising other groups while simultaneously reacting to their categorisations of themselves suggests identification with work (Jenkins, 2000), while prestigious higher education preparatory programmes are labelled as an unwise choice for the future. When asked to reflect on their future after graduation, the students oriented towards flexibility often talked about starting off with a period of employment within the industrial sector before changing careers completely later on. This suggests a temporary identification with industrial work, thus implying a peripheral trajectory (Wenger, 2010). The students oriented towards flexibility often hoped to become police officers or firefighters, after first spending a few years working in industry. Some mentioned plans for a future within psychology or as games producers. The students oriented towards flexibility generally expressed a fairly positive view of industrial work and saw their future as flexible. They did not feel that they were stuck within a sector, but rather that they had many opportunities after the industrial programme. Even though the students oriented towards flexibility envisioned themselves changing careers later in life, they were open to an identity as an industrial worker.

The students oriented towards ambivalence

The students oriented towards ambivalence did not generally express a clear picture of their future, even though they mentioned industrial work as a possibility for themselves, at least in the short term.

Regarding their background and past experiences, some had no previous understanding of industrial work while others had family members in the business and had welding machines in their garages at home. The reasons given by the students oriented towards ambivalence for choosing the industrial programme ranged from being the obvious choice to offering access to a completely unknown field. They spoke of the practical nature of the work and the good employment chances as being important reasons for attending the programme. However, in contrast to the students oriented towards commitment, the choice of a vocational education programme was more often discussed as a 'coincidence' or an 'accident', not as an informed decision. For example, the educational choice during

the application process was even described as random: 'I just chose something at random, pressed a button.'

When it comes to their present perceptions of workplace-based learning, the discussions of the students oriented towards ambivalence revealed an ambivalent view towards industrial work. The students' prospective vocations were discussed in different ways. On the one hand, the prospective vocation was discussed as being intellectually demanding, as an industrial worker needs to be thorough and keep track of extensive knowledge. The students said that there are always new things to learn, and it is hard to fully master the vocation. On the other hand, positive views were contrasted with negative experiences, for example that the students' training was carried out in dirty workshops that only required practical know-how. A lack of engagement was also expressed, as the students did not seem to reflect on different aspects of the vocation, such as its status. The students oriented towards ambivalence often said that they had 'no clue' or 'hadn't thought about it'. Together, the students expressed an ambivalent view of their own personal connections to the industrial vocations they were currently being prepared for within their programmes.

R: Do you think of yourself as a welder?

S: Well, I don't think so. I don't know, I don't think too much about things like that, I go to school and I work, I take it one week at a time, I don't think much about the future.

The students oriented towards ambivalence generally communicated an ambiguous and sometimes contradictory personal view of industrial work, shifting between positive and negative descriptions of the vocation. One student had the following to say about industrial work:

It [industrial work] was so foreign, but interesting somehow. Because it's the foundation of society really; industry... Well, it's... it's so broad, it requires a broad knowledge base. I mean, you learn things all the time.

According to the quotation above, this student appears to have a positive view of industrial work. However, when questioned about a potential future within the business, the student says the following:

It almost feels like being raped, well it's a bit like that. It's a dirty job, I'm supposed to stand here and work hard all my life, damage my body and breathe in dangerous chemicals... And in that way I'm fascinated by people who've worked in industry all their life, that they've endured it, and worked there in some government service for a golden watch worth 8,000 (Swedish kronor), that's what a human life is worth today...

These types of descriptions, highlighting both negative and positive views of work, characterise some of the students oriented towards ambivalence' insecurities. When talking about the future, the students oriented towards ambivalence did not appear to plan very much. They were usually uncertain about what they

would work with and assumed they would eventually change careers from industrial work to various other sectors (e.g. childcare, restaurants, law and economics). Even though most students oriented towards ambivalence expressed both negative and positive views of industrial work, some saw it as a nightmare, as something they would never want to dedicate their future to. They clearly rejected an identity as an industrial worker, which implies outbound learning trajectories (Wenger, 2010) leading away from an identity formation within these types of vocations. However, even the most reluctant of the students said that they might possibly work for a short time within industry and then change careers later on. They did not seem to plan for or try to take control of the future, instead taking things one day at a time and adopting a 'wait and see' approach. Overall, the students oriented towards ambivalence communicated their uncertainty about work and the future, a lack of plans and an ambivalent view of industrial work.

Discussion

In this article, we have focused on vocational students' perceptions of their identity formation in relation to a vocation in the industrial sector. The findings reveal the multifaceted nature of identity formation in initial vocational education, where young adults are currently developing their future identities. Aspects of identity formation are found in the students' long-term engagement with a vocation, in their rejection of a proposed vocational identity, or in adopting a flexible attitude towards a prospective vocation.

Such diversity in students' future orientations may to some extent reflect increasingly individualised school-to-work transitions (Giddens, 2000; Walter, 2006). The ambition here, however, has not been to label students' identity formation from the outside but rather to contribute novel knowledge about their perceptions of what prepares them for an unknown vocational future (Kilbrink et al., 2018). By using the analytical concept of learning trajectories (Lave & Wenger, 1991; Wenger, 2010), three different learning trajectories were identified in relation to the communities of practice in the industrial programme. Each of these trajectories represented common characteristics in terms of social background, experiences of workplace-based learning and perceptions of the vocation, as well as thoughts and ideas about the future. The students' learning trajectories were formed by their early experiences of industrial work, for example male family members' familiarity with industrial work. This social background was an important reason for choosing the industrial programme, but not necessarily for committing to industrial vocations during the three-year educational programme.

A common theme was the status of vocational education relative to higher education preparatory programmes. This included social categorisations of *us* and

them and the border work that this involves. The notion of categorisation work (Jenkins, 2000) directed our attention to how students' vocational identities are also situated and articulated through differences, by defining what they are and are not in relation to others in the surrounding educational context. Interestingly, the interviews feature many examples of students defending the esteem of skilled industrial work while confronting the disparity of esteem between theoretical and vocational study programmes.

The students oriented towards commitment can be seen as having inbound trajectories (Wenger, 2010), which lead towards further and deeper involvement in industrial work. They identify with their prospective vocation and share an interest in the work and a vision of themselves as long-term employees (or employers) within industry. This also included mastering specialist vocations, for example underwater welders and welders at nuclear plants. The students oriented towards commitment long-term ambitions do not involve working on the factory floor; in other words, having an inbound trajectory leading towards a future as a 'regular' employee in an industrial workshop. Rather, their goal is to be promoted to management or expert positions, or to work abroad (see also Reegård, 2015). The students oriented towards commitment reflect on the low status of industrial work and focus more on the status of industrial vocations than on the status of the industrial programme. This may be an indication of their long-term identification as manifested in their inbound trajectories, which are directed more towards their future identity as industrial workers than their current identity as industrial students. The students oriented towards commitment identified strongly with the vocation and had a clear image of their future (see also Ball et al., 1999). With the students oriented towards commitment, their prospective vocation clearly represented a desirable identity.

The students oriented towards flexibility were characterised by peripheral trajectories (Wenger, 2010) that lead to short-term involvement in industrial vocations, without committing fully to a future in the industry. The students oriented towards flexibility generally put more effort into describing and addressing the discrepancy in status between theoretical and practical education rather than vocations. This can be interpreted as an indication of their temporary identification with industrial work, relating more to their present identities as industrial students than to their future identities as industrial workers. The students oriented towards flexibility often describe themselves as doing important and 'real' work, in contrast to the students on preparatory programmes for higher education, whom they categorise as snobs who are not as relaxed and genuine as the vocational students. This can be a strengthening form of identification, where categorising other groups as reacting against their categorisation of their own group can provide a sense of unity and shared identity (Jenkins, 2000).

The learning trajectories of the students oriented towards ambivalence were outbound, leading away from a vocational identity as an industrial worker.

These students' statements about not completely dismissing industrial work may be interpreted as a sign of their ambivalence and as a strategy to avoid the risk of being unemployed (Kirpal, 2004). These students generally lacked engagement with industrial work, viewing it mostly as a temporary vocation (Reegård, 2015). They did not mention the low status of industrial education and vocations to the same extent as the other students.

When comparing the learning trajectories and how they evolve over time, it is worth elaborating on the experiences that made a difference in the students' ways of thinking about their future vocational identities. All three groups could be described as fairly homogeneous in terms of social class and gender. Sociologically, it is widely assumed that family background and habitus greatly influence the life choices of young people and their 'imagined futures' (e.g. Ball et al., 1999). However, from a situated learning perspective, it is also interesting to focus on how students use common biographical experiences to access workplace-based learning and how new learning experiences contribute to the transformation of learning trajectories and the formation of vocational identities. Many students spoke about their early familiarisation with the vocation through family and friends. They also brought with them their previous knowledge and familiarisation with industrial work when entering vocational education and the workplace. This is not just a question of concrete vocational experience learned from family members; it is also a part of learning how to talk, look and behave like an industrial worker (Colley et al., 2003). This pre-conceptualisation (e.g., knowledge of unwritten rules) provides the students with important experiences in their learning trajectories (Chan, 2014) and community membership (Wenger, 2010). In addition, the students also shared considerable experience from previous school-based vocational training that facilitated their access to workplace-based learning (Ferm et al., 2018). Together with this, prior familiarity with industrial work contributed to the process of categorisation and identification with industrial work.

Interestingly, most students discussed their present perceptions of work-based learning in a largely positive way, for example as being intellectually demanding and offering plenty of learning opportunities. However, the relationship between the students' personal engagement and commitment to becoming an industrial worker and their 'imagined futures' differs significantly between the three groups. Whereas the experiences of workplace-based learning led to greater convergence between personal engagement in vocational work and future vocational identity among the students oriented towards commitment, the opposite was true for the students oriented towards ambivalence; there was a divergence between their 'imagined futures' and their actual role as students on a vocational programme. A radical expression of this divergence or ambivalence was a rejection of the idea of making a life as an adult industrial worker.

The students oriented towards commitment and flexibility reflected on both status and their future in relation to industrial work. If a lack of reflection implies

a lack of identification, this could provide some insight into why the students oriented towards ambivalence, in contrast to the other two groups of students, did not reflect much on the vocation or their future. This supports the important role of reflection on work, which has been shown in earlier research to be a crucial part of identity formation (Baartman et al., 2018; Billett, 2011, 2018; Chan, 2014).

Conclusion and practical implications

The diversity observed in the comparisons between students' learning trajectories indicates that vocational identity formation is a dynamic – and to some extent contradictory – process characterised by a degree of ambivalence. As we have seen, students' educational and vocational choices can be negotiated, revised or rejected over the course of their learning trajectories. Their flexible orientations towards future vocations also seem to be a significant feature of identity formation in vocational education, and this is part of upper secondary education's aim to prepare students for specific vocations, future studies and life-long learning (Berner, 2010; Reegård, 2015; Walter, 2006). One surprising result is the significant role workplace-based learning played in the students' vocational identity formation, given that the majority of vocational education in Sweden is school-based. The value of workplace-based learning in terms of developing solid vocational identities has been well documented in dual apprenticeship systems of vocational education (Jørgensen, 2013; Klotz, Billett & Winther, 2014; Tanggaard, 2007), but is relatively under-researched in school-based vocational education (however, see Ferm et al., 2018; Gustavsson & Persson Thunqvist, 2018). In line with the findings from these strands of research, the students oriented towards commitment in the present study voiced a relatively clear and strong orientation towards becoming skilled industrial workers within a specialist vocation. This appears to contradict theocratisation, arguing that vocational identities lose ground in education and work fraught with uncertainties in the late modernity (Bauman, 2000; Giddens, 1990). The results of the study also underline the importance of considering the impact of social background and previous experience (e.g. familiarity with industrial vocations through parents and/or close relatives) in connection with participation in initial vocational education including workplace-based learning.

In conclusion, students' learning trajectories must be understood in relation to the upper secondary school environment. It has been suggested that in order to better understand the formation of vocational identities, the notion of social categorisations needs to be examined in greater depth (Jenkins, 2000). Many students describe experiencing a hierarchy at school, with a clear distinction between vocational programmes and preparatory programmes for higher education. This segregation between different types of education was partly articulated in students' reflections on the status of industrial vocations within the school

context. Hence, noticing and addressing status hierarchies and labelling between groups are also aspects of identity formation that could strengthen vocational identity.

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Motivational sources of practical nursing students at risk of dropping out from vocational education and training

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Abstract

The aim of this study was to contribute to the understanding of the reasons for low or high academic motivation among practical nursing students at risk of dropping out from vocational education and training. The research data consisted of semi-structured interviews with 14 Finnish students, which were analysed by qualitative content analysis. The analysis identified six motivational sources. Two of these sources – Responsible agency and Completing out of necessity – were related to engagement in studying, whereas two other sources – Exhaustion from learning challenges and Tight-roping between competing responsibilities – were related to disengagement from studying. Emotional drive and Social orientation were ambivalent motivation sources, partly pushing towards engagement as well as to disengagement, depending on the circumstances. Overall, the complicated reasons for low or high motivation were found to be heterogeneous and, consequently, the ways to support students may also vary.

Keywords: dropping out, qualitative content analysis, motivational sources, practical nursing student, vocational education and training



Introduction

Adolescents' learning motivation has been shown to decline throughout one's school career (Gnambs & Hanfstingl, 2016; Otis, Grouzet & Pelletier, 2005), especially when they move to secondary school (Peetsma & Van der Veen, 2015). Lack of motivation leads many students to drop out of school (Caprara, Fida, Vecchione, Del Bove, Vecchio, Barbaranelli & Bandura, 2008; Fortin, Marcotte, Potvin, Royer & Joly, 2006; Utvær, 2013). Dropping out of education is, in turn, a risk factor for many social difficulties, such as living in low socioeconomic status (Nurmi, 2012) and having fewer employment opportunities (Litalien, Guay & Morin, 2015). The dropout percentage of education is particularly alarming in vocational education and training (VET) (Bulger, McGeown & St Clair-Thompson, 2016; Utvær, 2013). In 2015, the percentage of youth in OECD countries who were not employed or participating in education was on average 14.5%, and in Finland it was 14.3% (OECD, 2015).

There are various potential reasons for dropout. Intrapersonal reasons include factors such as learning difficulties (Hakkarainen, Holopainen & Savolainen, 2013), the use of weak learning strategies (Montague, 2007), or lack of interest in the future profession (Van Bragt, Bakx, Teune, Bergen & Croon, 2011). Moreover, interpersonal reasons, which are particularly crucial in dropout, include factors such as lack of friendship networks (Hakimzadeh, Besharat, Khaleghinezhad & Jahromi, 2016; Juvonen, Espinoza & Knifsend, 2012) and parental support (Hodkinson & Bloomer, 2001; Leino, 2015) as well as the lack of support (Niittyalahti, Annala & Mäkinen, 2019) they receive at school, teachers' contradictory expectations (Learned, 2016), and difficulties in teacher-student relationships in the classroom (Nurmi, 2012; Wubbels, Brekelmans, den Brok & Tartwijk, 2006). All these factors may contribute to a student's motivation risk of school dropout.

Because many factors and experiences of the students contribute to dropping out over a long period (Lee & Burkam, 2003), it is hard to demonstrate a connection between any single factor and students' definitive decision to leave school. There are some studies related to dropping out from VET which are focused on engagement in studies (e.g., Nielsen, 2016; Niittyalahti et al., 2019), reasons for interrupting the vocational education (Beilmann & Espenberg, 2016) or VET students' decision-making processes in relation to dropping out (Wahlgren, Aar-krog, Mariager-Anderson, Gottlieb & Larsen, 2018). However, there is a lack of qualitative studies on the different motivational sources behind low motivation that represent students' different ways of describing their commitment to their studies and factors decreasing or strengthening their motivation. In the present study, we focus on the motivational sources of Finnish practical nursing students at risk of dropping out of school during the first and second year of their studies in VET. The research question is the following: What kinds of motivational

sources do practical nursing students at risk of dropping out from their studies show?

