ECRPL 2021

Proceedings for the European Conference on Reflective Practice-based Learning 2021

Aalborg, November 1st-3rd 2021

UCN UNIVERSITY COLLEGE OF NORTHERN DENMARK

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ISBN: 978-87-971643-5-8

www.ucn.dk/ecrpl2021

University College of Northern Denmark (UCN), 2021

UNIVERSITY COLLEGE OF NORTHERN DENMARK

Welcome to ECRPL2021

Welcome to the first ever European Conference on Reflective Practice-based Learning! It is with both pride and excitement that we welcome you to the UCN campus on Mylius Erichsens vej in Aalborg, the capital city of Northern Denmark. The conference is an important milestone in the continuous development of reflective practice-based learning. The term was coined at UCN in 2013, building upon existing theory and research, but focusing specifically on the identifying problems of business academy and professional bachelor programmes: the relationship between theory and practice, and the purpose of providing graduates with knowledge and an understanding of the practices of the professions and industries as well as their applied theories and methods at a level that qualifies them to autonomously analyse and asses professional problems and issues. Working in and educating for an ever-changing society and labour market requires an approach to learning and pedagogies that emphasizes reflection as a key competence for students and professionals. This provides an ever-relevant challenge, and the goal of the European Conference on Reflective Practice-based Learning (RPL) is to bring together educators, researchers, and practitioners to explore, challenge and develop current practices of RPL in professional practices and higher education.

While planning, we have followed the development of the global covid19 pandemic closely, concerned that restrictions would force us to cancel, postpone or digitalize the conference. Although we all by now have become used to online collaboration, we are happy to be able to host a physical conference. We look forward to meeting you all in person, exchanging ideas, networking, and expanding a research community focusing on reflective practice-based learning. Thank you to all authors and presenters who will share their research during the conference, to reviewers, workshop organisers and everyone else that have contributed to making the conference a reality.

It is with great pleasure that we welcome the keynote speakers for ECRPL2021. The speakers are both experienced researchers and newcomers and will each provide their perspective on the importance of and conditions for reflection in professional practice and education. Olav Eikeland looks to classical, dialogical philosophy in search for lessons to bring into 21st century educational, organizational, and social research. Lars Emmerik Damgaard Knudsen describes four types of relationships between theory and practice as an inclusive development potential for reflective practice-based learning. Camilla Gyldendahl Jensen proposes an understanding of reflective practice-based learning using design thinking, and Steen Wackerhausen makes an argument for the potentially negative outcome of reflection.

It is our hope that ECRPL2021 will mark the consolidation of a research community focusing on the characteristics and challenges for professional practice and education, and

that this might be the first in a long line of European Conferences on Reflective Practice-based Learning.

The ECRPL organizers

Line Helverskov Horn, Thomas Kjærgaard, Camilla Gyldendahl Jensen, Susanne Dau, Marianne Georgsen, Louise Naomi Vetner and Jeppe Mariegaard Reng

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About UCN: University College of Northern Denmark is a regionally based, practice-related knowledge institution. With campuses in six locations and three cities, Aalborg, Hjørring and Thisted, UCN provides education, continuing education, research and development within the fields of education, social education, healthcare, business and technology for the entire northern region of Denmark. Approximately 9.500 students attend 38 different academy profession degree programmes and professional bachelor degree programmes. In close collaboration with local industry and professions, UCN creates the special kind of learning, knowledge and innovation that enables students, businesses, and institutions to act in a reflected manner in the dilemmas, challenges and opportunities that come with technological and societal change.

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Posters

Methods for patient and public involvement within the framework of Reflective Practice-based Learning: a qualitative thematic analysis

Rebecca Tørring, Stinna Bibi Pedersen

University College of Northern Denmark

Abstract

An increased body of literature recognizes the importance of patient and public involvement in health care. Patient and public involvement is an acknowledged and internationally widespread focal point in contemporary health care and research. Recently, there has also been an increasing interest in including patient and public involvement in the curriculum of health care education. To meet this need in the future education of health care professionals, the present study aim to explore which methods there exist, to implement patient and public involvement in healtcare educations within the framework of Reflective Practice-based Learning.

The methods used

To identify the methods used for patient and public involvement in the curriculum in health care educations a scoping review inspired by a specific step by step modul will be conducted. Findings will be used to conduct a qualitative thematic analysis to identify the relationship between methods used for patient and public involvement in education and the fundamental principles in the Reflective Practice-based Learning framework.

Implications for future practice

To understand how students within health education achieves knowledge, skills, and competencies in patient and public involvement it is considered necessary to gain more knowledge about how to organize educational courses that promote the future students competencies within this field. Therefore, findings from this study may have several important implications for future practice towards methods used in promoting patient and public involvement in health education curriculum.

To which extend can RPL describe the educational practice at DMJX?

Helle Kryger Aggerholm, Dorte Schiøler, Annegrete Skovbjerg

Danish School of Media and Journalism

Abstract

At the Danish School of Media and Journalism (DMJX) our five educational programs share the same general administrative orders. However, our programs differ in requirements for the student's reflective competence, level of theoretical aspects, the educational principles, size of class, etc. These differences have their historical reasons, however, we need to make sure that our educational practices meet the same high standards across the various programs.

In 2020/2021 we are conducting a process in order to describe and professionalize our educational practices and reasonings. The starting point of our process will be the theory on reflective practice-based learning (RPL) in order to explore whether 'traditional' RPL encompasses all the unique elements of our educational programs.

The purpose of the paper is to further develop RPL to suit specific demands of the educational programs at DMJX, and therefore we pose the following research question: Based on existing RPL theory, what characterizes a DMJX signature pedagogic and how do teachers and students tap into these resources in order to achieve the highest level of reflective learning outcome?

The paper describes, analyses and discuss exemplary cases selected among our five educational programs. The cases have been selected based on display of excellence in terms of didactics, learning goals, execution and student evaluations.

By means of these cases, the paper shows the educational potentials of formulating an idiosyncratic DMJX pedagogic and suggests an outline for a distinctive DMJX pedagogic linking RPL and the characteristic competences and resources within DMJX's communicative, visual and creative programs.

Workplace – a place to learn. When does it matter, that I am I?

Helle Lyster, Joan Husted

Danish School of Media and Journalism

Abstract

Students in internship face a labour market with increasing production requirements and unpredictability. Furthermore students from Danish School of Media and Journalism, DMJX encounter different professional practices – from public service, to commercial or political organizations. Their employer expects them to be part of the working force, but can we help them take ownership and make workplace remain a place to learn?

Our paper is based on Gert Biesta´s theory (2011) that good education has three purposes: Qualification, socialisation and subjectification. The latter meaning – becoming more autonomous in thinking and decision-making. Thus creating awareness of: When does it matter, that I am I?

The purpose of this paper is therefore to ask: Can we promote subjectification by means of RPL in internship?

At a workshop we introduce the trainees to Morgan's metaphorical images of Organization and make them reflect on how they best "succeed" as individuals in their organisation. During the next three months, we ask the students to answer some reflective questions about their work, inspired by Karl Tomm(1992). Once a week the answers are posted on Padlet (a digital bulletin board). In this way a collaborative room for learning and reflection occurs. By means of qualitative interviews we sum up the learning process.

Creating systematical reflection over values and practise, we expect to empower the students and make them more capable of decision-making under pressure.

Furthermore our research can develop new learning objectives at DMJX, adding subjectification (personal judgement and responsibility) to qualifications and socialisation.

Casestudy is seen as a framework in “The social housing project 9210”

Anne Wegener, Stine Bylin Bundgaard

University College of Northern Denmark

Abstract

A profession-oriented case didactic is presented, based on Reflexive Practice-based Learning and the casestudy is seen as a framework that creates a connection between education and practice.

The poster will present the work with casestudy on the education of Social Workers, and especially focus on the interaction with practice in the co-creation project "The social housing project 9210", where out of the development of the living cases are presented and unfolded.

The work with the living cases is clarified through the presentation of examples developed in practice and thereby created a living case bank that can create a starting point for exploring practice through cases in a professional context.

The work with the living case bank is completed on the basis of selected students' co-creation with practice in "The social housing project 9210" and the specific case work derived from it.

In this presentation, it is desired to clarify the work with living cases as a platform in which students can interact with practice and ask questions. The importance of the cases being displayed as updated parts of practice, which is why the case must be constructed in collaboration with practice to ensure that students acquire competencies that can be transferred to the challenges that play out in practice. Here are excerpts from the form of observation cases and living cases based on examples of the form of the living cases that originate from the 9210 co-creation project "The social housing project 9210"

Papers

Enhancing Reflective Practice-based Learning with Peer Feedback

Helle Tougaard Andersen, Michael Munk Bækgaard

Danish School of Media and Journalism

Abstract

One of the great challenges as a professional is to be able to scrutinise one's hidden and underlying assumptions. An essential part of being a reflective practice-based learner is the capability to challenge and discuss these underlying assumptions and hypotheses of the profession and one's way of handling the profession.

Students at the Communication Studies at the Danish School of Media and Journalism are very good at composing solutions to challenges of communication on the basis of theory and method. But the students find it challenging and lack the capabilities to challenge and discuss the underlying and hidden assumptions of their doing.
Using peer feedback in other educational settings has taught us that students more easily find the blind spots of peers than their own. Hence, the objective of this project is to examine:

How may peer feedback be used as a method to enhance reflective practice-based learning?

Based on Mezirow's reflection levels and Bloom's taxonomy, we conducted an intervention in a class of second year students who had just returned from half a year in internship. All the students were asked to keep a leaning journal in which they reflected their tasks in the internship in the light of new theoretical learnings. The task of the peers was then to ask for explanations whenever a statement was unsupported. Although, we cannot conclude that peer feedback in itself enhance the capability of students to challenge assumptions preliminary results show that peer feedback with the right guidance could enhance Reflective Practice-based Learning.

Keywords

Reflective practice-based learning, Peer Feedback, Taxonomy, Critical reflection, Double loop

Introduction

In the context of Reflexive Practice-based Learning (RPL) reflection is about "(…) that students lean to act in certain ways in the professional practice and at the same time learn to be able to argue for their bases of action" (Horn et. al. 2020, p. 14). To be able to

argue for one's own basis for action, we interpret partly as the ability to be able to choose between alternatives, and partly as the ability to be able to assess the appropriateness of given actions. This is especially the last part we are interested in in this article.

Students at the Communication Studies at the Danish School of Media and Journalism are very good at composing solutions to challenges of communication on the basis of theory and method. However, their ability to motivate their choices of inclusion and exclusion rarely extends beyond the immediate and the known, and they challenge neither their own nor others' fundamental assumptions in a critical discussion of the concepts of the profession.

We are therefore interested in examining how we may facilitate this process pedagogically, and as we use peer feedback in other contexts, we find it obvious to examine whether the students may enhance, through peer feedback, their ability to verbalise and challenge the hidden assumptions that they are not aware of. Our investigative question is as follows:

How may peer feedback be used as a method of enhancing reflective practice-based learning?

Theoretical basis

We understand basic reflexivity as a linguistic cognitive activity. Verbalisation of one's own actions and experiences does in itself entail reflexivity. This has the consequence that actions in themselves cannot be reflective, but that they can be made on a reflective basis, just as they may initiate reflection. Moreover, reflections may take various forms and be based on various modes of expressions, e.g. visuality, but our starting point is the linguistic aspects. Our interest in reflection goes beyond mere descriptions of experiences, and we have a particular interest in the learning processes referred to by Chris Argyris (1977) as double loop as well as the reflection level referred to by Jack Mezirow (1988) as critical reflection and by Steen Wackerhausen (2008) as the second order reflection. To Argyris, double loop is about the ability to make a critical assessment of the criteria for given actions, whereas single loop is characterised by being the optimisation of given patterns (Argyris 1977, p.116).
Mezirow mentions critical reflection as a type of reflection where one reflects on the assumptions of one's basis of action (Mezirow 1988), whereas Wackerhausen distinguishes between the custom-affirming and the custom-challenging reflection. Custom-affirming reflections are first order reflections where the practitioner reflects based on his or her own customary concepts or theories, whereas custom-challenging reflections are second order reflections where the practitioner challenges and discusses the established success criteria. According to Wackerhausen, this kind of reflection requires that you make "(...) the well-known transcend the obvious, leave the periphery and become the very focus" (Wackerhausen 2008, p. 18). In theory, alienation may be achieved if one can establish a

perspective not originating from customary circumstances.
The basic theoretical and methodical question for us is whether we can create room for this type of reflection in our teaching. The second important question is whether, and if so, how we can distinguish between various levels of reflections? When do we know that a reflection is in fact made at a higher level?
The first question is based on the assumption that peer feedback may be a method to establish a stranger's view on the student's own practice.
Feedback may have various purposes, and John Hattie et al. (Hattie & Timberley 2007) perceive the usual function of feedback in an educational context as a way of making the student aware of the aim of a particular activity, giving the student an assessment of the performance of a particular activity or helping the student identify ways to strengthen, maintain and adjust her way to the aim (ibid, p. 86).
In this context, though, the function of the feedback is a way for peers to help each other examine the underlying pre-understanding of their own professional practice and an attempt to spot the obvious untold of and the assumptions in the text.
In relation to the question of identification of different levels of reflection, we combine Mezirow's types of reflection (content, process and premise) with Bloom's taxonomies of educational objectives (Anderson, L. W., Krathwohl, D. R., & Bloom, B. S. 2002). In other words, we try to identify where in the text the student describes specific experiences (this is what I did), where she analyses experiences (this is what I could have done) and assesses the experiences (why did I actually do that) Below, we present the specific method design.

Method

We carry out a three-step intervention in a team of second-year communication students. All the students were asked to do a learning journal in which they should reflect on their tasks during the internship considering new theoretical insights. Hereafter, the task of the peers was in written form to ask for explanations when a statement was unsupported. The peers were not anonymous for each other but randomly selected.
By means of the introduction of the task (step 1), we hope to bring the students up to a level of analysis which is indeed a deeper form of reflection but may still to be considered a single loop or first order reflection, see above. In step 2 and 3 we hope to see the students reach an even higher level of reflection. The three steps are illustrated in figure 1.