Motivation and school engagement

The role of motivation in school success and failures has been widely investigated. While motivation refers to goals, values and beliefs in a certain area, engagement refers to behavioural displays of effort, time, and persistence in attaining desired outcomes (Guthrie, Wigfield & You, 2012). Motivation is a facilitator of engagement, which in turn facilitates achievement (Klauda & Guthrie, 2015). In addition to slow progress of learning, poor motivation or amotivation – which means not being motivated in one's studies – have also been shown to increase the risk of dropout (Legault, Green-Demers & Pelletier, 2006; Otis et al., 2005; Scheel, Madabhushi & Backhaus, 2009).

According to Ryan and Deci's self-determination theory (SDT; 2000), individuals' three basic psychological needs for autonomy, relatedness and competence play a key role in their motivation (Utvær, 2014). Autonomy refers to students' belief that they can influence their studies; relatedness refers to the feeling that one is important to key social partners (Fuller & Macfayden, 2012); and competence refers to the satisfaction felt in being able to accomplish one's duties successfully (Ryan & Deci, 2000; Smit, de Brabander & Martens, 2014). Using this framework, one reason for low academic motivation can be a deficiency in the satisfaction of these three psychological needs (Gnambs & Hanfstingl, 2016; Utvær, 2014). The central concepts in SDT in a school context are autonomous and controlled motivation (Ryan & Deci, 2017). Autonomous motivation can be intrinsic, that is, the desired action is interesting or valuable in itself, or partly extrinsic (i.e., the action has instrumental value), such as when the student has internalised the values of school or society. Controlled motivation then refers to other types of extrinsic motivation. These refer to actions the student feels compelled to perform, for internal (self-esteem, shame) or external (rewards, punishments) reasons.

It has been shown that students who experience a greater sense of autonomy exhibit more positive perceptions of self-determination and competence (Smit et al., 2014). According to Hardre and Reeve (2003), the more teachers support students' autonomy, the more positive students' perceptions of autonomy and competence become, which in turn predicts their intentions to continue their studies. In addition, support for the need of relatedness and competence has also been shown to predict motivational outcomes (Lazarides, Rohowski, Ohlemann & Ittel, 2015), in a study by King (2015) peer rejection was related to disengagement from school and lower levels of achievement (see also Scheel et al., 2009).

Another reason for low motivation is conflict between motivations (Grund, Brassler & Fries, 2014). It means that two or more action tendencies of similar

motivational strength compete for limited resources, such as time or effort. In their study of university students, Grund and Fries (2012) observed that the more students valued effort and success, the more they experienced internal conflict between leisure time and learning.

Furthermore, academic emotions may play a role in low motivation and affect the performance of the students (Oriol, Amutio, Mendoza, Da Costa & Miranda, 2016). For example, when academic activities generate satisfaction, happiness or hope, students feel more motivated before a task (Gnambs & Hanfstingl, 2016) as well as more engaged and tend to expend more academic effort. On the contrary, experiencing negative emotions may cause poor academic adaptation and students may feel bored or frustrated, which can lead to school failure (Oriol et al., 2016). Different actors, such as teachers, peers and parents, have also been shown to play a role in the formation of academic emotions (Fortin et al., 2006; Niittylahti et al., 2019). For example, when students perceive their teacher to be strict and admonishing, there is a decrease in student wellbeing (Wubbels et al., 2006).

Finally, learning difficulties and lack of educational support might be factors related to motivational problems. For example, Fortin et al. (2006) found that one-third of students at-risk of dropping out of school showed learning difficulties in math and languages; and two-thirds of them showed low motivation as a greater risk factor than poor academic performance. Hakkarainen, Holopainen and Savolainen (2016) found that those students who had learning difficulties in comprehensive school were more likely to choose a vocational track than an academic one in the transition to upper secondary school. In addition, school personnel seem to have a more positive perception of guidance than the pupils themselves do. Ahola and Kivelä (2007) observed that young people valued the practical support when facing difficulties, while school personnel tend to emphasise the formal principles of guidance, such as multivocational support and guidance.

Present study

Overall, lack of motivation has been shown to be a serious risk factor for school dropout (Scheel et al., 2009). The reasons behind lack of motivation, however, can be complex and diverse. The aim of the present study is to identify sources of motivation among VET students by listening to the students themselves about their opinions on why they are committed or uncommitted to their studies. The study was carried out in Finland among practical nursing students at risk of dropping out from VET.

The Finnish educational system consists of 10 years' compulsory education. After the conclusion of compulsory basic education at age 16, students choose their further education. About 95% proceed to upper secondary education, of which nearly half enter VET. During the time this study was conducted, about 64% of these students completed their education within the standard period of

three and a half years, while 75% finished within five-and-a-half years (Official Statistics of Finland [OSF], 2012a). Of those students who started studying for social and health care qualifications in Finland in 2009, 68% qualified in three-and-a-half years (men, 58%, women, 69%; Koramo & Vehviläinen, 2015). The overall dropout rate (completely discontinued education) was 7.8% (men, 7.7% and women, 8.0%; OSF, 2012b). Practical nursing studies last three years. The first year is mostly theory based, consisting of some learning by doing and one period of about five weeks of on-the-job training, whereas the second and third years consist of longer periods of on-the-job learning in addition to theoretical studies. In addition, Finland's vocational institutions offer individualised guidance counselling, remedial teaching, and extended on-the-job learning if needed.

Research methods

Participants and data

In this study, 14 Finnish first- and second-year practical nursing students in health care and social services were interviewed about their study and life situations. The students were between 16 and 20 years old ($M = 17.3$). One student was male while the others were female. The participants participated in the intervention part of the *Motivoimaa* project. The project was conducted by the Niilo Mäki Institute and funded by the European Social Fund. The project was carried out in a medium-sized city in Central Finland and it aimed, on the one hand, at identifying factors that make the students' studying difficult and, on the other, to encourage students to engage with their studies (Määttä, Kairaluoma & Kiiv-eri, 2011). In the present study, the sample consisted of those students from the *Motivoimaa* project who studied in the same social and health care college and who were selected for the project's intervention by a student multidisciplinary team on the basis of the following criteria: 1) students had troubles completing their studies, 2) students mainly used passive and task-avoidant learning strategies (as assessed by teachers), and 3) students did not have psychological symptoms that would have prevented their inclusion in group-based activities.

Two intervention groups, each consisting of 10 students, met twice a week, 14 times in total, during one semester. Altogether, 17 of those students completed the course and 14 authorised the use of their interview answers in the study. The intervention consisted of different life mastery and studying skills exercises and students received course credit for the completed intervention course. Those 14 students who wanted to voluntarily participate in the study were individually interviewed at the end of it by project researchers. The participants were informed of the purpose and process of the study before they gave their informed

consent. In addition, it was promised that the responses would be handled confidentially so that the privacy of interviewees would be protected (Patton, 2015).

The interviews were carried out in a semi-structured format. This format is generally used when the aim is to provide knowledge and deeper understanding of the phenomenon under study (Hsieh & Shannon, 2005). The interviews lasted approximately 25 to 50 minutes, were audiotaped and transcribed verbatim. The interview questions focused on participants' opinions about their study and life situations, motivation to study, strengths and weaknesses in studying, learning environment, and plans for their future. Although the questions were based on the same framework, the interviewers could adapt the questions in relation to the answers of the students. The interviews were conducted at school in an adjacent classroom during the intervention lessons.

Analysis

In this study, the phenomena under study were the reasons for low or high academic motivation among practical nursing students at risk of dropping out from vocational education and training. Based on the reasons narrated by the students, various motivation sources were identified. We understood the motivation sources largely as all factors which students indicated as pushing them towards a goal of completing or disengaging from their studies. The unit of analysis was one meaning unit, that is, a clause, a sentence, or a whole turn which created a clearly distinguishable image of one's motivation.

After the first author had familiarised herself with the data by reading each interview transcript and organising the data thematically (e.g., discussion of learning difficulties, significance of social relationships), we utilised researcher triangulation and identified similarities and differences between those thematic categories regarding how committed students narrated themselves as being committed to their studies, how permanent or changeable the commitment was said to be and what reasons students gave for their commitment or failure to commit. On the basis of these comparisons, we decided to create six ideal types (see Patton, 2015, p. 548) of the ways in which students talked about the factors which pushed them towards completing their studies or disengaging from them. The identification of these types did not mean classifying the students themselves into different types, but the typology was based on all the meanings students produced regarding committing to or disengaging from their studies. Thus, none of the participants represented only one motivation source, but the motivation sources represent the main meanings found across the interviews. This kind of overlap is typical in typologies which 'are built on ideal types or illustrative end points rather than a complete and discrete set of categories' (Patton, 2015, p. 546). Nearly every student mentioned more than one reason for having an influence

on their motivation to the studies, although all six motivation sources were not present in each participant's interviews.

After identifying the ideal types of various motivation sources, we conceptualised the findings according to how students committed themselves to their studies (e.g., engagement and disengagement) and how they explained their reasons for these commitments. The latter were organised in terms of internal and external reasons. We thus combined both the inductive and quasi-deductive approach during the analysis (see Patton, 2015, pp. 542–543): the six motivation sources were identified and created from the interview data inductively to find students' unique perspectives without imposing preconceived categories or theoretical perspectives, whereas a final understanding about the relation of these sources to the students' engagement (King, 2015; Studsrød & Bru, 2011) and locus of control (Zimmerman, 2000) were achieved through theory-driven thinking and utilising previous literature. The most illustrative data extracts were selected for the Findings section and they were translated into English with the assistance of a language consultant with an emphasis on idiomatic translation. All names used in the article are pseudonyms.

Findings

The findings are presented through six different motivational sources representing students' different ways of describing their commitment to their studies and factors decreasing or strengthening this commitment. Figure 1 presents the motivational sources the students generated in relation to their school engagement and locus of control.

		Locus of control	
		more internal	↔ more external
Engagement	Engaged	Responsible agency	Completing out of necessity
	↑ Ambivalent	Emotional drive	Social orientation
	↓ Disengaged	Exhaustion from learning challenges	Tight-roping between competing responsibilities

Figure 1. A typology of students' motivation sources.

When expressing strong school engagement, the students describe two motivation sources with different locus of control: responsible agency and completing out of necessity. Conversely, when manifesting disengagement from the studies, the students narrate such motivation sources as exhaustion from learning challenges or tight roping between competing responsibilities. Studying with an ambivalent attitude is described by individual emotional drive or social orientation.

Engagement in studies

Responsible agency describes the engagement which is preceded by students' own choice of the particular field of VET and a strong aim to graduate for its own sake. The studying is considered intrinsically valuable, which creates a strong motivation for completing the studies. In addition, the sense of agency is reinforced by experiencing oneself as being the cause of an action and having the primary responsibility for his or her studies.

Extract 1: ...this is like an optional school, or that no one must be here if they don't want to. It depends on your own choice and you must take more responsibility for yourself. [...] at times it feels hard, but you get used to it. On the other hand, quite nice. (Katrin)

Extract 2: When you go to the vocational school you go there to study for yourself, like really. So that junior high school [ages 13–15] might have partly been a place where one still grows and so on. And that it's, like, sort of, everyone's duty to go through it. But when you go to vocational school then you should understand that it has been about your own choices. So, if you can't manage to be there, or you're not interested, then why do you have to blabber on during class and disturb others. (Emily)

In Extracts 1–2, studying for oneself is strongly emphasised. Studying is said to be voluntary and to depend mainly on students' own choices: they are the ones who must take the responsibility for their duties, complete the tasks on time, and make their own contribution to learning outcomes and graduation. It is characteristic of responsible agency, however, that students in this group are not bothered by this, but like self-direction and the sense of responsibility, even though it 'at times feels hard' (Extract 1).

Studying in VET is also compared with learning in compulsory comprehensive school, where learning is described as being more controlled. Compared to this, studying in VET is voluntary, and therefore 'no one must be here' (Extract 1). In Extract 2, Emily also distances herself from her classmates who do not have the same kind of responsible attitude to studying and who 'blabber on during class and disturb others.' Thus, internalising the importance of the studies for oneself and having a general sense of control over one's life is an inherent part of responsible agency.

Completing out of necessity refers to completing studies as a necessity of life or even as a necessary evil in Western societies. Although studying arouses various

negative feelings in students, dropping out of studying is associated with even more negative consequences, such as a bad financial situation or a meaningless life without work. Therefore, fearing the worst is the main compelling motive for the students to push ahead with their studies.

Extract 3: We, like, encourage each other to finish school. And not like, even though sometimes it feels that it's going badly, so then anyway, even though the studies might take longer, one would still finish them. So that you would have a job then. And you would have a kind of security there. And many have that sad thing that if they drop out, then, like a friend of mine just a while back, then all study loans should be paid back. And it was not some small amount of money that those loans had been about. (Emily)

Extract 4: So here I'm still thinking should I quit or what to do. But I have decided on one thing that I won't be useless, not for a minute. So that if I quit this, then I'll quit it so that I can basically, like, continue in a job right away. (Susan)

In Extracts 3–4, the students describe how the studies have only an instrumental value for them. They narrate various future threats such as suffering from meaningless weekdays or receiving a huge bill from paying back a student loan when dropping out from education. Evading these undesirable consequences and ensuring ones' own living in the future pushes students to continue their studies, although they would not have any internal motivation towards learning. Therefore, as Susan states in Extract 4, one must first find an alternative solution before it is sensible to drop out of studies. Although there are some motivational conflicts between the students' gratifications and responsibilities, they have decided to try to graduate.

Ambivalence

Emotional drive describes the role of emotions in study motivation and an ambivalent attitude towards studies. The investment of time for studies depends mainly on student's internal factors, such as mood and interests. Therefore, the students with emotional drive may be committed to studying certain subjects, but they disengage from trying in other study modules depending on their likes and dislikes.

Extract 5: So, if I happen to have, like, that kind of good motivation and interest in that work then I'm up for it. But then, when it's not, if I'm not interested at all then nothing comes of it. Then you might go and do something else for a while. (Helena)

Extract 6: It is affected, like, by the class and your energy. [...] It is so, like, we go forward at full speed and then when something doesn't get done then it's just left undone. Then I just don't have the energy to think about it afterwards. I just think that I'll do it sometime, when I have the energy. (Markus)

In extracts 5 and 6, the students attribute the efficiency or inefficiency of studying to their emotional state. In Extract 5, Helena describes how interest plays a

significant role in regulating her work: if some subject is not interesting, it is not worth doing. In Extract 6, Markus refers to his fatigue, which controls his studying. Tasks are postponed to the (open-ended) future, at which time he believes he will have more energy to manage them. However, the disengagement is not necessarily a considered solution but more often out of his conscious control: 'when something doesn't get done then it's just left undone'. Thus, the students with emotional drive experience things as just happening to them and feel themselves to be simply drifting.

Social orientation as a motivational source emphasises the role of other people in study progress. Those students with social orientation narrate themselves as being energised by multiple action tendencies but possess limited resources to pursue various activities simultaneously, such as partying all night with friends and completing their course assignments. Thus, in this case students typically experience motivational conflicts, which arise from various social temptations while pursuing their learning goals.

Extract 7: Well they [friends] have, like, positive and negative impacts on studying. It is like, you can get help if you need. [...] So yes [friends] also encourage. But yes, they do sometimes take you with them to do, like, a bit of something else other than school stuff. (Helena)

Extract 8: My brother has just helped a lot and parents as well. [...] I have really bad memories from junior high school because our class was very restless. And then I have also been bullied at school and so on. When I got here there was such a good group with such a good team spirit. (Suvi)

In extracts 7 and 8, students attribute their weak enthusiasm for studying to others: circumstances, their friends, or the lack of support. In Extract 7, Helena describes how her friends, at their best, support her in completing her studies, but they can similarly absorb a great deal of her learning time by tempting her to take part in other activities.

In Extract 8, Suvi remembers times when she was bullied at school, suffered from the noisy classroom and felt lonely. These negative social experiences have influenced her attitude towards her studies and weakened her concentration on learning. On the other hand, people such as her parents, a brother and a supportive peer group at her present school have also played a significant role in making Suvi's situation more positive. That means that both negative and positive social experiences contribute to one's life.

Disengagement

Exhaustion from learning challenges refers to the experience of falling behind one's peers due to the difficulty of the learning content. The experience of the learning difficulties prevents students from becoming motivated to try to learn more

challenging content. The difficulties appear in certain subjects (e.g., mathematics) or more widely in some basic skills (e.g., reading comprehension).

Extract 9: ...we go over such difficult things in such a short time, and so much. And you should be able to assimilate all that. [...] I have been diagnosed as having mild dyslexia. [...] When I read a text, I can read it like million times, reading without thinking. Even in Finnish. But I don't necessarily understand what the main point is. And then I'm really absent-minded. [...] If I can't do something, if it doesn't happen, then I, sort of, lose the motivation totally. I, like, I got discouraged then. (Susan)

In Extract 9, Susan describes her learning difficulty and its effects on her studies and gradually on her identity as a student. Difficulties in reading and remembering make her a slow learner, disturb her understanding and weaken her motivation for reading. Finally, the difficulties lead to a negative cumulative cycle between learning difficulties, a lack of motivation and giving up in the face of constant setbacks.

Although learning difficulties are related to students themselves and their internal factors, the education system is also more or less explicitly excoriated by students as mass instruction which does not pay enough attention to individual learning needs or provide diverse ways of teaching. Susan talks about the requirements for studying which are experienced as challenging (e.g., 'such difficult things in such a short time, and so much'). However, Susan does not necessarily seek help but instead leaves the tasks undone, thereby remaining alone with her difficulties.

Tight-roping between competing responsibilities means struggling with various external duties (e.g., taking on paid work in addition to studies) or value conflict. This demotivates the student and riding out the storm takes priority over completing studies.

Extract 10: I always want to spend time with my daughters as much as possible in the evenings. But they go to bed nicely in time and then, after that you just wouldn't have the energy. It's always such a big bother then to start with the school things after you get them to bed. [...] Anyway, they come, the family comes before school things. [...] even though I'm continuing for half a year longer, but I am still quite proud that I, anyhow, started with this school at the same time as having such small children. (Karin)

In Extract 10 Karin mentions various challenges in her life which disturb her concentration on her studies. The narration culminates in long-lasting challenges concerning the reconciliation of her family and her studies. She states that she is really committed to school attendance, but that she also prefers her family to her studies. Thus, caring about her children takes so much energy that she does not have any left for studying. The students discussing tight-roping between competing responsibilities do not necessarily disengage from their studies

permanently, but their level of commitment may vary depending on the external circumstances.

Discussion

The aim of the present study was to investigate the motivational sources of Finnish practical nursing students at risk of dropping out of VET. In accordance with earlier studies (Fortin et al., 2006; Scheel et al., 2009), the students at risk of dropping out from VET were found to be a heterogeneous group whose motivation sources varied largely and who typically expressed many, even contradictory, motives for completing or dropping out of their studies in the same interview. As motivational sources, the categories of responsible agency and completing out of necessity represented strong school engagement also among the students reported as having low study motivation, whereas exhaustion from learning challenges and tight-ropeing between competing responsibilities manifested disengagement from the studies. In addition, social orientation and being driven by emotions embodied an ambivalent attitude towards the studies.

Interestingly, in relation to self-determination theory (Ryan & Deci, 2000), the results showed that neither intrinsic nor extrinsic motivation can be considered as categorically desirable or undesirable attitudes towards education. For instance, although completing out of necessity represented strong study engagement, the students were extrinsically motivated, and the studies only had instrumental value for them. Thus, the desire to evade undesirable consequences pushed the students to continue their studies for controlled motivational reasons, that is, without autonomous academic motivation. Similarly, although tight-ropeing between competing responsibilities represented disengagement from studies, the disengagement might only be a temporary solution in the situation where the full life meant too many overlapping duties, although the students were still somewhat intrinsically motivated to continue their studies and still had a relatively strong sense of autonomy, relatedness and competence. In this respect, exhaustion from learning difficulties meant the most vulnerability to permanent disengagement from studies, since it was characterised by both a low sense of competence and a weak sense of autonomy to be able to do something to improve the situation. Therefore, it is particularly important to get these students engaged in their studies, so that they would not develop any cynicism, since those who have a high level of cynicism towards school have been found to be almost four times more likely to drop out than those with a low level of cynicism (Bask & Salmela-Aro, 2013).

In addition to narrating learning difficulties as weakening their motivation to study, students also criticised the learning structures and one-sided pedagogical methods used in the lessons. In this case, the failures were not considered

inevitable in the future, but the primary responsibility for them was in the teacher's control. In addition, in earlier research, the classroom environment has been perceived as making a major contribution to the engagement with school, and classroom climate has an influence on student achievement and attitude (Niittyalahti et al., 2019; Van Petegem, Aelterman, Rosseel & Creemers, 2007). Thus, the more the social environment can satisfy psychological needs, the more positive the consequences (Deci & Ryan, 2012).

The ambivalent motivation sources such as emotional drive and social orientation represented motivational conflicts in the studies, especially between studying and social life. Because of the ambivalence in their attitudes these groups can be more easily supported. Social orientation as a motivation source strengthened the earlier results about the importance of belonging and having supportive friends in the engagement in school (Fuller & Macfayden, 2012; King, 2015). Thus, the learning goals are not the only goals students bring to the learning context. When school is alienating, students will go elsewhere in their quest for validating relationships (Scheel et al., 2009). Therefore, activities in school should connect with everyday experiences of students to help them generate greater meaning for their knowledge (Oriol et al., 2016).

The main result was that although the students were at risk of dropping out of VET, their motivation sources were heterogeneous, including autonomous, controlled and ambivalent motivation factors. Consequently, the study claims that rather than simply having favourable or unfavourable motives for studying, the students had a complicated and even ambivalent range of motivation sources, the relative balance of which is likely to define whether they end up continuing their studies or dropping out. The study also emphasises the significance of the quality of instruction and the teacher-student relationship in the engagement of students with their studies, which is contrary to studies that have mainly emphasised more permanent and individual reasons for dropout. The complicated motivation factors also provide many opportunities for intervention, since strengthening even one positive and convincing motive for continuing studies can be a means of diminishing the influence of more negative motivating factors on students' decisions.

Limitations

Although this study was not an intervention study, the intervention might have had a positive influence on the sources of motivation students narrated during the intervention. However, the data are diverse, and they produced diverse and even contradictory descriptions about the motivation sources of students. The quality of interviews varied because some students gave very short answers while others narrated their opinions with more variety. If there had been several interviews the students who spoke little could also have narrated their sources in

a more wide-ranging manner. Despite the relatively small amount of interviewees, the motivation sources narrated by them seem to be reasonable, and the transferability of the results would be worth testing by means of the larger sample. Credibility in this study was strengthened by researcher triangulation. All the researchers read the interviews independently and noted down their initial ideas concerning it. After creating the initial codes and naming the motivational sources, all data relevant to each potential motivation source were also re-checked systematically and the typology was tested together.

Practical implications

It is challenging for school personnel to support all the students struggling with a lack of motivation because finding the appropriate preventive interventions that meet the needs of differently motivated students is a complex task. While autonomously motivated students, with responsible agency, may be able to learn in a partly self-directed manner, students with learning difficulties are likely to benefit from intensive instructional support and learning skills interventions in order to learn effectively. Students showing controlled or extrinsic motivation, who complete studies out of necessity, might benefit from longer periods of on-the-job-learning where they can contemplate their vocational identity, acquire satisfying experiences from work, and strengthen their autonomous motivation for their studies. In addition, students tight-rope between competing responsibilities may need support in managing their studies and learning life control skills as well as in developing social networks to organise their everyday life. Instead, students narrating emotionally driven and social orientation motivation sources could benefit from tutor students, working in pairs or in groups, and learning by doing.

All the students should benefit from multiple teaching methods and a good classroom climate, which teachers can manage by using teaching strategies that fit each student's ability level. Bacca, Baldiris, Fabregat and Kinshuk (2018) noted that using scaffolding and real-time feedback relates to dimensions of strengthening motivation. In addition, the aim of the interventions, like the *Motivoimaa* project, is to create a learning environment where the students can obtain experiences of success, which further increases their motivation to study. These interventions can be organised during regular lessons, so there is no need for extra resources. In this way they become one part of developing the whole school system.

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Forhindringer for samarbejde om pædagogisk udvikling mellem skoleledere og lærere: Belyst gennem et aktionsforskningsprojekt i erhvervsuddannelserne

(Obstacles to collaboration on educational development between school leaders and teachers: Seen through an action research project on vocational education and training)

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Abstract

The article is based on analysis from an action research project carried out on four vocational schools in Denmark. The project has been launched to find possible solutions to a recognisable problem that educational development projects do not have sufficient visible contagion on existing school practices. The initiators of the project have the assumption that collaboration between school leaders and teachers on the development of educational practice can be a way to strengthen an organisational framework towards a collective approach to development and thus support the transition from development to new practice. The results of our analysis point three overarching conditions that create obstacles for collaboration between school leaders and teachers and thereby for educational development work in the form of exploratory and experimental work to be translated and incorporated into daily practice. The first factor that creates obstacles is related to political and governance matters. The second factor is the contradiction between development and operation. The third factor is the difference between management rationale in management and teacher work. The analysis shows that different interests and perspectives on what constitutes an educational practice seems to create tension. Such tension can hinder new knowledge and the development of practices that are the very purpose of the action research approach.

Keywords: development work, VET, action research, pedagogical experiments, pragmatism, collaboration, management and teachers



Indledning

Denne artikel handler om forhindringer for forandringer under et aktionsforskningsprojekt med pædagogiske eksperimenter som mellemværende. Forhindringerne er registreret i forbindelse med samarbejde mellem ledere og lærere fra fire erhvervsskoler. Forhindringerne er til stede på trods af aktionsforskningsprojektets ambition om at facilitere samarbejde, hvor fælles læring anskues som drivkraft for udvikling og forandring. For at få en dybere indsigt i forhindringerne for samarbejde om de pædagogiske eksperimenter har vi interviewet ledere og lærere under – og i afslutningen af aktionsforskningsprojektet.

Vores analyse viser samlet set, at styringsrelaterede forhold bliver en forhindring for samarbejde, med det formål at forandre pædagogisk praksis. Vi har i artiklen organiseret de styringsrelaterede forhold i tre overordnede kategorier: 1) Kontekstuelle forhold af politisk og styringsmæssig karakter, 2) Spændinger mellem logikkerne knyttet til arbejdet som drift af kerneopgaver og arbejdet med pædagogisk udvikling, 3) Spændinger mellem styringsrationaler i henholdsvis ledelses- og lærerarbejde.

Nedenstående interviewudsagn stammer fra et gruppeinterview med to erhvervsskolelærere, der deltog i aktionsforskningsprojektet. I interviewet fortæller de to lærere om deres erfaringer med at eksperimentere med udvikling af ny pædagogisk og didaktisk praksis til brug i undervisningen.

Vi har brugt meget tid på det [udvikling]. Og jeg ved ikke, om man kan få det forenklet ind i den virkelige verden, hvor tiden er knap, hvor man nogle gange bare kopierer en opgave og giver eleverne [...]. For, at man kan få udviklet de ting, man gerne vil, så må de [lederne] jo blive opmærksom på, at det ikke er noget, man bare lige gør sådan i løbet af halvanden time. Det tager tid. Det er en proces, som vi også har sagt til dem [lederne]. [Den anden lærer supplerer:] Det har vi sagt mange gange, ja [...]. Vi har brug for noget mere tid [...]. Den der efterrefleksion, at vi får skrevet ned og reflekteret og alle de ting – det har der ikke været tid til. (Gruppeninterview med to erhvervsskolelærere)

Udsagnet illustrerer de nævnte problematikker, der skaber forhindringer for at eksperimentere med pædagogiske tiltag på en erhvervsskole.

Formålet med artiklen er at bidrage med viden til uddannelsesforskning om forskellige typer forhindringer for samarbejde mellem ledere og lærere og de potentielle årsager til det og dermed aktionsforskningens muligheder for at skabe forandring. Det har vi undersøgt ved at stille spørgsmålet: Hvad var det i aktionsforskningsprojektet, der forhindrede samarbejde og læring mellem ledere og lærere om udvikling af pædagogisk praksis med pædagogiske eksperimenter som mellemværende – og hvorfor?

I artiklen belyses de overordnede problematikker med empiriske udsagn, som diskuteres med udvalgte teoretiske begreber, der kan hjælpe os med at forstå og sætte ord på nogle forhindringer for lederes og læreres samarbejder. Artiklen kan læses som en kritisk refleksion, der både har fokus på vores oprindelige tro på

aktionsforskningens effekt (i det omtalte projekt) og på vores opnåede forskningsindsigt.

Baggrund

Artiklen bygger på empiriske analyser fra aktionsforskningsprojektet, "Kulturudvikling gennem strategisk kompetenceudvikling", som er gennemført på fire erhvervsskoler i Danmark i perioden 2016–2018. Aktionsforskningsprojektet blev igangsat af arbejdsgiver- og arbejdstagerorganisationer¹ og blev sat i værk for at finde mulige løsninger på et genkendeligt problem i Danmark såvel som i Norden om, at pædagogiske udviklingsprojekter ikke får tilstrækkelig synlig afsmitning på skolernes eksisterende praksis (Hjort, 2018). De fire erhvervsskoler har alle erfaret problemstillingen om, at udviklingsarbejde ikke skaber tilstrækkelig værdi for den eksisterende praksis og ønskede at ændre på dette. Deltagerne i aktionsforskningsprojektet var repræsenteret ved ledere, konsulenter og lærere på de fire erhvervsskoler. Initiativtagerne til projektet havde en antagelse om, at samarbejde mellem ledelse og lærere om udvikling af pædagogisk praksis kunne være en mulig vej til at styrke "et organisatorisk skelet" i retning af en mere kollektiv tilgang til udvikling (Kompetencesekretariatet, 2015) og dermed støtte overgangen fra udvikling til ny praksis.

Aktionsforskningens ærinde er at svare på, hvordan forskere og praktikere sammen kan finde veje, der støtter lærerne og lederne i nye samarbejdsformer, der åbner for fællesskab omkring pædagogisk praksis. Det øgede fokus på pædagogisk lederskab gennem samarbejde mellem lærere og mellem ledelse og lærere om udvikling og forankring af pædagogisk praksis, er ikke bare en tendens i Danmark men også internationalt. Dette ses i international forskning om lærerprofessionalisering og læringsfællesskaber (Stoll, Bolam, McMahan, Wallace & Thomas 2006; Timperley, 2018). Tilgangen til samarbejde mellem lærere og skoleledere er blandt andet inspireret af såvel finske, canadiske og amerikanske empiriske studier om "teacher leadership", hvor læreres deltagelse i forskellige opgaver i relation til skoleudvikling fremhæves som særdeles betydningsfuldt. Også et stærkt samarbejde mellem skoleledere og lærere om udvikling af den lokale pædagogiske praksis fremhæves som væsentligt for elevers læring og for lærernes og ledernes udvikling af professionalitet (DuFour & Marzano, 2011; Fullan & Hargreaves, 2016; Sahlberg, 2011).