Figure 1

Step 1	Individual reflection: **How could you have used what you have learnt so far during the campaign in connection with one of your tasks in the internship?**

	How could the knowledge you have now gained have helped you solve the task differently? **How has what you have learnt so far during the campaign contributed to developing your skills as a communicator?**
Step 2	Feedback on three randomly selected peer reflections: **Please provide feedback on the text by asking questions about all views/rationales expressed in the answer.** **Phrase one question to your fellow students which you find particularly interesting to have elaborated.**
Step 3	Individual reflection: **Choose one of the three questions and reflect in more detail on the view/rationale expressed.**

In the first part of our analysis, we use an inductive analytical strategy as we make an open descriptive coding (Saldana 2014, p. 593) of the 15 case reflections from step 1, based partly on our theoretical conception of reflection and partly on the linguistic markers of the students' perception thereof. The purpose is to let data speak and generate codes for a code list uncovering the students' assumptions. The code list is grouped into a number of categories which, in combination with Bloom's taxonomic and Mezirow's reflection levels, result in: "description", "analysis" and "assessment" – illustrated in figure 2.

Figure 2

Examples of codes – step 1	Bloom's taxonomy	Mezirow	Categories
Theory review	**Knowledge/understanding**	**This is what I did**	**Description**
Project description	-	-	-
Conclusions	-	-	-
Considerations	**Use/analysis**	**This is what I could have done**	**Analysis**
Puzzlement	-	-	-
Discussion	-	-	-
Challenge	**Synthesis/assessment**	**Why did I do so**	**Assessment**
Critical view	-	-	-
Recognition	-	-	-

In the second part of our analysis, we use a deductive approach in a closed coding based on the three categories of the answers at step three. Below, we present our preliminary results.

Results

Basically, we are interested in examining whether the students are able to identify their own and their co-students' communicative assumptions? Therefore, we examine how:

1) the students verbalise their own assumptions and reflect on their meaning

2) they as feedback providers notice their fellow students' assumptions

3) they as feedback providers challenge assumptions through questions

4) the challenge chosen by the peer feedback provider makes the individual students reflect more deeply on their own realisation and, possibly, to pierce the veil of professionalism of an assessment.

Verbalising own assumptions

In general, our analysis shows that all but a few students use an analytical approach in their reflection and succeed, based on the theoretical qualifications they have now, in verbalising the recognition that a given task during the internship could have been solved in a more expedient manner. They analyse and reflect on the process, focusing on how they can now carry out an activity more expediently:

"With this knowledge, I could have created more well-defined target groups, content themes and messages that may have led me in a completely different direction than the one I followed at that time." (Student 1)

"I now realise (...) that we could have benefitted from looking deeply into the behaviour of our target group (...) to reach as many people in the target group as possible (...) " (Student 2)

"I clearly remember how I argued that it was a damn good idea using such words as: After all, it is a matter of getting the recipients to associate us with our values.... and in the situation I should have (...) asked myself: Whom am I doing this for? " (Student 3)

"A barrier analysis in the initial phase of the campaign had shown us that the purpose of the campaign to collect signatures to lower VAT on fruit and vegetables would probably not have had much effect..." (Student 4)

Noticing and challenging peers assumptions

The picture is more fragmented compared to whether the feedback providers are able to spot and challenge fellow students' assumptions in steps 2 and 3. The analysis shows that the feedback questions may be divided into three categories:

"How could it have been possible to examine whether a Black Friday campaign was required (..)?" (calls for a description)(student 5)

"Why would you ask that question? How would this question help you understand the knowledge?" (calls for an analysis)(Student 6)

"How did you gain a broader understanding? And what impact will it have on your future work as a communicator? " (calls for an assessment) (Student 7)

- and the feedback providers particularly ask about alternative ways of solving the task without challenging the assumptions and habitual perceptions

"How would nudging and your new knowledge gained from campaign planning have helped you enhance communication? What could you have accomplished with the new knowledge? How does the new knowledge differ from what you knew before? " (Student 8)

"Why is it especially interesting to work with campaigns with a social purpose? Will you be able to transfer some of the knowledge you have gained about campaigns with a social purpose to your fund-raising project?" (Student 9)

Piercing the veil of professionalism

Our analysis further shows that instead of piercing the veil of professionalism and being critically reflective about the theoretical basis of the campaign, the students, at step 3, confine themselves to describing the new theoretical approach as the solution to communication challenges.

"I consider this knowledge of system 1 and system 2 thinking as a very special key that I have obtained to the human brain." (Student 10)

"During the campaign, it has become clear to me how important the evaluation phase is in all types of communication work." (Student 11)

"In this respect, the campaign has also provided me with a number of tools, e.g. Morten Münster's barrier analysis, or an understanding of how target groups perceive messages through their network (..)." (Student 5)

Thus, the results of our intervention show that the students achieve a level of analytical reflectivity by considering, from a new perspective, tasks from the internship, and that they are also extensively capable of spotting these assumptions in their fellow students when they challenge each other's view through feedback.
However, we must also conclude that, with this intervention, we do not manage to get the students to reflect on their new theoretical knowledge compared to practice at an assessment level and, thus, to bring the students into a double loop (Argyris 1977) or in a second order reflection (Wackerhausen 2008).

Discussion

First and foremost, it is our experience that it has been motivating and meaningful for the students that this task has created a bridge between practice and teaching. We have not examined this systematically, but the students have expressed the view that it has been beneficial to reflect on the experiences gained from the internship based on the new

theoretical recognitions. This is in line with the first fundamental principle in UCN's White-paper on Reflective Practice-based Learning, which stresses the importance of inductive teaching processes where the lecturer takes his or her starting point in the students' own experiences (Horn et. al. 2020, p.17).

In this context, we find that our study contributes to the further efforts to understand and use various levels of reflection. Generally, it is a pedagogic challenge to get the students to reflect at a taxonomically deeper level than purely descriptive level. The reasons for this are multiple, but in light of this study, it is obvious to us that it is important for the teacher to define clearly not only what the student is to reflect on, but also the tools to be used in the reflection (e.g. Wackerhausen 2008). In an educational setting – and in the efforts to educate reflecting practitioners – it is important to help the student spot what he or she should look for without providing the answer. In our understanding, this correlates with the second fundamental principle of reflective practice-based learning, which stresses the importance of organising teaching and learning activities to include appropriate disturbances (Horn et. al. 2020, p.18), and it may be one of the reasons why, in this task, the students reflect at a deeper level than purely descriptive.

Unfortunately, we must conclude that there is no evidence for claiming that peer feedback served the function intended. There may be several reasons for this, which we will revert to below, but we would like to point out that peer feedback should not only trigger something in the feedback receiver, but that it also has an effect on the feedback provider. Accordingly, studies show that the feedback provider achieves a higher level of thinking skills than the feedback receiver. (Walker 2015, p. 245). In our view, the strength of peer feedback in this context is the possibility for a student providing feedback to compare his or her own experiences with those of others and, thus, potentially to become aware of the multiple issues that may arise in a communication practice. In this respect, it is possible that critical reflection may materialise in the meeting between the material and the one providing feedback and asking reflective questions to someone else. That aspect did not form part of our study. However, it would be interesting to change or broaden our perspective from the feedback receiver to the feedback provider.
One of the reasons why we did not manage to create room for a custom-challenging reflection is that peers may not be able to create a new room of experience for the feedback receiver. Although the students have gained different experiences from their internship, they are all influenced by the same professionalism and the same traditions, and, therefore, they will typically use the same types of questions, see Wackerhausen's conclusion that second order reflections often require that you "embark on adventures into the unknown" (Wackerhausen 2008, p.18). Consequently, the question might be whether the students are sufficiently "alienated" from each other to be able to ask difficult and peculiar questions requiring the individual not only to address the solution of a particular problem, but also to the assumptions as to whether it is a problem at all?

Moreover, it is also worth considering whether we have asked the right questions – we could, for example, increase the awareness of the purpose of the reflection through our way of asking questions – and whether we had prepared the peer reviewer well enough. For example, it is worth considering whether the peer feedback provider and the teachers have the same conception of what it means to ask questions about assumptions. A question to which this preliminary study does not provide an answer, but it is a relevant methodological reflection.

Finally, it may be discussed whether we had too high expectations in terms of the nature of the reflections and thus the taxonomic level of reflection. As mentioned, the participating students were second-year students having completed their first internship, and the question is whether they do not meet the conditions for being critically reflective practitioners at a sufficiently high taxonomic level when they can argue what a new, acquired theory could say about the experience in the internship process? It may be argued that the students actually did achieve reflexivity at a higher level than that of description and statements of facts.

In any case, both the wording of the reflective question, the students' expectations as to what the lecturer would like to hear and the students' ability to assess professional reasons for conducts will have an impact on the level of reflection they can achieve.

This is a key consideration because it highlights the need for us as educators to be conscious of the purpose of a reflexive activity.

Implications

One of the challenges of this type of studies is that it is based on the assumption that we can categorise different types of reflections and recognise them in textual productions. We maintain that this is possible, but it is a system of concepts that we would like to see developed.

Moreover, the question is how it is possible to identify whether the reflection works. There seems to be a need for us to improve – as envisaged by the concept of reflective practice-based learning – the efforts of using, more continuously and systematically, a pedagogic approach to reflective-based teaching processes so that reflection is not perceived as something that takes place in continuation of practice, but that reflection does in fact become an integral part of practice.
Finally, it is our hope that we will increasingly succeed in focusing on the feedback provider in feedback processes. How can posing questions about another person’s experiences, based on one’s own experiences, constitute the foundation of deeper, critical reflexive thinking?

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Redescribing the theoretical approach to Reflective Practice-based Learning

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Abstract

This paper discusses the concepts of reflection, reflexivity, action, theory, and practice in the context of education. More specifically, it will suggest a systems-theoretical redescription of the theoretical approach to Reflective Practice-based Learning. The overall objective is to unleash the information potential in this redescription. The redescription will observe the current understanding of the theoretical approach to Reflective Practice-based Learning and describe it using concepts defined by Niklas Luhmann. The epistemological basis for the redescription is constructivism and the self-reference of autopoietic systems. As the concept of practice is central, the redescription will also address the attribution of actions to a situation and the structural couplings between psychic and social systems. The redescription will form the basis for understanding reflection and reflexivity for both psychic and social systems. Therefore it allows for the complexity that resides in the fact that Reflective Practice-based Learning is a concept that can describe learning for individual learners as psychic systems, teaching as a social system, and the educational institution as an organization. The paper concludes that the systems-theoretical perspective broadens the understanding of Reflective Practice-based Learning by first including social systems as systems that reflect. Second, by distinguishing between reflection and reflexivity and thereby including the temporal self-reference.

Keywords

Reflective Practice-based Learning, Reflection, Reflexivity, Systems Theory, Redescription

Introduction

It is often difficult to point out precisely what reflection is and when it happens. Is reflection a process, or is it something that we can point out as an event? Does it happen automatic or do we need to be conscious about it? Moreover, why should we discuss it? The latter does have an answer. The introduction of Reflective Practice-based Learning (RPL) allows us to reflect on this concept and discover why reflection is vital in education and teaching. According to Horn et al. (2020), we need to prepare students for professional practices where knowledge and skills are not always enough – a practice where the

professionals are challenged by unforeseen situations that need a solution. Teaching these competencies involves experimentation, dialogue – and reflection.

However, it is not always clear what the word *reflection* means. Moon (2004, p. 4) distinguishes between three different common-sense understandings of reflection in the context of learning. The first understanding is that reflection is something that we do while learning to understand something more detailed. Second, there is an understanding that reflection is done on purpose, and third, that reflection is something complicated that results in a solution that was not obvious from the beginning.

Theoretically, the meaning of reflection in the context of learning is also being discussed. Dewey (1910, p. 6) defines *reflective thought* as the active, persistent, and careful considerations one can have about beliefs and knowledge and the conclusions based on these. It is a kind of critical thinking that tries to find a solution to a perplexity. Moreover, another related concept is *reflection-in-action*, as suggested by Schön (1983). *Reflection-in-action* is the reflection on *knowing-in-action* where the professional is trying to deal with problems or challenges. Reflection-in-action can involve a kind of experiment or a reflective conversation with the situation. It seems that there is a connection between reflection, experimentation, and action. That reflection is more than just knowing and applying what is known to the situation. It involves experimentation and thinking up solutions for problems and challenges.

With this introduction, we already have different concepts in play related to RPL. The primary focus in this paper will only be the theoretical approach laid out by RPL. The six principles described in Horn et al. (2020) will not be addressed. First of all, we have the concept of reflection in the learning process. Second, we have the concept of experience, thinking, and action. Regarding the latter, this paper will focus primarily on the concept of action. If we go back to the initial questions, it could be interesting to explore if reflection (or reflectivity) is an event, a process, or a way of being. The white paper on RPL does not distinguish directly between the concepts of reflectivity and reflection (Horn et al., 2020, p. 14, note 6). The distinction could clarify the role of reflection in teaching and learning, and at the same time, expand on the difference between reflectivity and reflection. Another important question could be how we can distinguish between reflection in consciousness and communication – or if it is the same? This paper will create a so-called *redescription* – a description of the theoretical approach to RPL from the perspective of the sociological systems theory as defined by Niklas Luhmann (1927-1998). The redescription will not replace the current understanding of RPL, but the aim is to unleash the information potential that can lie in a redescription like this.

Methodology

The objective of this paper is to formulate a redescription of the theoretical approach to Reflective Practice-based Learning. In the context of the sociological systems theory, the term *redescription* has a specific meaning. For Luhmann, a redescription, on the one hand, must not repeat a description and, on the other hand, must not describe something new. It is not a replacement of the current description but an attempt to correct it. Therefore Luhmann uses the English phrase *redescription* to elude the distinction between the German words “Wiederbeschreibung” and “Neubeschreibung.” The redescription should avoid repeating the current description, but at the same time, have an apparent reference to it (Luhmann, 2001). There is no strict definition of the concept redescription. However, Luhmann uses the term when writing about society (and its functional subsystems) as self-descriptions, which means that the redescription or self-description of, e.g., society is made from within society.