Aktionsforskningstilgangen er valgt af flere årsager. Dels for at støtte formålet om samarbejde om fælles læring. Dels er det en undersøgelsestilgang, der er baseret på kollektiv forståelse mellem forskere og deltagere om at løse et problem og derudfra generere ny viden (Nielsen, 2004). Det er afgørende for forandring at udvikle relationel viden i et fællesskab, der er funderet i demokratiske værdier

(Dick, 2015; Park, 2001). Dette suppleret med en forventning om, at den eksperimenterende metode (Hutters, Jensen & Sørensen, 2015) kan medvirke til at overkomme nogle af de modsætninger mellem ledelse og medarbejdere, strategi og hverdagspraksis som styreformen New Public Management mange steder har affødt (Hutters & Sørensen, 2015, s. 63).

Reform af erhvervsuddannelserne

Afsættet for aktionsforskningsinitiativet var skolernes behov for udvikling af ny pædagogisk praksis relateret til en reform af erhvervsuddannelserne i Danmark i 2015. I reformaftalen "Bedre og mere attraktive erhvervsuddannelser" er der fire primære mål: 1) Flere elever skal vælge en erhvervsuddannelse direkte efter grundskolen, 2) Flere elever skal fuldføre en erhvervsuddannelse, 3) Erhvervsuddannelserne skal udfordre alle elever, så de bliver så dygtige de kan, 4) Tilliden til og trivslen på erhvervsuddannelserne skal styrkes (Regeringen, 2014). Reformen af erhvervsuddannelserne forsøger at svare på forskellige samfundsrelaterede problemstillinger som for eksempel at færre unge søger ind på erhvervsuddannelserne, og at arbejdsmarkedet har brug for mere kvalificeret faglært arbejdskraft (Jørgensen, 2016). For at indfri de fire mål er der iværksat en række konkrete tiltag, hvilke er specifikke krav, som erhvervsskolerne skal leve op til (Canger, Hjort-Madsen, Kondrup & Neubert, 2016). To af disse tiltag viste sig at være rammesættende for aktionsforskningsprojektet. Det ene tiltag handler om at klæde ledere og lærere i erhvervsuddannelserne på til at indfri reformens mål – bl.a. gennem løft af lærernes pædagogiske kompetencer og gennem øget fokus på pædagogisk ledelse. Det andet tiltag handler om at styrke strategisk kvalitetsledelse gennem værktøjer som for eksempel fælles pædagogisk didaktiske handleplaner på de enkelte erhvervsskoler (Canger et al., 2016).

Valg af pædagogiske temaer til udvikling er relateret til reform af erhvervsuddannelserne

Skolernes ledelse havde en forventning om, at disse to tiltag – kompetenceløft af ledere og lærere og den pædagogiske handleplan skulle indgå i aktionsforskningsprojektet og danne et grundlag for samarbejde mellem skoleledelse og lærere om pædagogiske eksperimenter. I nedenstående boks (figur 1) ses et eksempel på en beskrivelse af et pædagogisk eksperiment.

Beskrivelse af pædagogisk eksperiment:

Valg af pædagogisk tema: I forbindelse med en ny kompetenceudviklingsstrategi er området " (pædagogisk og didaktisk, red) entreprenørskab" udvalgt som indsatsområde og prioriteret indsats i forhold til det pædagogiske løft på 10 ECTS point. Undervisere fra erhvervsskolen deltog i diplommodul "faglig entreprenørskab".

Udfordringen er: At det er vanskeligt i en travl hverdag, at få tid til at omsætte viden og erfaring fra formel kompetenceudvikling til udvikling af gældende praksis:

Drøm om ny praksis: At en opnået kompetence skal give mening og have plads til at blive udfoldet i den gældende organisatoriske kontekst. Ny viden og nye kompetencer skal have mulighed for at berige og udvikle gældende praksis. Der skal være plads til at formidle ny viden og til at arbejde eksemplarisk med inddragelse af de nye kompetencer.

Afsæt og ramme: Erhvervsskolens nye kompetenceudviklingsstrategi, og modellen der er udviklet med bl.a. kompetenceråd og netværk, skal være med til at skabe ændrede rammer for overgangen fra kompetenceudvikling til implementering og muliggøre ovenstående. Målet er bl.a., at elevernes læringsudbytte og trivsel skal øges via kompetenceudvikling af ansatte på erhvervsskolen.

Uddrag af skolebeskrivelse

Figur 1. Eksperimentbeskrivelse.

Ovenstående eksperimentbeskrivelse viser, at det pædagogiske eksperiment som en af de fire erhvervsskoler arbejder med i aktionsforskningsprojektet, er relateret til reform af erhvervsuddannelse gennem de to forhold, der er beskrevet ovenfor. I beskrivelsen ses både kravet om det pædagogisk kompetenceløft på 10 ECTS point, begrundet i lærernes deltagelse på et diplommodul og kravet om styrket strategisk kvalitetsledelse, begrundet i det pædagogiske tema "entreprenørskab" der kommer fra erhvervsskolens fælles pædagogisk didaktiske handleplan. De tre andre skolars valg af pædagogiske temaer til udvikling er også relateret til reformen og afspejler den lokale pædagogiske strategi som den kan læses i deres fælles pædagogiske didaktiske handleplan på de enkelte erhvervsskoler. De tre andre erhvervsskoler arbejder med at udvikle henholdsvis: "Professionelle læringsfællesskaber", "Didaktisk digitalisering og ny lærerorganisering"

samt "Helhedsorientering på det første grundforløb og deraf følgende ny lærerorganisering". På alle fire erhvervsuddannelser er temaerne for de pædagogiske eksperimenter valgt af skolernes strategiske ledelse.

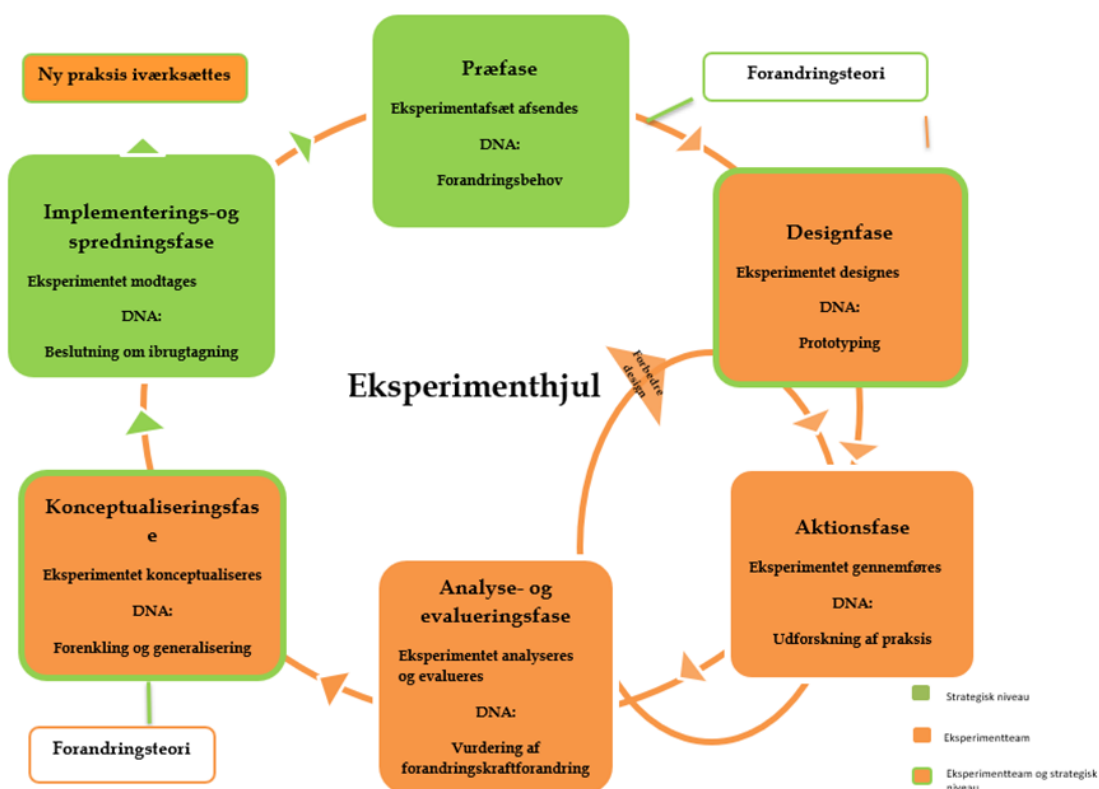
Aktionsforskning som ramme for udvikling

Der er en generel forestilling om, at aktionsforskning kan forandre praksis gennem "work in progress" (Brydon-Miller, Greenwood & Maguire, 2013, s. 11). Aktionsforskning har altså som sin ambition på den ene side at få praktikerne til at distancere sig fra deres hverdagspraksis gennem kritisk refleksion og erkendelse, og på den anden side at udvikle den praksis, som den har som genstand. Som ideal er aktionsforskning frigørende, forandrings- og deltagerorienteret og forventes at ske i et demokratisk fællesskab mellem forskere og praktikere (Bradbury, 2015). Aktionsforskningen sker i en konkret kontekst. Både i den lokale kontekst, forstået som organisationen og hverdagskulturen på de enkelte erhvervsskoler, og i den historiske kontekst, forstået som den samtid udviklingsarbejdet udspiller sig i (Elkjær, 2007, s. 39).

Indeværende aktionsforskningsprojekt hviler på de samme samarbejdsideal mellem parter, som da aktionsforskningen tog form i USA i 1940'erne initieret af Kurt Lewin, tysk-amerikansk socialpsykolog, der var optaget af samarbejdsforskning med interesser fra fagbevægelsen. Tilgangen var i udgangspunktet inspireret af tidens pragmatisme (Brydon-Miller et al., 2013). Kurt Lewins tilgang bygger på en forståelse af, at viden, med relevans for demokratiske samfundsforandringer, skal udvikles gennem praktiske eksperimenter, som lægger op til deltagelse og ansvarliggørelse med det formål at skabe myndiggørelse (Nielsen & Nielsen, 2015). Tilgangen blev videreudviklet af Thorsrud og Emery i 1960'erne og defineret som socio-teknisk retning. Udgangspunktet er integration og samspil mellem den tekniske udførelse af arbejde (i artiklen - undervisning) og organiseringen af det til et samlet system (i artiklen - lærerteams, tværgående arbejdsgrupper, læringsfællesskaber, m.m.). Tilgangen skal sikre, at arbejdet bygger på krav til indhold, læring, indflydelse, støtte og respekt, nytteværdi og fremtidsperspektiv (Sørensen, Hasle, Hesselholt & Herbøl, 2012). I løbet af 1980'erne blev tilgangen orienteret mod det dialogiske, inspireret af Habermas forskning om, hvordan forskellige diskurser kan skygge for idealet om det udforskende kollektiv (Nielsen & Nielsen, 2006). Det dialogisk fokus, har som ideal, at bringe deltagere fra forskellige ståsteder sammen for at søge efter en fælles virkelighed (Gustavsen, 2010).

Aktionsforskningstilgang i aktionsforskningsprojektet KUSK

Den tilgang, som er blevet anvendt i aktionsforskningsprojektet, er pragmatisk, og trækker herunder på inspiration fra såvel den socio-tekniske som den dialogiske tilgang, jf. ovenstående afsnit. Udgangspunktet er den eksperimentelle afprøvning og nye handlings- og organisationsformer, som i pragmatisk aktionsforskning ansues som nødvendige for at bryde med fastlåste handlingsmønstre (Frandsen, 2016). Metodologisk søges dette udfordret ved, at lærerne og de pædagogiske ledere på den ene side arbejder med pædagogiske eksperimenter i deres hverdagspraksis relateret til elevernes undervisning og på den anden side mødes i skolegrupper til fælles værkstedsaktiviteter med repræsentanter fra strategiske ledelse, pædagogiske ledelse, lærere og tillidsmænd eller kvinder, for gennem dialog og samarbejde at bryde med fastlåste handlingsmønstre der forhindrer, at de pædagogiske eksperimenter bliver forankring i praksis.



Figur 2. Eksperimenthjulet.

Værkstedsaktiviteterne i skolegrupperne har karakter af sociale eksperimenter. Vi har altså at gøre med to af hinanden afhængige eksperimentelle handlinger.

De pædagogiske eksperimenter, der danner udgangspunkt for sociale eksperimenter af kollaborativ karakter. Der er så at sige en transformativ læringsdimension involveret i aktionsforskningsprojektet, som fordrer, at lederne og lærerne er i stand til at "suspendere" deres vante forestillinger og sammen engagere sig i at udvikle nye forståelser af praksis (Argyris & Schön, 1996; Illeris, 2013). Eksperimenthjulet (Hutters, Jensen & Sørensen, 2015), der ses i ovenstående model (figur 2), er anvendt som processtruktur for det eksperimenterende arbejde og har dannet ramme for de fire designværksteder.

Eksperimenthjulet består af seks faser fra præfase til spredningsfase. Præfasen danner udgangspunkt for første designværksted og efterfølgende udforskning i egen praksis. Præfasen er den fase, hvor problemer og udfordringer afdækkes, og deltagerne ser kritisk ind på deres egen praksis for at undersøge, hvad der er behov for at gøre anderledes. Design- og aktion og evalueringsfasen danner udgangspunkt for andet og tredje designværksted og efterfølgende udforskning i egen praksis. Design- og aktion og evalueringsfasen bygger på abduktive processer, der veksler mellem helhed, del og refleksion og som forsætter, indtil der er gjort nok erfaringer til, at en ny praksis konstituerer sig. Dette sker gennem forestilling om ny en praksis, konkrete aktioner, hvor afprøvning og udforskning giver empirisk data til refleksion og deraf evaluering. Disse tre faser er grundstenen i det eksperimenterende arbejde. Kolb forklarer det med eksperimentet som et moment i en samlet, cyklisk læreproces, der veksler mellem nærhed og distance til praksis/handling (Kolb, 1984). De sidste to faser i eksperimenthjulet, konceptualiseringsfasen og implementerings- og spredningsfasen, danner udgangspunkt for fjerde og sidste designværksted og efterfølgende arbejde i egen praksis. Konceptualiseringsfasen og implementerings- og spredningsfasen har til formål at bringe det eksperimenterende arbejde fra udvikling til ny praksis på skolerne. Omdrejningspunktet er den eksperimentelle læreproces, som bygges på og af erfaringer. Vi forstår den eksperimentelle afprøvning med udgangspunkt i pragmatisk læringsteori, herunder erfaringsbaseret læring (Dewey, 1996; Kolb, 1984). Handleperspektivet, *at gøre noget*, er meget eksplicit i en eksperimenterende tilgang til udvikling. I Deweys forståelse handler læreprocesser grundlæggende om deltagelse i form af aktivitet (Brinkmann, 2007), hvor afprøvning gennem handling og erfaringer kommer som følge af en undersøgende tilgang. John Dewey definerer en eksperimenterende handling som inquiry. Inquiry betyder, at situationer, som fremkalder nysgerrighed, undersøgelse og eksperimenteren, danner kimen til at lære (Dewey, 2005). Frandsen hævder, at inquirytilgangen er en social læreproces, som sker i kollektiver, hvor individer tilegner sig undersøgelsesfærdigheder gennem erfaringsbaseret læring (Frandsen, 2017). Det er altså centralt for udvikling af fælles læreprocesser, at lederne og lærerne har mulighed for at udrette noget, og at læring, i form af erfaring og handling, kan iagttages, reflekteres og danne udgangspunkt for dialog.