First of all, because the self-description is communication, it is operating in the medium of meaning. Meaning is the product of autopoietic systems, as the difference between what is actually given and the possible result from it (Luhmann, 1995, p. 74). We have a description that is as it is, and the meaning/redescription is the divergence from this initial description into what is possible. Luhmann decomposes meaning into three meaning dimensions. A difference constitutes each dimension. Therefore, the redescription takes place in these three dimensions: the *factual*, the *time*, and the *social* dimensions. As an example, the self-description of society can be described through these three dimensions. In the factual dimension, this is the concept of *differentiation* – we distinguish between *system* and *environment*. In the temporal (time) dimension, the concept of *evolution* – with the distinction between *before* and *after*. In the social dimension, the concept of *communication* – as the type of operation (Luhmann, 2013, pp. 340–341). Now, the present redescription is not just a copy of the description of society. The three dimensions must be described as the differences that make the difference in the current description of RPL.

Second, there is often something *radical* about Luhmann’s descriptions. In the description of society, this can be observed in the epistemological shift from the distinction between *subject* and *object* to the distinction between *system* and *environment* (Luhmann, 1988, p. 10). The question is therefore if there is a similar shift from the current understanding of RPL to the present redescription.

The idea is that this terminology can describe – maybe not everything – but at least systems and structures within society. Thereby also the educational system as a functional system and its constructions like Reflective Practice-based Learning.

Theory

In the following, the concepts of reflection and reflectivity will be addressed. In a way, I will start all over by explaining the meaning of these concepts in the context of the sociological systems theory.

As mentioned above, the sociological systems theory distinguishes between system and environment. Systems are autopoietic. This means that they are closed and self-produce by their own operations – operations that observe the environment and the system itself (Luhmann, 1995, p. 37). This creates an openness to the environment, but systems are at the same time closed because they reproduce by their own operations. The concept of autopoiesis is indifferent to the form of the operations and memory used in the system. Therefore autopoiesis applies to biological, psychic[1], and social systems (Luhmann, 1988, p. 15).

The autopoietic system can either observe its environment or itself and, in either case, indicate something by a distinction. For psychic and social systems, these operations are respectively conscious and communicative events. That is to say, reflection and reflectivity are not *on* or *with* something, but rather, they are references where either thoughts or communication identify themselves. Therefore, reflection and reflectivity are concepts that can be contained in or understood as forms of self-reference. In the sociological systems theory, there are three different forms of self-references: *basal self-reference*, *reflexivity*, and *reflection* (Luhmann, 1995, pp. 442–444).

The *basal self-reference* is the reference between elements. The distinction is between *element* and *relation*. In communication, basal self-reference is that one communication event creates a reference to another communication event. What is uttered now has a reference to what was uttered before. If we did not have this reference or connection, we could barely call it a conversation. In a metaphorical sense, we can refer to the building of a house.[2] If there were no relation between the nail and the beam, there would be no house. In general, elements (conscious or communication events) created in the autopoietic system will relate to other elements in that system.

Reflexivity is the processual self-reference with the distinction between *before* and *after*. With this self-reference, the communication can treat itself as communication and react to what has been said. In psychic systems, an example could be thinking about thinking (Luhmann, 1995, p. 450) and again using the house metaphor: We are not just building the house, e.g., hammering nails into beams, but we are also observing the house

[1] As in psychological. In texts by Luhmann the German “psychisches System” is translated into “psychic system”.

[2] The house metaphor is not my own, but borrowed from Luhmann (1995, pp. 20–21) and extended a bit.

developing into a house, and we see the need for change something, like paint the wall in another colour.

Reflection is the self-reference that a system has to itself – the system reference and the self-reference coincide (Luhmann, 1995, p. 455). The distinction is the one between *system* and *environment*. I can refer to myself or observe myself as distinct from the environment as a self-reference. Similar, in communication, we can agree that we (as the social system) will meet again next week. And lastly the house metaphor: The house is the system but not represented as the materials of the house (this would be element/relation). The house has rooms that make up the house as the system/environment relations.

The concept of self-reference applies to any autopoietic system – both psychic or social systems. It is crucial to notice that self-reference is not an "instrument." The system can observe itself as an event, a process, or system and thereby bring that into its operations. For the psychic system, that is thoughts about itself. For social systems, it is communication about itself. In this sense, reflection is not separate from or something special to the system – it happens all the time.

Another interesting concept in the sociological systems theory is second-order observation. A system is an observer observing something in its environment. However, in this observation, the precondition is not apparent to the observer – the observer has a blind spot. This blind spot can only be revealed in the following observation, known as a second-order observation. The system is observing how it or another system is observing it's environment. An example from one of the functional systems could be helpful: The economic system will observe the world from the economy's perspective – is it profitable or not? This is different from how the political system will observe the world, primarily from the perspective of power. However, from any of the systems, the preconditions are not apparent in a first-order observation of the world. Thereby, the idea about an objective world is replaced by a theory about the observation of observing systems (Luhmann, 1988, p. 10). We can argue that the second-order observation is also a reflection in that an observer can observe itself as an observer. So, again bringing self-reference into the operations of the system.

Finally, we also need to discuss the relationship between the psychic system and communication. In the common sense of the concept of reflection, reflection is a mental process. However, in this context, we also need to bring in the communication that happens in teaching. We need to keep the psychic and the social system separate, but at the same time, the individual also participates in communication. The mind imagines that it participates in communication, but it is still important to remember that communication is a separate system. The structural coupling between these two systems is language. Communication can happen without language, but the language has a central function in the structural coupling between psychic and communicative operations (Luhmann, 1988,

p. 49). The only way we can bring the students' thoughts into communication (teaching) is by using language. It becomes clear that the reflections of the student are not the same as the reflection in communication. Reflections are not "transported" directly into communication. The student needs to formulate thoughts into language. The reflections are themselves becoming a kind of second-order observation of the student in the communication.

Redescription

Reflective Practice-based Learning is a framework that describes a theoretical approach to learning, combined with six principles applied to teaching. The theoretical starting point is that reflection is a part of the learning process and that learning should take place in an environment where students can experiment, think and act. The six principles support the theoretical basis and address teaching: 1) that include student's own experiences, 2) with appropriate disturbances, 3) that is organized as exploration, 4) that is based the exemplary, 5) that supports collaboration between lecturer and students, and 6) that creates room for dialogue. This redescription will only address the theoretical approach laid out by RPL.

As described above, this redescription is operating in the medium of meaning, hence divided into three dimensions: factual, temporal, and social. This may be a coincidence, but likewise, as described above, the concept of self-reference is interesting because it is tied to the notion of reflection – a vital topic in this paper. There are three different forms of self-reference, and they are related to the tree meaning dimensions. So, we already have a framework for placing self-reference into the meaning. The factual dimension addresses the basal self-reference, the temporal dimension reflexivity, and the social dimension reflection. The following will at the same time address the meaning dimensions and cover the impotence for self-reference in relation to RPL. First, reflection and reflexivity will be addressed because the distinction from a common-sense view can be foggy. After that, the factual dimension.