Det kan forklares som forbindelsen mellem nysgerrighed på den ene side og handlen og transformation på den anden side med det formål, at viden bliver et produkt af kollektive videnskabende processer i en løbende erkendelses- og praksiscyklus (Andersen & Bilfeldt, 2016).

Aktionsforskningsproces

Aktionsforskningsprocessen består af fire designværksteder fordelt mellem fire perioder med udforskning i egen praksis gennem arbejde med pædagogiske eksperimenter. Designværkstederne er faciliterede rum, der har som formål at sikre deltagelse, fremdrift, vejledning og videndeling. Designbegrebet henviser til en "formgivningsproces", som relaterer sig til arbejdet med at skabe en ny praksis sammen med andre. Hver designværksted består både af et lokalt møde på egen skole mellem forskere og skolegrupper om erfaringerne fra deres udforskning i egen praksis og et netværksmøde, hvor skolegrupperne fra de fire erhvervsskoler mødes med forskerne for at dele viden og erfaringer med det formål at få dybere indsigt i de forhindringer for udvikling som de løbende er stødt ind i. Erfaringsudvekslingerne på netværksmøderne sker gennem forskellige aktiviteter så som eksperimentcirkler, inspireret af metoden med forskningscirkler beskrevet af Persson (2010), refleksionstavler, erfaringsopsamlinger med mere. Værkstedaktiviteterne danner udgangspunkt for kritik, dialog og fælles læring. Forskningsarbejdet er at bringe viden i spil mellem fortid, nutid, og fremtid. Det gøres ved at bringe viden ind udefra gennem relevant forskning og viden ind, indefra ved løbende at præsentere forskningsviden fra deltagende observationer og diverse analyser af politiske-, strategiske- og projektdokumenter relateret til skolernes udviklingsarbejde. Vi har derigennem skabt indsigter, som er blevet delt med deltagerne i et forsøg på at skabe fælles mening og fokus. Forskerrollen har på denne måde udfoldet sig i kollaborative processer mellem os og skolegrupperne, der agerer i det konkrete felt. Det betyder, at vi har haft en dobbeltrolle. På den ene side har vi været (ud)forskende, og samtidig har vi søgt at klæde skolernes arbejdsgrupper på til at være udforskende i egen praksis.

På trods af en gennemført aktionsforskningsproces var resultatet, at forhindringerne som deltagerne løb ind i, ikke blev taget op på skolemøderne på egen skole og forsøgt løst i samarbejde mellem ledere og lærere. Det var ikke ligegyldigt for deltageres engagement, hvor udviklingsinitiativet kom fra. Kom ønsket om forandring og udvikling oppefra eller udefra, forstået som ledelsesmæssige og/eller politiske initiativer? Eller kom det nedefra og indefra, forstået som lærergruppen og/eller enkelte læreres engagement i ønsket om forandring?

Metodisk design til undersøgelse af forhindringer for samarbejde

For at blive klogere på hvad der i aktionsforskningsprojektet forhindrede samarbejde og læring mellem ledere og lærere om udvikling af pædagogisk praksis - og hvorfor, er der blevet udarbejdet en kontekstanalyse af den udefrakommende politiske og styringsmæssige rammesætning. Formålet er at belyse sammenhæng til de fire skolars arbejde med deres pædagogiske eksperimenter. Derudover er der foretaget interview med lederne og lærerne enkeltvis og i grupper for at få en dybere indsigt i deres oplevelser og erfaringer med samarbejde om udvikling af ny pædagogisk praksis. Interviewene tog udgangspunkt i noter fra designværkstederne med netværksmøder og lokale skolemøder fastholdt i en logbog, der er ført gennem hele aktionsforskningsprojektet (Kristiansen & Krogstrup, 2015) samt i læsning af deres projektdokumenter som deltagerne løbende har udarbejdet. Det empiriske materiale fra designværkstederne er løbende blevet validerende, ved at dele forskningsnoter fra designværkstederne med deltagerne, så de har haft mulighed for at respondere, hvis der skulle være tale om fejlfortolkninger. Dette med henblik på at styrke forskningens gyldighed og reliabilitet. Interviewene er fænomenologisk inspireret (Brinkmann & Tanggaard, 2015) med deltagernes livsverden i fokus. Der er gennemført 11 individuelle interviews og 4 gruppeinterviews med lærere, ledere og udviklingskonsulenter fra de fire erhvervsskoler. Analysen er foregået ved fælles læsning, kodning og kategorisering af det empiriske materiale i hermeneutiske bevægelser mellem del-helhed, forståelse-forståelse og teoridrevet-empiridrevet tolkning (Brinkmann & Kvale, 2009). På denne baggrund er der blevet opstillet nogle empiribaserede fokusområder, som har været genstand for dybere læsning af teorier og forskning, som kan medvirke til at uddybe og/eller udfordre disse fokusområder. I nedenstående analyse vil vi fremhæve tre styringsrelaterede forhold af betydning for forståelse af forhindringer for samarbejde mellem ledelse og lærere.

Analyse af forhindringer for samarbejde mellem ledere og lærere om udvikling af pædagogisk praksis

Resultatet af analysen peger på tre overordnede styringsrelaterede forhold, der skaber forhindringer for samarbejde mellem ledelse og lærere, og som går på tværs af alle medvirkende skoler. Første styringsrelaterede forhold har vi kaldt: "Kontekstuelle forhold af politisk og styringsmæssig karakter". Det har vi begrundet i fund fra analysen, der har vist, at den historiske kontekst som aktionsforskningsprojektet udspiller sig i, har betydning for, hvor åbent ledere og lærere samarbejder om de forskellige problemstillinger, som de støder ind. Det andet styringsrelaterede forhold har vi kaldt: "Spændinger mellem logikkerne knyttet til arbejdet som drift af kerneopgaver og arbejdet med pædagogisk udvikling"

Det er begrundet med fund fra analysen, der har vist, at der er problemer med at skabe rammer og tid til eksperimenterende arbejde, og at tiden står i en dilemmafyldt relation til hverdagens opgaver, så som undervisning, møder og andet. Traditioner og vaner – ”sådan plejer vi at gøre” – er også med til at forhindre samarbejde med en åben undersøgende tilgang. Det tredje og sidste styringsrelaterede forhold har vi kaldt: ”Spændinger mellem styringsrationaler i henholdsvis ledelses- og lærerarbejde”. Det er begrundet med fund i analysen, der peger på, at ledere og lærere i udgangspunktet har forskellige interesser og perspektiver på, hvad der konstituerer en pædagogisk praksis, og det ser ud til at skabe spændinger ledere og lærere imellem. I efterfølgende analyse vil de tre forhold blive præsenteret i tre af hinanden efterfølgende afsnit.

Første styringsrelaterede forhold: ”Politisk og styringsmæssig kontekst for aktionsforskningsprojektet”

Det første forhold, der skaber forhindringer er ”udefra-orienteret”. Der er tale om betydningen af politisk og styringsmæssig kontekst for aktionsforskningen ambition om, at skabe ny praksis hjulpet af samarbejde mellem ledelse og lærere. Forholdet kan beskrives som et ”paraplyforhold”, da det har afsmitning på de to andre forhold. Erhvervsuddannelserne er underlagt de administrative og økonomiske rationaler, der handler om at sikre et effektivt og målrettet uddannelsessystem (Illeris, 2014). Styringsrationaler udspringer fra New Public Management, herefter kaldet NPM, der præger den offentlige sektor. Det sker ved bl.a. målstyring, outputorientering, strategier og handleplaner som styringsværktøjer, hvilket kan besværliggøre betingelserne for udviklingsarbejde fordi kvalitet først og fremmest forstås som noget, der kan måles og vejes (Hargreaves & Braun, 2013). I den periode (2015–2018) hvor aktionsforskningsprojektet udspiller sig, er der flere udefrakommende styringsmæssige forhold som er rammesættende for aktionsforskningsprojektet. Der har været omfattende besparelser på uddannelsesområder, hvilket har medvirket til fyringer og omorganiseringer på de medvirkende skoler i projektperioden. Der er sket ændring i erhvervsskolelærerens arbejdstid, med ophævelsen af deres arbejdstidsaftalen ved Lov 409 (Regeringen, 2013a) hvilket betyder, at ledelsen på den enkelte erhvervsskole nu skal komme med udspillet til, hvordan lærerarbejdet skal tilrettelægges. Der blev indgået en delaftale i forbindelse med finanslovsaftalen i 2013 om bedre erhvervsuddannelser og styrket uddannelsesgaranti. Et af initiativerne var et krav om indførelse af et fælles didaktiske og pædagogiske grundlag og et pædagogisk kompetenceløft på diplomniveau svarende til 10 ECTS point for ledere og lærere på erhvervsuddannelserne (Regeringen, 2013b). Styring af den pædagogiske praksis er, som skrevet indledningsvist, blevet yderligere skærpet med en reform af erhvervsuddannelserne i 2015 (Regeringen, 2014). Reformen har blandt andet haft til formål

at styre pædagogisk kvalitet i særlige retninger (Kondrup & Friche, 2016). Konkret har der været tale om centrale/ministerielle udmeldinger om præcist, hvilke pædagogiske initiativer, der skal fokuseres på i skolernes udviklingsarbejde. Flere erhvervsskoler har som følge af politiske styring tæt på praksis, opfyldt krav ved oven-fra-ned at implementere færdige pædagogiske koncepter hentet ind udefra som f.eks. LP-modellen (Sørensen, 2019). Det har betydning for skolernes, herunder lærernes, mulighed for selvbestemmelse til at definere pædagogisk indhold og kvalitet. Kravet om det pædagogiske kompetenceløft på 10 ECTS point har betydet, at erhvervsskolerne har øget fokus på, at få ledere og lærere til at deltage på diplomforløb i henholdsvis pædagogisk ledelse og forløb med pædagogiske- og didaktiske toninger. Disse såkaldte pædagogiske løft bliver på mange erhvervsskole afsættet for at igangsætte konceptprægede initiativer omkring for eksempel "professionelle læringsfællesskaber", der har fokus på lærernes organisering og på pædagogisk ledelse som middel til styring af central udmeldt strategisk ramme for pædagogisk praksis og kvalitet. Fokuseringen på pædagogisk ledelse, til forvaltning af den politiske rammesætning af pædagogisk praksis, kan tolkes som en udefrakommende styringsteknologi, som har ansvar for den pædagogiske kvalitet. Tendensen kan ses som eksempel på den øgede politiske styring af den pædagogisk praksis på erhvervsuddannelserne.

Som skrevet tidligere afspejler de pædagogiske temaer, der arbejdes med i de pædagogiske eksperimenter, forhold fra skolernes lokale pædagogiske grundlag og strategi, og de er alle valgt af skolens strategiske ledelse. Lærerne, pædagogiske ledere og konsulenter, som skal udvikle ny pædagogisk praksis, er først blevet spurgt, om de vil deltage i aktionsforskningsprojektet, efter skolernes tilkendegivelse om deltagelse. Dette kan ses som et eksempel på, at deltagerne i aktionsforskningsprojektet ikke i tilstrækkelig grad er blevet inddraget i projektets opstart. Det forhold stemmer overens med Brunssons forskning, der viser, at medarbejderne i det NPM-prægede styringsrationale ofte ikke bliver inddraget i udvikling og implementering af de strategiske processer i organisationen og i mindre grad oplever muligheder for at være innovative omkring egen praksis (Brunsson, 2002). Den politiske styring er med reformen af erhvervsuddannelserne kommet tættere på styring af den pædagogiske praksis. Dermed kan "undergrunden" forsvinde. Med begrebet undergrund forstår vi den pædagogiske praksis, som erhvervsskolelærere til daglig bedriver og udvikler, uden at den nødvendigvis bliver sprogliggjort og synligt for andre end dem, læreren inviterer ind. Den undergrund har kendetegnet mange pædagogiske institutioner, hvor de enkelte undervisere løbende har arbejdet med at forny deres undervisningspraksis ud fra egne initiativer og forsøg med forskellige nye praksisser (Hasselstrøm & Jacobsen, 2014).

I det efterfølgende analyseafsnit er det tydeligt, at det NPM-prægede styringsrationale ansporer til de spændinger, der opstår når arbejdet med de pædagogiske eksperimenter skal tænkes i sammenhæng til hverdagsopgaver.

Andet forhold: "Driftslogik kan forhindre samarbejde om pædagogisk udviklingsarbejde"

Det andet forhold, der skaber forhindringer er overvejende "indefra-orienteret". Der er tale om betydningen af spændinger mellem drift og udvikling. Der ser ud til at være en kontinuerlig konflikt om, hvordan udviklingsarbejde skal indtænkes i skolehverdagen. I et interview fortæller en uddannelseskonsulent: "*Det har været en udfordring at udvikle et mere eksperimenterende mindset*". Konsulenten beskriver, hvordan skolen tilsyneladende er karakteriseret ved nogle mønstre og logikker som, kan gøre det svært at skabe et "eksperimenterende mindset".

At lave eksperimenterende udviklingsarbejde kan på nogle måder være forbundet med et opgør med de måder hvorpå skolen hidtil har fungeret. Arbejdet med pædagogiske eksperimenter er ikke altid noget der kan indføres som supplement til de måder som skolen fungerer på i forvejen.

I nedenstående eksempel fortæller en lærer om en erfaring, der er med til at forhindre, at de kan arbejde åbent og undersøgende. Deres pædagogiske eksperiment handler om, at lærerne i fællesskab skal udvikle et undervisningsmateriale, som alle lærere kan anvende. Formålet er, at alle lærere skal kunne varetage undervisning i alle fagområder-også fagområder, der ikke er deres egne. Læreren fortæller, at der er en konflikt mellem ledelse og lærere om, hvornår noget er færdigudviklet og klar til brug. Lærerne peger på, at der skal være en udviklingsperiode, hvor der skabes ejerskab og faglig identitet mellem de nye lærere, der skal undervise, og det materiale, der er udviklet. Der er en forskel mellem ledelse og lærere i den pædagogiske tilgang. Lederen opfordrede lærerne til at tage noget af det fælles udviklede materiale og gå direkte ind i klasselokalet og undervise efter det uden først at bruge tid på at gøre materialet til 'sit eget'. Hun fortæller om sin og kollegernes modstand mod dette:

Men vi vil også gerne have at fagligheden skal være højere, og vi vil også gerne selv være med og også løfte niveauet, når man står derinde. Det er lidt sjovere at undervise i noget, som man også er fagligt stærk i, det tror jeg, vi alle sammen godt kan nikke genkendende til. Man kan godt nogle gange spille skuespil, men det er sgu sjovere, når man kan det. (Lærerinterview)

Citatet illustrerer, hvordan lærere ønsker at mestre deres fag. Læreren har en antagelse om, at det vanskeliggøres, hvis man skal undervise i noget, som man ikke har faglig overskud i. Udgangspunktet for citatet er en uenighed med ledelsen, som tilsyneladende giver udtryk for, at det udviklede materiale kan bruges direkte i undervisningen uden at bruge mere tid på forberedelse. Der kan være

forskellige rationaler forbundet med et sådant initiativ. Begrebet "produktionslogik" og "udviklingslogik" (Ellström, 2012) kan bruges til at udfolde dette forhold. Produktionslogik handler om fokus på effektiv og stabil udførelse af arbejdsopgaver, herunder konkret arbejdsdeling og reduktion af variation i handlingsmønstre forstået som effektive arbejdsgange. Udviklingslogik rummer andre rationaler. Det handler om fokus på at udforske og afprøve nyt, at stræbe efter refleksion, at skabe fornyelse, at fremme heterogenitet, og have fokus på kollektiv læring (Ellström, 2012). Fremadrettet bruges begrebet "driftslogik" om det begreb Ellström betegner som produktionslogik. Ovenstående eksempel illustrerer en spænding mellem en udviklings- og driftlogik som kan betragtes som en forhindring for samarbejde mellem ledere og lærere.

Ledelsen i det nævnte eksempel kan i princippet godt være præget af udviklingslogik og driftslogik på samme tid. Ledelsen søger mod at "prøve noget nyt", hvilket kan handle om pædagogisk udvikling af lærernes fælles ejerskab til alle fagområder. Samtidig kan selvsamme "mappe-princip" også handle om effektivitet og styring, idet ledelsen kan være interesseret i at højne den driftsmæssige smidighed blandt lærerne, så alle kan undervise på flere områder. På den anden side kan lærerne have deres faglighed som et domæne. Lærerne i eksemplerne udviser et behov for faglig sikkerhed og stolthed og for at levere god faglig undervisning. Dette rummer på den ene side en stor kvalitetsmæssighed, men på den anden side kan et ensidigt fagligt fokus også udgøre en barriere, idet stærk faglig orientering kan begrænse udvikling og nytænkning og "anvise" en praksis i stedet for at medvirke til at "udvikle" praksis (Hersom, 2017). Udviklingslogikkens fokus på kollektiv læring med risikovillighed via nye afprøvninger og eksperimenter kan således både blive begrænset af ledelsesmæssig fokus på drift, men også af læreres fokus på faglighed. Skal den faglige praksis reproduceres og/eller skal praksis nyudvikles i samspil med andre? (Hersom, 2017) Empirieksemplet viser, hvordan både ledelse og lærere kan have interesse i, at driftslogikken dominerer og fastholdes.

Et andet forhold, der kan være interessant at hæfte sig ved, fremkommer i et interview med en leder fra en anden erhvervsskole. Interviewet er foretaget i afslutningen af udviklingsarbejdet. Lederen, der har strategisk ansvar, siger: "*Alt går meget op i drift, super meget drift, så er det meget på bekostning af underviserne [der deltager i udviklingsarbejde]*". Lederen fortæller med sin bemærkning, at driften er et vilkår, og at den står i modsætning til udvikling. Det betyder, at aktionsforskningsprojektet bliver en forstyrrelse, selv om aktionsforskningsprojektet arbejder med selvsamme problem, som lederen påpeger. Pointen med eksemplet er, at driftslogikken er nødt til at være til stede på en skole, men at driftslogikken samtidig kan hæmme en udviklingslogik, hvor skolen udvikler sig, og hvor der sker læring. I de ovenstående empiriske eksempler, der illustrerer drift- og udviklingsproblematikken er også indeholdt en konflikt om forståelse og oplevelse

af tid. Denne konflikt om tid til det eksperimenterende arbejde illustreres i artiklens indledende interviewcitater fra gruppeinterviewet med erhvervsskolelærerne. I citatet italesættes tid som et begrænsende forhold. Lærerne fortæller, hvordan eksperimenterende arbejde kræver tid til kreative processer samt efterrefleksion og evaluering og, at de ikke har fået den tid tildelt af ledelsen. De fortæller, at det [udviklingsarbejde] jo ikke er noget man bare lige gør. Det ser ud som om, at tid til udvikling er et forhold, der skubber til tid til hverdagsopgaverne, hvilket kan tolkes som et tegn på, at driftlogikken er den herskende. Tidsopfattelsen kan forklare med Andy Hargreaves begreb "teknisk rationel tid" der forstås som en objektiv og instrumentel størrelse, der kan reguleres nøjagtigt og rationelt (Hargreaves, 1994). Denne tidsopfattelse kan begrænse engagement i udviklingsarbejde, som det vises i det følgende intervieweksempel med de samme to lærere:

At de [lederne] gerne vil have, at vi arbejder med det [udviklingsarbejde], men de [lederne] vil ikke give tiden til det. Det kan jeg ikke helt forstå, hvorfor det ikke hænger sammen. For de [lederne] ved godt, at vi har travlt, og at vi skal nå meget. Men, ja måske tror de, at det kan gå hurtigere end det kan. (Gruppeninterview med to erhvervsskolelærere)

Lærernes fortælling vidner også om en oplevelse af, at de ikke får nok tid til det eksperimenterende arbejde. Det vidner, på den ene side, om et ønske om, at få tildelt eksakt tid, hvilket er et tegn på, at de ønsker udviklingsarbejdet underlagt kriterierne for teknisk rationel tid. På den anden side giver de udtryk for en mere subjektiv orienteret oplevelse af tid når de siger "*ja måske tror de, at det kan gå hurtigere end det kan*". De oplever, at det eksperimenterende arbejde tager tid og ikke nødvendigvis en eksakt tid. Det kan forklare med Andy Hargreaves andet begreb "fænomenologisk tid". Fænomenologisk tid er subjektiv orienteret og opleves forskelligt fra person til person (Hargreaves, 1994). Lærerne i ovenstående citat giver udtryk for spændinger mellem tid til hverdagspraksis, som de fortæller, "*at de har travlt med*" og tid til det eksperimenterende arbejde. Dette forhold kan forklare med at forskellige arbejdsopgaver ikke hviler på et ensartet grundlag, hvorfra tid kan opleves (Hersom, 2011). Visse arbejdsfunktioner er mere præget af intensitet end andet (Hargreaves, 1994). Det betyder, at det eksperimenterende arbejde ikke uden videre kan underlægges de teknisk rationelle styringsmekanismer. Dertil er arbejdet med pædagogiske eksperimenter i for høj grad underlagt situerede og spontane hændelser og situationer, hvorpå lærerne, der som i ovenstående eksempel, er nødt til at handle og erfare i forhold til nu-og-her forhold i forbindelse med udviklingsarbejdet koblet til undervisningsarbejdet på en og samme tid. De forskellige tidsopfattelser og tidsoplevelser som er til stede, får karakter af potentielle forhindring for samarbejde og fælles læring mellem ledelse og lærere i aktionsforskningsprojektet. Når de førnævnte lærere italesætter tid som en udfordring i forhold til at arbejde med deres pædagogiske eksperimenter, kan det derfor også kobles sammen med en særlig tidsforståelse,

som muligvis ikke deles af lederne i deres skolefællesskab. Det forbliver under alle omstændigheder en forhindring, hvis skolegruppen med ledere og lærere ikke rejser problemstillingen og gennem eksperimenterende handlen og dialog får skabt samarbejde om forhindringen. De to logikker (driftslogik og udviklingslogik) med deres forskellige tidsopfattelser er til stede som et spændingsfelt. Der er i princippet ikke tale om en "god" og en "dårlig" logik, men om logikker som hver især hylder forskellige arbejdsstrategier i en erhvervsskole. Driftlogikkens argumenter findes i effektivitet og det at være vant til håndtering af de daglige hændelser på en arbejdsplads. Tryghed og stabilitet er nøgleord. Udviklingslogikkens argumentation vil derimod handle om, at skabe ændringer, langsigtet tænkning, indflydelse på eget arbejdsliv og glæden ved at være medudvikler i organisationen. Hvis balancen mellem driftslogik og udviklingslogik tipper til driftslogikkens side, kan det hæmme fælles læring og samarbejde om udvikling af ny pædagogisk praksis mellem ledelse og lærere som dette aktionsforskningsprojekt har kredset om. I det næste afsnit er der fokus på hvordan styringsrationaler, de forskellige logikker og tidsopfattelser har betydning for det relationelle forhold mellem ledere og lærere.

Tredje forhold: "Spændinger mellem styringsrationaler i ledelses- og lærerarbejde"

Det tredje forhold, der skaber forhindringer er overvejende både "oppefra og nedfra-orienteret". Der er tale om betydningen af spændinger mellem styringsrationaler i ledelses- og lærerarbejde.

På en erhvervsskole er der nogle herskende rationaler som er med til at rammesætte, forstå og skabe mening om forskellige arbejdsmæssige forhold og positioner i organisationen. Ofte er der harmoni inden for et samarbejdende fællesskab, hvis der er enighed om rationale. Som foregående afsnit viser, er der forhindringer i forhold til samarbejde og fælles læring mellem ledere og lærere. Vi har identificeret to forskellige overordnede styringsrationaler, der dominerer i mødet mellem ledere og lærere og som skaber nogle grundlæggende forhindringer for deres samarbejde.

Det ledelsesmæssige styringsrationale kan identificeres i New Public Management-tilgangen som vi har defineret i afsnittet "Politisk og styringsmæssig kontekst for aktionsforskningsprojektet". Det er det rationale, der dominerer styringen af erhvervsuddannelserne i Danmark og det betyder, at det i udgangspunktet er det rationale, som lederne bærer med sig ind i samarbejdet med lærerne om udvikling af ny pædagogisk praksis. Lærernes styringsrationale knytter sig meget til deres lærerfaglighed og oplevelsen af, at kunne levere god undervisning. Det styringsrationale kan forklares med Lerborgs begreb "Det professionelle paradigme" som er kendetegnet ved stærk faglig autonomi og ved stærke faggrænser, hvor de ansatte har hver deres professionelle ansvarsområder. Begrebet er

inspireret af Mintzbergs begreb "professional bureaucracy" (Lerborg, 2013, s. 74). Empirien viser, at både NPM-tilgangen og det professionelle paradigme er til stede i tanke og handling hos ledere, konsulenter og lærere og samtidig, at de to rationaler konflikter med hinanden. Dette vil blive udfoldet herunder.

Vi har på lokale skolemøder præsenteret skolegrupperne for nogle af de forhindringer, vi er stødt på under aktionsforskningsprocesserne. For eksempel får en deltager fra skolens strategiske ledelse et spørgsmål, der knytter sig til, om lærerne har ejerskab og indflydelse på valg af deres pædagogisk tema som de arbejder med i aktionsforskningsprojektet, hvortil vedkommende svarer "... *det har jo været ude og blive behandlet i vores pædagogiske guide, hvor alle har haft muligheder for at sige nej*". I en lignende situation fortæller en pædagogisk konsulent, der er knyttet til aktionsforskningsprojektet på sin skole: "*Man står ofte i situationer, hvor det er driften, der vinder over pædagogikken*". Begge citater illustrerer et hovedfokus på ledelsesstyring. I det første eksempel omtales det, at medarbejderne høres i processen, men at ideerne ikke er udviklet ad den kollektive vej i et fællesskab. Lærerne har ikke været med til at udvikle ideerne, men har kun haft mulighed for at "diskutere med" på de præmisser, som allerede var udlagt i en pædagogisk guide. I et interview med to lærere (L1 og L2) fortælles det således: "*L1: Ja, det skal ikke komme oppefra. L2: Nej, for de har mange fancy-pancy dogmer og alt det der, som... L2: ... skal puttes ind. L1: Ja.*". Styring gennem rammesætning af hvilke pædagogiske tematiseringer og tilgange, der skal udvikles ser ud til at være en konsekvens af politisk styring. De ovenfor nævnte lærere, der taler om "fancy-pancy dogmer" kan være et eksempel på nogle, der er underlagt et styringsrationale, som på forhånd definerer og rammesætter deres undervisningspraksis. En af de to lærere siger det sådan: "*Altså, det skal være nedefra, for at det skal blive spredt. Det skal være underviserne, der ligesom er ambassadører for det, tror jeg.*"

Lærernes udsagn illustrerer på samme tid lærernes eget styringsrationale. Udsagnene kan handle om flere aspekter. Dels kan de handle om behovet for ejerskab til arbejdet med udvikling af ny pædagogisk praksis, som lærerne oplever er styret af reformen af erhvervsuddannelserne, men de kan også handle om lærernes professionelle faglighed. En anden lærer udtrykker det på følgende måde "*Det var lærerne ikke rigtig motiveret for, for når man ikke selv har været med til at planlægge det, så fungerede det sgu ikke.*". Læreren siger senere i interviewet: "*Så var det også fedest at undervise i det, man også selv havde været med til at udvikle*". Flere lærere på de deltagende erhvervsskoler oplever og har været vant til, at deres særegne faglige interesser er i centrum for deres arbejdsliv og for deres pædagogiske udviklingsarbejde: "*Hvis reformen forsvandt så ville alt dette forsvinde. Så ville vi ryge tilbage og undervise i vores egne fag igen*". En leder siger i den forbindelse (i et andet interview), at de arbejder med fælles undervisningsplanlægning "*fordi reformen siger, at man skal gøre det*" og at "*der er nogle lærere, som i hvert fald ikke*

syntes, det var sjovt at være en del af". Det er lærernes egne professionelle faglige vidensområder og praksisser, som definerer deres arbejde. "Det professionelle paradigme" er ifølge Lerborg et styringsrationale, der ofte er domineret af stærke faglige kompetencer og af et stort fagligt engagement, men hvor der samtidig hersker en vis selvstrækkelighed, autonomi og "bedrevidenhed" (Lerborg, 2013). Der værnes om egen profession og professionelt råderum (Greve, 2009). Det professionelle styringsrationale er både orienteret mod de individuelle behov og ønsker i organisationen, og er samtidig præget af traditioner og vanetænkning ud fra devisen om, at "sådan plejer vi at gøre her". Lærerne kan samles på trods af udvikling af ny reformrelateret praksis og være enige om at dyrke individuel faglig viden og interesse, idet stillingshierarkiet tillader og fastholder denne enighed. Men denne enighed rummer også en fare for, at den faglige autonomi og faggrænserne blokerer for en udviklingsdynamik, hvor der er tale om samarbejde på tværs med henblik på at skabe et kollektivt pædagogisk miljø.

Der er i princippet ikke noget nyt i at forskellige styringsrationaler er til stede samtidigt. Det som er nyt i denne sammenhæng er, at rationalerne kan forhindre samarbejde mellem ledelse og lærer under aktionsforskningsprocessen om reelle forhindringer relateret til deres arbejde med pædagogiske eksperimenter og dermed spænde ben for forankring og spredning af deres eksperimenterende arbejde. De to styringsrationaler i henholdsvis leder- og lærerarbejdet (NPM-tilgangen og Det professionelle styringsparadigme) kan kolliderer med hinanden, forstået på den måde, at når en lærer eller lærergruppe besidder en faglig autonomi og i den forbindelse har grundlagt bestemte praksismåder for vurdering af kvalitet og effektivitet, så kan der blive tale om en konflikt i forhold til de praksismåder, som er til stede i et ledelsesorienteret rationale, hvor andre forståelser af kvalitet og effektivitet kan herske. I det professionelle styringsrationale er effektivitet og kvalitet ikke nødvendigvis noget, der kan måles og vejes, men derimod noget som lærerne med den faglige autonomi og de faglige kompetencer selv kan mærke og vurdere ud fra deres viden, erfaring og dømmekraft (Sørensen, 2019). Når der opstår et modsætningsforhold mellem rationalerne i henholdsvis leder- og lærerarbejdet, kan det skyldes manglende viden, indsigt og forståelse mellem de forskellige arbejdsmæssige funktioner i det skolefælleskab, der har til opgave at udvikle ny pædagogisk praksis sammen.

Afrunding

Vi kan i analysen se, at forhindringerne er relateret til kontekstuelle betingelser af politisk karakter og spændingerne mellem de forskellige rationaler, der er knyttet til den diversitet, der er i den faglige professionalitet hos henholdsvis ledere og lærere.