Reflection and reflexivity

First of all, it is vital to get a hold of the concept of reflection. The common-sense idea is that reflection is *about* something. We have the sense that reflection is a "basic mental process with a purpose or an outcome or both, that is applied in situations where material is ill-structured or uncertain and where there is no obvious solution" (Moon, 2004, p. 10). Horn et al. (2020) has a tag line that defines reflection (in relation to RPL) as: "reflection on/in/with practice with theoretical analyses and practical syntheses." This implies that reflection is something that we do, something that frames our way of thinking. Both Moon (2004) and Horn et al. (2020) expresses the need for handling unforeseen situations.

That reflection can help us solve a problem with the knowledge that we already have. Though, how is this related to teaching? If the reflection is stickily understood as a mental process, are the students then reflecting on their own, or is the reflection a part of a situation or something that happens in teaching?

From the perspective of systems theory, reflection is a form of self-reference. Therefore reflection can only be understood as something that happens in either communication or consciousness – in either a social or psychic system. Not to say that reflection cannot happen in a situation or practice, but we have to clarify what self-reference is. Is it the professional who needs to develop a solution for a problem, is it a team that constructs meaning, or a class of students that needs to learn? In any case, the self-reference is distinct, and in any case, reflection is part of the autopoiesis of that system.

Though not only can we talk about reflection – we can also talk about reflexivity. The notion that the process is an important aspect of learning is implicitly mentioned by Horn et al. (2020) as the "learning process", but the time perspective is not explicit tied to reflection. In a systems-theoretical redescription of the portfolio, Qvortrup & Keiding (2015) discusses how the portfolio enhances teaching opportunities and supports and organizes communication in the classroom. First of all, they note that students' learning can only be observed in communication. The teacher has no direct access to the students learning process, and therefore they need a structural coupling through communication. Second, they note how the portfolio can help communication. The portfolio can scaffold the students' self-assessment in relation to learning results. This is the reflection in which the system observes the achievement with the code better/worse. Furthermore, the portfolio is scaffolding the self-assessment of the learning process over time. This is the reflexivity of the system. The redescription makes a clear distinction of the self-reference that is in play. Not only can the system observe itself as a system, but it can also observe itself as a process. The common-sense notion is that this is also reflection, but here we have a distinct concept for this form of self-reference, being reflexivity. This is unfolding the concept of "reflection" – or, to be more precise: self-reflection. Not only do we need a distinction between different systems. A system can observe itself as a system and bring that into communication or consciousness. We also need to distinguish between what was before (or what will be) and what is now. The system can observe itself as a process and bring that into communication or consciousness.

Concerning learning and teaching, this is a reality for the student as a psychic system as well as teaching as a social system. This is precisely the point where we can broaden the concept of RPL. The student and the student's self-reference is, of course, essential for learning. However, at the same time, we can include other systems into the idea of RPL – social systems, like teaching, the team of lecturers, or any other organizational unit. Each system can use its self-reference to ask the right questions – the critical questions – the critical thinking that Dewey (1910) points to and maybe also, to some extent, the notion of

distributed cognition (Rogers & Ellis, 1994). The difference is that the notion of self-reference not only applies to the student, the lecturer or the professional but also to teaching, the team, and the organizational unit. A kind of critical communication is included in RPL. Here, there is a coupling to the 5th principle in RPL: Lecturers and students should work together in the learning processes. On the one hand, this reinforces the intention with the 5th principle, that the students should contribute to the learning process by providing their views. Simultaneously, it is extending the idea of collaboration between lecturer and students, focussing more on reflection and reflexivity.

Basal self-reference

It is not enough to talk about self-reference – or precisely reflection and reflexivity. We also need to focus on the objective for RPL: that students learn in relation to the educational program's subject matter. We can reflect in many situations that are not related to learning and not related to the educational program, so how can we distinguish between reflection and reflexivity related to learning and other situations?

If we think of a situation connected to teaching (classroom teaching, laboratory work, project work, internship, etc.), the communication theme could be diverse. It could be related to the subject matter of the education, the students learning – or even reflection. What we are concerned with here is basal self-reference. Even though the communication process is just a chain of communicative actions, communication will always refer to itself. The communicative action will test if the prior communication was understood (Luhmann, 1995, p 143). This is that "drives" the conversation, except that we cannot control the communication.

The basal self-reference is almost too plain in this discussion because we take it for granted. However, at the same time, it gives us a handle for discussing how we can bring in more reflection and reflexivity in connection to learning. We cannot control communication, but we can still make themes more likely, e.g., by asking the right questions, like suggested by Alt & Raichel (2020), or by using a specific technology like suggested by Qvortrup & Keiding (2015).

According to the 6th principle in RPL, there should be room for dialogue between the lecturer and the student that can "activate the students' reflective thinking about their own learning" (Horn et al., 2020, p. 19). This is what we associate with reflection in learning. We can communicate about learning by asking the student what they learned or how the learning strategy could be improved. In the above discussion about reflection, there was a distinction between system references – are we talking about the communication that happens in teaching or the student's consciousness? It is important to note that there is no causal connection between elements or events of one system to the other, e.g., communicative events and conscious events (Luhmann, 1995, p. 448 449). This means that

asking the right question in class and discussing what the students learned is not the same as making the students reflect. Not to say that it is not happening. Language is the only way to bring thoughts into a conversation according to the concept of structural coupling.

Action as reduction of complexity

The theoretical approach to Reflective Practice-based Learning is twofold. First of all, reflection is part of the learning process. This has already been addressed in the above. Second, learning should take place in an environment where the student can experiment, think and act. This is being addressed in the following, first, by discussing action and communication and second by discussing the concept of situation.

With the shift to the distinction between system and environment Luhmann states, that what constitutes social systems is not people or their actions but communication: “The elementary process constituting the social domain as a special reality is a process of communication” (Luhmann, 1995, p. 139). However, this is not to say that actions are not important. If we only see communication as a chain of utterances, we miss the selective events – the actions that can be attributed to the communication (Luhmann, 1995, p. 164). Communication and action cannot be separated. Actions are reducing the complexity of the system. If we, as a participant in the communication, can act to show that we understand what is being discussed, the communication can continue. The complexity of the situation that someone understands or someone does not (relatively speaking) can be ruled out. In this sense, it is impossible not to act when we participate in the communication. We can decide not to answer, but that is still an act.

However, concerning RPL, this is not a comprehensive definition of what action is and how we enable or encourage students to “take action”. Action is related to practice in the same sense that *reflection-in-action* (Schön, 1983) is pointing to the professional dealing with unknown problems. Still, Luhmann has a good point: Actions are reduction of complexity. Imagine the professional that needs to come up with a solution for a problem. The professional sees the complexity of the situation and has to act – has to decide on what to do. Making that decision reduces the complexity either because it was the “right” or the “wrong” decision – in any case, the problem is not the same any more. The problem is “narrowed down”.