Vi kan overordnet sige, at lederne trækker på de rationaler, der knytter sig til strategi og mål, ofte eksternt drevet, langt fra praksis. Det ses, som analysen viser, i brugen af pædagogiske strategier til at rammesætte en fælles, ofte politisk initieret, pædagogisk retning. Lærerne relaterer sig mere til de rationaler, der knytter sig til deres hverdagspraksis og erfaring - ofte internt drevet, tæt på praksis (f.eks. elever, kollegaer, faginteresser). Det er ikke kun diversiteten mellem de forskellige rationaler knyttet til henholdsvis ledelsesarbejdet og lærerarbejdet, der skaber forhindringer. Analysen viser også, at brugen af pædagogiske eksperimenter til virkeliggørelsen af pædagogiske strategier, har betydet, at ledelsen har fået konkret indflydelse på praktisk udførelse af for eksempel undervisning. Beslutningen om, hvad der er god undervisning, ser ud til at bevæge sig fra et lærerfagligt decentralt område til et ledelsesfagligt centralt område, hvilket betyder, som vores empiriske materiale viser flere steder, at lærerne begynder at fralægge sig fagligt ansvar og være mindre engagerede. De pågældende spændinger handler om præmisserne for de forskellige arbejdsfunktioner, om på den ene side manglende viden og indsigt i de underliggende forståelser, logikker og rationaler funktionerne imellem, og på den anden side om nogle strukturelle modsætninger mellem de politiske krav om effektivisering og lærernes faglighed. Og endelig om ledelsens ønske om kontrol over for princippet om at lære gennem pædagogiske eksperimenter, som kræver autonomi/spillerum for lærerne. De kontekstuelle rammer betyder noget for mulighederne for at realiserer aktionsforskningens idealer om demokratisk indflydelse. Ledelsen på erhvervsskolerne er forvaltere af en politisk initieret pædagogisk styring, der ikke efterlader tilstrækkelige indflydelse til, at lærerne og lederne sammen kan handle frit. Aktionsforskningen ambition om samarbejde mellem ledelse og lærere gennem eksperimenterende handling kan have svære betingelser i et så politisk og ledelsesmæssigt reguleret område som det den pædagogiske praksis og det pædagogiske arbejde er blevet underlagt på en erhvervsskole.

Aktionsforskningen har haft et ærinde om at finde ud af, hvorfor noget driller i forbindelse med udvikling af ny pædagogisk praksis gennem pædagogiske eksperimenter og det må nødvendigvis rejse en kritik inden løsning findes. Vores analyser viser, at det har været rigtigt svært for de lokale skolegrupper med ledere og lærere, at rejse disse kritikker af hverdagsproblemer som for eksempel manglende tid til eksperimenterende arbejde og mangel på indflydelse på de pædagogiske temaer, der rammesatte de pædagogiske eksperimenter. Forhindringerne ser ud til at være af en så grundlæggende karakter der gør, at ledere og lærere ikke arbejder eksperimenterende med forhindringer relateret til deres samarbejde, selvom de er har været bragt op i aktionsforskningsprojektet. Det eksperimenterende arbejde ledere og lærere imellem, gennem handlen, erfaring og dialog at skabe grobund for nye sociale eksperimenter med nye demokratiske samarbejdsmodeller for øje, udeblev i aktionsforskningsprojektet.

Aktionsforskningen må finde nye veje og tilrettelægges med de "ude- og indefra" - og "oppe- og nedefra" kontekstuelle forhold for øje. Det er centralt at aktionsforskning, hvor samarbejde mellem parter, der i udgangspunktet har forskellige interesser, bygger på nysgerrighed over for forhindringer. Det bliver nødvendigt for ledere og lærere sammen at overveje hvorfor de måske ikke forstår udvikling, kvalitet og styring af pædagogisk praksis på samme måde? Samarbejde om pædagogiske eksperimenter, må i højere grad end tilfældet har været i dette aktionsforskningsprojekt, vægtes som det fælles tredje, hvor der fokuseres på samarbejdet om og gennem noget. Samtidig må dette ses i forhold til relationer mellem mennesker og mellem arbejdsfunktioner. Den politiske og styringsmæssige kontekst synes at have stor betydning for det spillerum, som et aktionsforskningsprojekt har. Fælles læring og samarbejde mellem ledelse og lærere bliver begrænset eller låst fast, hvis ikke dette styringsforhold ekspliceres som en eksisterende præmis og kritik. Der må være mere gensidig viden og forståelse på tværs af skolernes arbejdsfunktioner om de divergerende logikker, tidsforståelser og rationaler, som præger skolens forskellige funktioner.

Aktionsforskning med samarbejde gennem pædagogiske eksperimenter har potentiale til at åbne for nye former for pædagogisk praksis og derigennem give mulighed til anderledes demokratisk samspil mellem ledelse og medarbejdere. Tidligere international forskning har vist, at aktionsforskning kan være en vej til at skabe forandringer i organisationer (Argyris & Schön, 1996, Brydon-Miller et al., 2013) og at aktionsforskning kan medvirke til at give blik for ændringer af styringsformer (Greve, 2009). Dette som vej til forandring af pædagogisk praksis (Sahlberg, 2011) Vores forskning tilføjer indsigt i, at dette kræver, at ledere og lærere dedikerer sig aktionsforskningsprojektets præmis og åbner sig over for forhindringer af mere grundlæggende karakter, og tør suspendere deres eksisterende praksisser. Hvis ikke er erhvervsskolerne i fare for at blive rene drift-organisationer, der ikke efterlader tid at eksperimenter og reelt give plads til indflydelse gennem skabelse af ny pædagogiske praksis.

Slutnote

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Interaction between students and class teachers in vocational education and training: 'Safety distance is needed'

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Abstract

Interaction between students and teachers is fundamental and has therefore been widely studied in education. However, there have been few studies on intensive special support being provided to vocational education and training (VET) students. Firstly, the focus of this article is on students' perceptions of interactions with their class teachers. Students (aged 17–34 years) from four Finnish vocational institutions providing intensive special support were interviewed. According to the findings, the demands students placed on their class teachers and for interactions with them were modest and their perceptions of both were favourable. Interactions seemed to be study-orientated and class teachers behaved as active initiators, with students echoing their opinions. Students' narratives excluded future career plans, talking about students' strengths or future ambitions or dreams. Secondly, the aim of this study is to review Finnish VET critically. In the reformed VET system, competence-based orientation emphasises individual guidance and support. Therefore, as the dialogue between teacher and student seems to enable successful trajectories, it is essential to make this apparent. Part of education's larger purpose is to make room for students' voices and interpretations during their study, which includes both acquiring qualifications to undertake certain work, and subjectification as an empowering element and socialisation of the social, cultural and political order.

Keywords: vocational education and training (VET), interaction, critical pedagogy, guidance, power, social justice, content analysis



Introduction

Finnish vocational education has recently undergone its most significant reform in decades. The consequential change has been from the system-based approach to a competence-based approach through which the personal study-paths, broad-based competence and a close cooperation with labour markets are core concerns. To achieve changes, practice reculturing and restructuring are needed (Fullan, 1993; Le Fevre, 2014). Recent reforms in vocational education and training (VET) regulation require vocational institutions and teachers to rethink how they organise teaching to respond more swiftly to the changes in the workplace and to adapt to individual competence needs (Kukkonen, 2018; Vähäsantanen, 2015; Vähäsantanen & Eteläpelto, 2009). Time is needed to discuss shared norms and values, to talk about teaching practices, to work together on developing instruments or curricula and to have reflective dialogues with colleagues (Fullan, 1993; Le Fevre, 2014).

Changes might sometimes induce challenges. The new VET legislation emphasises support and guidance provided for students' individual study paths and life-long learning after VET. In the reformed VET system, teachers are seen as coaches who facilitate their students' development in individual learning and future career path (Maunu, 2018; Tapani, Raudasoja & Nokelainen, 2019). Therefore, it is important to investigate the core of teaching: the interaction between students and teachers. Misbah (2019) states that examining the student – teacher interaction in competent-based education promises to be a valuable contribution for understanding how competence development can be fostered in a more effective way.

In this study the interaction between students and class teachers is understood as a social phenomenon in which talk is interactionally constructed and negotiated for particular purposes (Bakhtin, 1981; Goffman, 1981). The attention is shifted from the persons who act to the nature and direction of the action. This article focuses on the VET students who receive intensive special support when they study, experiences of interaction with their class teacher. Intensive special support is defined in the Act of Vocational Education 2017/531, §65. It is provided for students who have serious learning difficulties, disabilities or serious health problems and who therefore need individual, transversal and diverse special support. The aim of the support is to ensure that these students achieve professional skills and expertise consistent with the qualification requirements. It permits equal access of education to all students. Class teachers in the Finnish VET system formulate the personal competence development plan for each student, with the student and the student's family and non-teaching services providers. They cooperate closely with the student, other teachers and non-teaching personnel.

Extensive previous research (e.g. Cornelius-White, 2007; Fraser & Walberg, 2005; Korthagen, Attema-Noordewier & Zwart, 2014; Äärelä, 2012) has established that the interaction between students and teachers specifically plays a crucial role in the quality of teaching and learning. Student – teacher interaction is a leading factor for promoting school attachment and corresponding adaptive behaviours, including academic success and well-being (Roorda, Koomen, Split & Oort, 2011; Rytönen, 2013). Furthermore, students' perceptions of teachers are a significant predictor of school attachment (Tyler, Stevens-Morgan & Brown-Wright, 2016). School experiences matter for them, to feel connected to their study (Elffers, Oort & Karsten, 2012).

However, studies linking the students' perceptions of teacher interpersonal behaviour and learning outcome in VET are few (Henderson & Fisher, 2008; Van Uden, Ritzen & Pieters, 2014). The further research on interaction between student and teacher in competence-based VET will contribute to the development and successful implementation of competence-based education (Mishab, 2019). By investigating the interaction between student and class teacher from the students' angle in the provision of intensive special support in VET system, a new perspective is demonstrated in this article.

This study examines the interaction between student and class teacher as a social phenomenon, which has a particular purpose and orientation. Furthermore, an important aspect is the guidance that is employed in this setting. In this article, we have used guidance to cover a wide range of individual and collective activities relating to information-giving, counselling, competence assessment, support, and the teaching of decision-making and career management skills (Hooley, 2014). Vocational schools internationally are now seen as career centres where students can acquire career competencies and to undertake the actions and initiatives to direct their own career development (Hargreaves & Fullan, 2000; Jarvis & Keeley, 2003; Mittendorf, Brok & Beijaard, 2011). Competence-based learning in the reformed Finnish VET (through the Act on Finnish VET in 2017/531) is also founded on the idea that students learn to direct their career development to meet the needs of the workplace and to lay the foundations for lifelong learning. Individual curriculum development starts from the actual competencies needed for engagement with the workplace rather than from academic disciplines (Act of Vocational Education 2017/531). As vocational education schools in Finland are implementing competence-based curricula, the career guidance as a part of teachers' work is emphasised (Maunu 2018; Tapani et al., 2019).

However, it seems that schools are mostly helping their students in their academic achievement and not in developing competencies to manage their own career (Draaisma, Meijers & Kuijpers, 2017; Mittendorf, 2010). The results and progress of the student are mostly at the centre of career conversations in VET

(Mittendorf, 2010; Winters, Meijers, Kuijpers & Baert, 2009). Teachers appear to behave in a traditional way, showing dominant behaviour, not focusing on students' career issues or stimulating their self-directedness. A great deal of their attention seems to be on grades and the progress of the student through school. This means giving many instructions and arriving at agreements on how a student's results or behaviour could be improved.

Guidance and good positive interaction between students and teachers can have a remarkable effect on individuals by increasing their engagement with learning, constructing the pathways through learning and work (Bimrose & Barnes, 2006; Äärelä, 2012). Furthermore, it supports VET students' acquisition of career management skills including managing life, learning and work (Kuijpers, Meijers & Gundy, 2011; Parkkila, Ryökkynen, Vaalasaranta, Männistö, Korkeamäki & Gustavsson-Lilius, 2018). The career dialogue between teachers and students appears to be the most effective element of integral career guidance (Kuijpers et al., 2011; Mittendorf, 2010). Specifically, individual guidance is vital because students often find it difficult to reflect on their own learning processes or to construct meaning about themselves and their future career (Bullock & Jamieson, 1998; Kuijpers et al., 2011).

The objective of this study was to investigate the interaction between students and class teachers from the students' perspective in providing intensive special support in the Finnish VET system. The research questions of this study are the following:

- How do VET students receiving intensive special support describe the interactions with their class teacher?
- What is the purpose and orientation of the interaction according to students?
- What guidance is provided in the interaction between students and class teachers?

Providing a theoretical framework for the research questions and data analysis

The theoretical framework for this study has been built to endorse the research questions and to construe the results.

Critical pedagogy is a premise of this study. The concept of difference is central to critical ontology (Kincheloe, 2011). By highlighting the students who need intensive special support, we are giving voice to those representing a minority of VET students. The number of students needing intensive special support was 1.2 % of all students in the Finnish VET system during 2017 (Opetus- ja kulttuuriminis-

teriön julkaisuja, 2019). Furthermore, in this article we utilised the critical tradition of generating understanding and empowerment of individuals, to rethink a reason in a humane and interconnected manner (Freire, 1970/2017; Kincheloe, 2008).

To cultivate humanity in the world, the capacity for critical examination of oneself and one's tradition is needed (Kincheloe, 2011; Nussbaum, 2000). Furthermore, an ability to see that we are human beings bound to other human beings and that we feel empathy is essential. In this study, by monitoring students' voices in detail (Giroux, 1997; Kincheloe, 2007), we have drilled under the mandated curriculum to seek the larger purpose of vocational education.

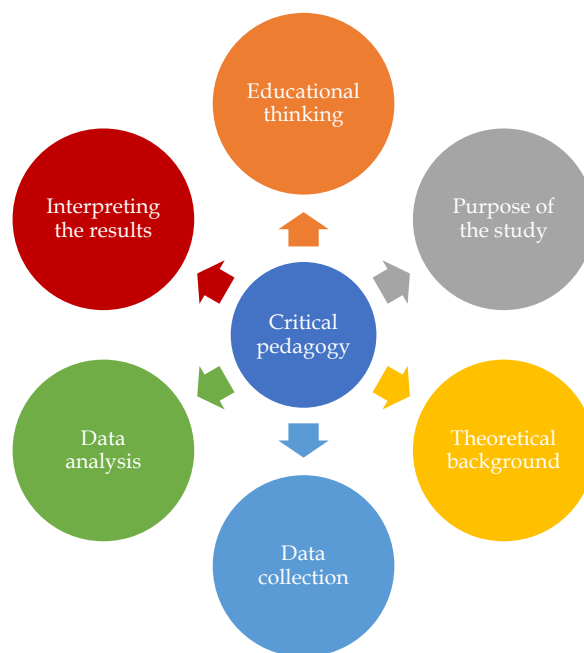


Figure 1. *Critical pedagogy as a premise of this study.*

Power plays an exaggerated role in production of any knowledge (Freire, 1970/2017; Giroux, 1997; Kincheloe, 2008). Power relations fundamentally mediate all thought, and facts can never be isolated from the domain of values. In depositing education (Freire, 1970/2017), the teacher-student relationship is narrative. The teacher is the narrating subject, and the student is the listening object. Furthermore, the teachers' interest lies in changing the students' consciousness or the situation surrounding them. The teachers' implicit goal is to lead students in adapting the current situation, and to integrate themselves into society as a worker who still needs intensive special support and guidance (Giroux, 1997; Kincheloe, 2008). It is known that VET students look to their teachers for active

support in their professional development (Louw, 2013). Brunila (2019) argues that if societal power relations are to be taken seriously, there should be continuous awareness of discursive practices through which young people speak and understand themselves and are spoken of and understood by others.

Purpose of education. Finnish vocational education is being subjected to enormous change through which the competence-based approach is being substituted for a system-based approach. Individual study paths and work-led practice are being combined with a fundamental revision of funding, giving rise to the question of the purpose of VET. Biesta (2010) inquires if there is still room for qualification, socialisation and subjectification. Qualification in this sense refers to providing the students with the knowledge, skills and understanding needed in the workplace and for citizenship. Socialisation is needed because through education we become part of particular social, cultural and political orders. In addition, subjectification empowers students to become more autonomous and independent in their thinking and acting. Furthermore, the question of justice is evident: Are the vocational schools providing intensive special support so students can fully promote their capabilities? As Nussbaum (2011) states, the key question demonstrating basic social justice is to ask, 'What is each person able to do and to be?' 'What opportunities are available to each person?' Savickas (2002, 2005) argues that one's career development is an integration of one's personal needs and social expectations and, therefore one's adaptation to the environment. Education, then, provides openings for societal participation and world culture (Scheerens, 2004). Social inclusion and equal opportunities (Irving, 2005) are therefore major challenges for education, training and employment policies. However, it is questionable whether the social inclusion agenda that is limited to labour market participation can accommodate different needs and desires and facilitate socially-just outcomes that are fair and equitable for all. One of the major challenges in education is to build bridges connecting self and others (Biesta, 2010).

Methods

The aim of this study is to gain a deeper understanding of the interaction between students and class teachers in the Finnish VET system. This qualitative research which is premised on critical thinking and gives voice to the participants and advances the opportunity to form and re-form the understanding of problems and thereby give concerned individuals the knowledge to come up with ideas for improving their circumstances (Atkins & Wallace, 2012; Cooley, 2013). We assume that critical ontological vision helps in efforts to gain new understandings and insights about who we are and who we can become (Kincheloe, 2011).

Participants and data collection

Data for this study were collected by interviewing eleven students from four Finnish Vocational institutes that provided intensive special support to students during spring 2018. Eight students were studying for vocational upper secondary qualifications in Business and Administration, and three students in Information and Communication Technology. These fields were selected because of their popularity and because social skills are often needed in these occupations.

Two of the students were in the first year at the vocational institution, four students were finishing their VET study in spring 2018 and five were in the middle of their three-year study programme. Five of the students were female and six were male. The ages of the students varied from 17 to 34. Most of the students were under 20 years old.

Interviews were based on three leading themes: 1) Students' descriptions of the interaction with their class teachers, 2) students' descriptions of supportive and helpful interaction, 3) students' descriptions of their own initiatives.

These themes were elaborated on through 26 questions in semi-structured interviews. The interviews were carried out individually either face-to-face or via Skype. A Skype connection was used because of scheduling and/or because of distance. Some students also preferred not to meet face-to-face but wanted to discuss matters via Skype. Each interview took approximately 45 minutes. The interview data collected totalled about 11 hours, and they were transcribed onto 194 pages.

Permission to carry out this research was first sought from the school principals who suggested the class teachers to be contacted. The students expressed their consent to their class teachers. After this, the interviews were arranged. A newsletter giving basic information about the research was addressed to all participants. Signed consent was obtained from the participants prior to completing the interviews. The data used for this article were anonymised by making only generic reference to students, to class teachers and to vocational institutions.

Data analysis

As depicted earlier, critical ontology has been a premise of this study. It was the background for our thinking and guided the process from the designing the study to the conclusions. The data analysis followed the principles of qualitative content analysis (Krippendorff, 1984; Schreier, 2012). The approach to the content analysis was summative (Hsieh & Shannon, 2005), because the interviews were approached in relation to a specific theme and the analysis of the patterns led to an interpretation of the contextual meaning of specific content. The goal of this research was to describe the material in detail. Because little has been published

about the interaction between students and teachers in the context of VET concerning the provision of intensive special support for the students, the inductive approach (Elo & Kyngäs, 2007) was applicable.

The interviews were read through several times for the researchers to become completely familiar with the data, as recommended by Thomas (2006). Only the apparent content of the interviews was analysed. This means that tones of voice, laughter and breaks were ignored. Then the analytical procedure continued by identifying specific units in the text made up of the several lines or sentences which referred to the theme. In the next phase, the reduction of the content (Thomas, 2006) from several themes and questions was carried out. This means that a student described the interaction with the class teacher and said that s/he did not know what to talk about with the class teacher, it was described as reserved interaction. After this, the reduced expressions were grouped and compared according to their similarities and differences. The data analysis was performed manually (Basit, 2003) by using Excel to sort the answers in each theme into relevant categories to be analysed separately.

Findings

In this section, the findings of each research question are reported sequentially.

Students' perceptions of the interaction with the class teacher

We understood from the interviews that the students' perceptions of class teachers were quite congenial. They portrayed them very positively. Consequently, they described class teachers as nice, relaxed, positive, empathic and reliable adults, who were helping them with their school exercises and activities.

He is a good teacher, he is kind [...] it is the way he helps me to understand the exercises. (Interviewee 4)

She is... at least towards me, very kind [...] she is fussing around, and I mean that she has many irons in the fire, she is doing many things at the same time [...] but she is trying to do her best in everything. She is very reliable, so one can talk about private things with her. She is not spreading those. And at least in my opinion, she is a good teacher. (Interviewee 5)

Few students depicted their teachers slightly negatively. One of them narrated that their class teacher did not always understand and that their class teacher was sometimes angry. Another one considered the class teacher to be old-fashioned and one stated that the class teacher could be a little more relaxed.

Well... he is quite nice and so, although I sometimes have had varying opinions of him. Sometimes it feels somehow hard that teachers don't always understand their students [...] And he might sometimes be angry, but... but he is quite a good

teacher anyhow, there is a good side too and we have mainly got along. (Interviewee 6)

I don't have any unpleasant feelings about my teacher, but... he is as normal as teachers can be and... and... well he is old-fashioned [...] and he is sometimes joking or talking in an old-fashioned way which I don't understand, while he is talking about things from before I was even born. (Interviewee 7)

Furthermore, students explained that they have enough opportunities to have discussions with their class teacher while there were very few encounters. However, it was mentioned that there should be more opportunities to talk with the class teacher. Their definition of the successful interaction consisted of the demand for reciprocal understanding and decision-making. The class teacher's sincere interest in the student, comprehension and listening was emphasised in students' answers.

To have a feeling that someone else is interested in me and [...] that one has got out everything that is on one's mind [...] and that decisions have been made [...] and that teacher understands the student's situation better. (Interviewee 1)

The most important thing to me is that people are listening to me and understanding what I am saying. And then, that one is listening to me in a way that one is answering to me too and if I say something stupid, I would like to know that too. So that we can talk about that then. (Interviewee 9)

Orientation of the interaction

Students described their role as being active, but at the same time, the discourse and their studying appeared to be supervised by the class teachers. Class teachers were taking the initiative and students were echoing them.

It is mainly my teacher who is talking about the plans and so on and I just see if they are acceptable or not, and I mainly accept them. (Interviewee 7)

I got a feeling that my plan has not quite been heard. But then last week we had a meeting at which I explained my plans, that I could continue to study in another field [...] So that we don't need to think about the employment at the moment [...] This was a big surprise for my teacher, but I told him that this was my decision. (Interviewee 6)

My teacher doesn't have any doubts that I couldn't cope with that work, but then he decided that there was a vacancy in another place. (Interviewee 6)

It is implicit that students felt themselves to be insecure and incapable speakers in relation to class teachers and articulated that they were unsure about what to talk about with them. They also felt nervous in social situations, especially in the strange places and with the strange people. Students appeared to be active if they had not comprehended something, but not as initiators.

I don't know what to talk about with my teacher [...] It makes me nervous, because I can't figure out any issues to talk about with my teacher. (Interviewee 7)

I don't necessarily have courage to start any conversation by myself... I do stay there, I don't leave [...] And I do answer if somebody asks me something... But I am not able to start any conversation with a stranger easily. (Interviewee 8)

What guidance is provided

Generally, the students described how they mainly spoke with their class teachers about issues related to their VET study. Success in given exercises and in workplace learning seemed to be very important topics for the students and seemed to be the most essential part of the conversations with their class teachers.

[...] about private life [...] we haven't talked much about it with my teacher [...] with my teacher the discussion is more study-orientated. (Interviewee 1)

The uppermost issue is always about how I get my studying running. (Interviewee 9)

Other school personnel, parents and other social networks appeared to have a significant role in questions concerning private life. Students' perceptions of the relationship with their class teacher was that it was not very close: the class teacher is available, but not near.

[...] if I talk to the class instructor and she might then talk to the teacher, that we have talked about this and that [...] And this is ok for me and I'd prefer talking to the class instructor about my private things instead of teacher. (Interviewee 1)

I ask for help with my exercises if she is at school, but I can also ask for help from other teachers too [...] I am not too close to my teachers [...] safety distance is needed. (Interviewee 10)

The things that they highlighted as being the most memorable during their studies in VET related to their study programme; they were happy that they had found their own study field. In addition, other students as friends played a significant role in the interviews. The data also included mentions about excursions and about the teaching methods. Students seemed to appreciate class teachers' positive feedback and confidence in them. Practical exercises, along with success in learning, reinforced their positive recognition and engagement with their studies.

One big thing for me has been that I have found my own study programme. (Interviewee 7)

The best thing is that I have made new friends. (Interviewee 10)

Some of the students who participated in the study said that they had encountered bullying during their earlier school years. This might be interrelated with their thinking as well to the practice, albeit this was not established in this study.

Discussion

The main goal of this study was to gain insight into Finnish VET students who receive intensive special support, and those students' perceptions of the interactions with their class teachers. Furthermore, our aim was to discover the purpose and orientation of the interaction between students and class teachers, and what guidance was provided. The ethos of this work was to have a critical perspective on Finnish VET providing intensive special support for their students.

The results of this study indicate that VET students who receive and need special support during their study use their voice in an adaptable way. They had favourable perceptions of their class teachers. Their demands of them were modest. Their encounters with the class teachers were teacher-orientated. Students were mainly echoing class teachers' opinions as class teachers were active initiators and students were compliant. Therefore, the student guidance seemed to be directive. Class teachers were perceived as being dominant tutors but at the same time they were respectful listeners. These findings correspond to those of Mittendorf (2010) and Draaisma et al. (2017): Teachers often showed teacher-orientated behaviour, such as giving instructions, explaining, helping with the exercises, or organising practical training etc.

Students' discussions in the class teacher appointments were mainly study-orientated: How to ensure that the studies were progressing? How to conduct class exercises successfully? How to accomplish workplace learning? Students' narratives excluded future career plans, talking about students' strengths or future ambitions or dreams. They gave depictions of their individual survival stories, how one coped with one's studies. Their stories sum to a perception that their interaction with the class teacher is formal and distant. Class teachers gave out instructions and arrived at agreements on how a student's results could be improved. Students did not look to their class teachers for active support in their professional development. Furthermore, our results highlighted that most of the students found it difficult and/or unnecessary to discuss anything other than study-related issues with their class teachers. It seems that they needed distance in relation to the class teacher. These findings support those from earlier studies (Mittendorf, 2010; Winters et al., 2009).

Class teachers' power in these interconnections was explicit. As in Freire's (1970/2017) interpretation of depositing education, students depicted their class teachers as a narrating subject and themselves as listening objects. It was implicit that the class teachers' goal was to lead the students to adapt to the current situation of the workforce instead of fully exploring and promoting their students' capabilities and dreams. For example, if problems occurred during the practical training period, class teachers helped the individual students to find more suitable practice jobs, rather than helping workplaces to adapt to different trainees.

Through this kind of discursive practice, they implicitly confirmed societal power relations, where a student with special needs is appraised as unsuitable for a certain working environment (Brunila, 2019). For the student, this manifested itself as limited opportunities and narrowed social inclusion: how one understands oneself in relation to the others.

Earlier studies (Bullock & Jamieson, 1998; Kuijpers et al., 2011) suggested that students generally, and those who need special support for their studies specifically, benefit from continuous opportunities to have dialogues with their teachers. This results in strengthening their perceptions of themselves as active initiators and as equally accepted speaker. Moreover, it is fundamental to appraise oneself as an equal member of a school, workplace or society. Teachers' guidance reinforces students to see their opportunities and value.

The guidance that the students in this study received from their class teachers focused mainly on challenges with their individual study or workplace learning, and not on building their professional pathways or on finding their place in society. It did not stimulate students' self-directedness and career issues. Students did not reflect on their private life, personal ambitions or career development issues with their class teachers. There were other persons like class supervisors, parents, friends and social service counsellors who have a significant role in students' lives and with their plans for the future. This support network seems to be a crucial interconnection between the world and the students. This supports the findings of previous research (Elffers et al., 2012; Niittylahti, Annala & Mäkinen, 2019), which showed a strong connection between peer support and the sense of belonging and engagement.

Students who receive intensive special support are often those whose paths have received strong guidance and whose lives and studies have been supported by a multi-professional network. They represent a minority of students in the Finnish VET system. Therefore, it is essential to pay attention to the voices of these students. Critical ontology produces a solid ground for our interpretations. By concentrating on their stories, it is possible to create more room for their interpretations and needs (Kincheloe, 2007). It further allows for the enhancement of understanding of how significant a teacher's acts and attitudes are while working with students who need support and encouragement to use their own voice: to get the opportunity to learn to express themselves and to be able to identify their options as a VET student, as a worker and as a member of society in general. The data collection, methods and theoretical background used are all connected this ethos: to give the students a voice.

This research has a few limitations. Students who volunteered to be interviewed for this research seemed to be positively engaged with the school and with learning. Their absences from the school had been minor. Consequently,

they gave positive feedback about their class teachers and of the interaction between students and class teachers. Those who had a background of absenteeism from school might have had a different perspective on their study, class teachers and student – teacher interaction.

Conclusion

We conducted our study in the Finnish vocational education and training institutions providing intensive special support for their students. Relatively little is known about student – teacher relationship and about guidance in this setting. This study used a qualitative approach with critical thinking as premise to examine the interaction between students and class teachers. In line with earlier studies, we found that Finnish VET students who received intensive special support described their interaction with their class teachers as being teacher-orientated, but still positive and relaxed. They said that they needed distance in relation to their class teacher. Students seemed to act in an adaptable way in these encounters. They had an accommodating attitude and role in their discussions with class teachers. Guidance that they had received from the class teachers seemed to be directive, giving instructions and solving problems individually. It was focused on on-going studies. From the student's perspective, the nexus was significant when exploring one's future plans, career development and dreams.

The reformed Finnish VET is based on a competence-orientated approach (Act of Vocational Education 2017/531). However, students' expectations of their class teachers' actions still seemed to be quite traditional. They perceived that normal VET teachers' behaviour is to provide on-going information related to the individual studies, to the exercises and to workplace learning. As for teachers, they might want to restrict their remit in order to take care of their well-being. Furthermore, traditionally the VET teacher's profession has been perceived as emphasising subject knowledge. Therefore, it is important to figure out the other dimensions of the teacher's profession: guidance that is stimulating self-directedness of students, strengthening meaning-making and realising a process of reflection. As Biesta (2010) states, the purpose of education is to help a student to be a part of the world, part of the particular social, cultural and political order. It is worth considering whether the students in general, and those who need intensive special support for their studies, produce a certain type of professional discourse in which the cultural, historical, political, economic and social aspects of problems young people face may be ignored (Brunila, Mertanen, Tiainen, Kurki, Masoud, Mäkelä & Ikävalko, 2019).

Firstly, one practical implication for VET teachers providing intensive special support for their students is to find enough time for student encounters to make

sure that students repeatedly have opportunities to form and re-form the perception of themselves as young people, as a student and as a member of a workplace and a society. Secondly, the question is not only about applying career conversations as part of their work, but also about what is recognised as an acceptable form of being, doing and dreaming. It would be important to see the teaching profession as well as the whole meaning of VET more broadly. Not only as a qualifying, competence-based, subject-orientated and effective, but also as a socialising and subjectifying factor. Education and teachers function as inductors into workplaces, as well as into life and society. Investing in the teacher-student dialogues would help students to open up their full capacity and to use the vocabulary needed in life and work more independently.

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