In any case, teaching is communication. If we think that students will act “out of a clear blue sky”, we are wrong. What initiates action is communication, and this applies to teaching as well as internships and other educational situations. Concerning RPL, this is establishing an understanding of action that is separated from reflection, both in the common-sense understanding and the systems-theoretical definition, but on the other hand, inseparable from communication. So, there is still a connection between the two because

the different self-references are used in communication, and actions are attributed to communication.

Theory and practice as situation

We often try to distinguish between theory and practice – the notion that we sometimes are occupied with the understanding of theory and at others are doing more practical stuff. In reality, it can be pretty hard to distinguish between theory and practice – at least from the practice of theory (Luhmann, 2018, p. 393). In this sense, practice and theory are not separate, like the actions are not separate from the thought (Dewey, 1910).

A more fruitful way of seeing the relation between theory and practice could be the concept of situation. We, of course, have an understanding of the term *situation*. However, in the context of the sociological systems theory, events are attributed to a situation that includes both a system and its environment (Luhmann, 1990, p. 10). In a way, what creates the situation for the social system is the events in the system. Pointing back to the discussion about action, actions are tied to communication and manifests themselves as events. In this sense, it is not a matter of distinguishing between theory and practice or combining them in the right mix. It is a matter of establishing communication in a specific social situation following that participants can act.

A student in an internship participates in communication together with a supervisor. They are constituting the social system – or, to be more precise, the interaction system. The student is asking questions, and as a result, can solve a particular task. In a way, the student's actions solving the task can be attributed to the communication, bringing further communication between the student and the supervisor to a new place. Here the situation is formed, not only by the interaction system but also by its environment – the task that needs a solution. The complexity in the task/environment has been reduced, and at the same time, the student has absorbed the complexity by gaining knowledge.

To RPL, this kind of situation is not strict in the sense that theory is something that happens in the classroom, and practice is what happens in an internship. The theme of the conversation between the student and the supervisor could include theory. Actions/events can be attributed to communication, and communication is how social systems operate. Therefore, the student's participation in one way or the other is key in different situations.

Conclusion

In a reflection, it is interesting that the redescription can broaden the idea of the theoretical approach to RPL. The redescription is not an attempt to replace the current description of the theoretical approach or an attempt to describe something new. It is building on

what is already there. A notable aspect is that it focuses not only on reflection as an all-encompassing concept. Reflection is just one kind of self-reference of autopoietic systems.

The redescription of RPL includes both social and psychic systems. Not that it is a goal in itself, but compared to the current description of RPL this is probably the most radical aspect of the redescription. Often we primarily talk about reflection in connection to mental processes, but here we include social systems. The notion of self-reference is the same for all autopoietic systems. Reflection and reflexivity apply both to the students as psychic systems and the communication in the classroom.

Another important finding is that the system's temporality is also a self-reference. This is called *reflexivity*. On the one hand, the system can reflect by referring to itself as different from its environment. On the other hand, it can also reflect on changes over time and brings that into the autopoietic process. This is referred to as the "learning process" but not explicitly mentioned as an object of self-reference. This redescription points out that the difference between reflection and reflexivity is worth considering.

Lastly, the redescription discussed the notion of action and situation. Instead of distinguishing between theory and practice, this redescription tries not to separate the two but to see communication and action as aspects of social systems. From a systems-theoretical perspective, communication is the elementary process. However, the action is also vital to the process because actions reduce the complexity in the system. Events in the system are attributed to the situation, meaning that a situation is tied to a specific social system.

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A review of on and off campus transitions in nursing education

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Abstract

This study addresses what characterises the challenges for students in nursing education in the transition to on and off campus and how to minimise dropout and increase students' engagement through the qualification of the activities in and across the different settings. This study is based on a literature review that included thirteen studies. The analysis constituted challenges involved in three main transitions to on and off campus: transition from high school to nursing education, transition between campus and clinical placement, and transition from nursing education to the first occupation. The analysis addressed activities that could overcome these challenges. The findings suggest that clinical supervisors and faculty members must give priority to academic and social support to nursing students in the first year. Values in nursing care and the generally dominating gap between campus and clinical placement must be discussed. Moreover, dialogue with health care providers might facilitate newly graduated nurses' participation in practice. Based on the findings and a discussion of the potential of the reflective practice-based learning principles, a framework for empirical interventions and further research is revealed.

Keywords

nursing students, challenges, transitions, campus, clinical placement, nursing education, reflective practice-based learning (RPL)

Introduction

Nursing education in Denmark includes two educational settings, on-campus and clinical practice, and has a duration of 3.5 years (Uddannelses- og Forskningsministeriet, 2016). Nursing students often face challenges in their learning trajectories, and in Denmark, 25% of the students drop out of nursing education (Dansk Sygeplejeråd, 2019), which challenges the recruitment of nurses in the Danish healthcare system (Dansk Sygeplejeråd, 2019). Students' dropout has been addressed in different ways. An investigation of student dropout in higher education in Denmark revealed that 37% of students who were not settled in their choice of education dropped out within the first year. By contrast, only 14% of the students who were clarified dropped out (Denmark's Evaluation Institute, 2018). Lack of prequalification for studying is another explanation of dropout in

nursing education, as students feel challenged when they are not used to reading or thinking critically (Mitchelle, 2012).

Furthermore, students in higher education's drop out when they experience disagreement between theory and practice (Hastrup et al., 2013). Theory and practice and the relationship between are not unequivocal, and a qualitative study based on focus group interviews with nursing students, clinical supervisors and faculty members showed different understandings of theory and practice. Furthermore, different understandings make it unclear what can be learned on campus and in clinical practice (Dau & Nielsen, 2009). This lack of clarity causes frustration among students (Rolfe, 2002) and different expectations of the learning possibilities in the two contexts (Dau & Nielsen, 2009). Moreover, the shift between the two contexts might increase the risk of students dropping out of nursing education (Hastrup et al., 2013). Expectations of the two different contexts might also cause challenges or even dropout among newly graduated nurses. They feel a lack of competences in clinical practice (Voldbjerg, 2016) and even a reality shock (Jensen, 2018).

As demonstrated by existing research, there are challenges in nursing education, especially at the beginning of education, where students miss the qualifications to read and think critically (Mitchelle, 2012). During nursing education, students are not clear about what to achieve in clinical practice and on campus (Dau & Nielsen, 2009; Hastrup et al., 2013), and newly graduated nurses' expectations of clinical practice might cause dropout from the nursing profession if they experience a lack of competences (Voldbjerg, 2016). However, little is known about which transitions in nursing education challenge nursing students and exacerbate their risk of dropout. Therefore, it is appropriate to gather evidence about these challenges to assist the development of nursing education to support nursing students in overcoming obstacles during their transitions to fulfil the education and ensure career continuity. Our preliminary search revealed that there are no literature reviews on this topic. Therefore, this literature review's objective was to identify and synthesise available evidence regarding transition challenges in nursing education. More specifically, the research questions were:

- Which transitions are challenging to nursing students during nursing education?
- What characterises the challenges in these transitions?
- Which activities are suggested to overcome challenges in these transitions?

Why challenges in transitions are an issue for reflective practice-based learning (RPL)

Reflective practice-based learning (RPL) is an approach to learning at the University College of Northern Denmark. RPL has been described in the white paper by Horn et al. (2020), where the authors stressed that a lack of coherence between theory and practice

is a reason for dropout and that there is a need to fully understand the heterogenous relationships between theory and practice. This paper's literature review is a contribution to the field of research concerning nursing students' transitions between theoretical practice on campus and clinical practice during periods of placement. The whitepaper defines RPL as reflection on/in/with practice with theoretical analysis and practical synthesis (Horn et al., 2020, p. 13) and suggests six fundamental pedagogical principles promoting RPL. In this paper, we return to these principles for a discussion on how the findings from the literature review might accommodate, contribute to, or extend the suggested pedagogical principles. Before returning to these principles, an overview of the literature review and the strategies and criteria to follow the scientific rigour needed are described.

Inclusion criteria for the literature review

This review included peer-reviewed studies that addressed transitions in nursing education, challenges in these transitions, or suggestions to resolve transition challenges. We considered studies that include qualitative, quantitative, or both types of data and are not limited to any specific designs. Lastly, this review considered studies published in 2009 or later to identify studies that reflect contemporary nursing education. We excluded studies that were not evidence-based and studies that could not be compared to the Danish nursing education. A research librarian conducted the literature search.

Search strategy

The search strategy aimed to find published studies. We utilised a two-step search strategy. First, an initial limited search of Google Scholar and webpages (www.vive.dk, www.eva.dk, www.dsr.dk) was undertaken, followed by an analysis of the words in the titles and abstracts, as well as the index terms used to describe the article or report. Secondly, a search using all identified keywords and index terms was undertaken in a database called ERIC. The ERIC database holds journals on educational research. Studies published in English, Danish, Norwegian, and Swedish were considered.

The following keywords were used in the search: dropout, academic failure, academic failures, withdraw, organisational effectiveness, retention, dropout, student persistence, attrition, nursing education, nursing school, nursing schools, nurse school, nurse schools, nurse education, nursing student, nurse training school, change, switchover, transfer, transition, clinical practice, practice, practical experience, work experience, school, college, theory, internship. Table 1 provides the complete strategy for searching ERIC.

Table 1: Search strategy for ERIC

Dropout/ continue	**Nursing education**	**Transitions**	**Theory versus practice**
Dropout* OR ”Academic Failure” OR ”Academic Failures” OR Withdraw* OR ”Organisational Effectiveness” OR retention* OR "dropout*" OR "student persistence” OR attrition* (53.895 records)	"Nursing education" OR "nursing school" OR "nursing schools" OR "nurse school" OR "nurse schools" OR "nurse education" OR "nursing student*" OR "Nurse Training school*" (6.090 records)	change* OR shift* OR switchover* OR transfer* OR transition (341.779 records)	"clinical practice*" OR practice* OR "practical experience" OR "work experience" OR school* OR college* OR theory* OR internship* (1.144.664 records)
AND (92 records)			

***truncation**

Danish PhD dissertations on the topic were not identified through the search of the ERIC database; hence, Danish PhD dissertations concerning nursing education were hand searched. The reference list of all included Danish PhD theses was searched, and additional research articles published by the PhD candidates were identified and included in this review. Based on the hand search, three PhD dissertations and five research articles were chosen.

In total, 100 records were included in the literature review. The records were screened for relevance based on year of publication, titles, and abstracts. Of these, forty-two records were eliminated due to the titles and abstracts not meeting the inclusion criteria, or because they were published before 2009. Sixteen records were assessed for eligibility by full-text reading. Of these 16 records, three were excluded due to other contexts than nursing. In total, 13 records were included in this literature review, including six empirical research records and seven PhD dissertations. Figure 1, a PRISMA flow diagram (Moher et al., 2009), shows the identification and selection process for records included in this review.

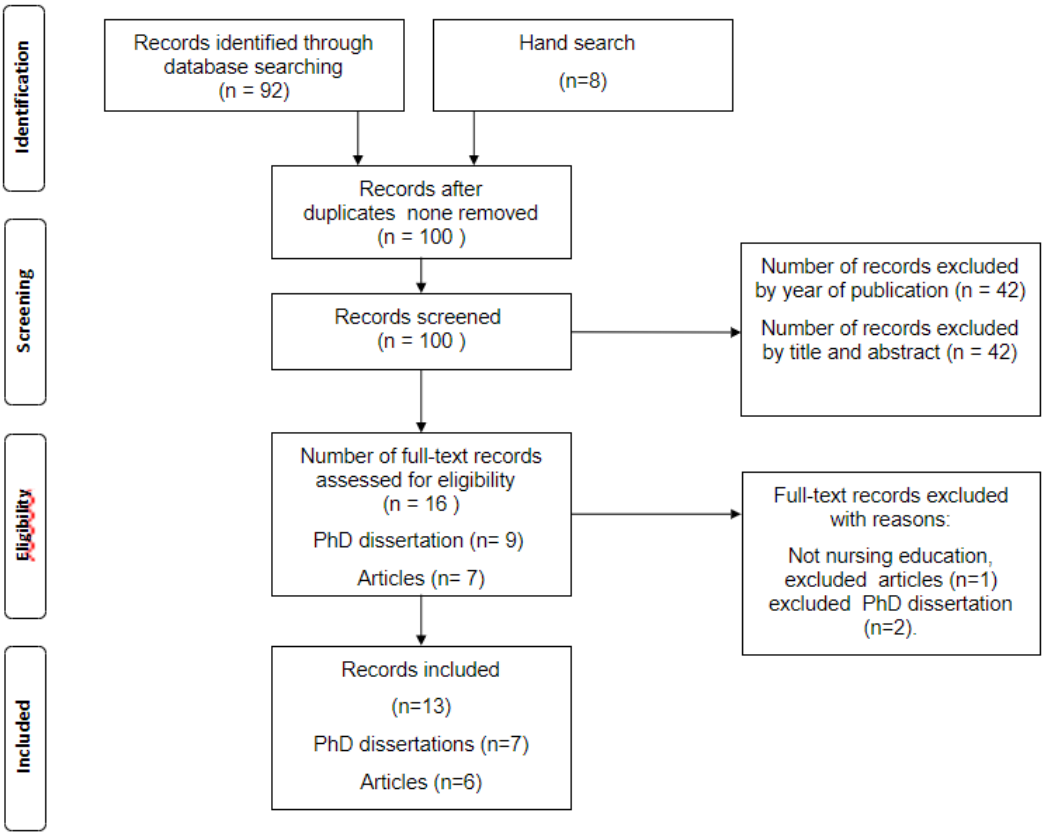

Figure 1 PRISMA flow diagram

Data extraction and analysis

Data were extracted from the studies included in the review. The data extracted included specific details about the research studies regarding the geographical context, purpose, methods, sample, and authors' conclusions (see Table 2).

Table 2: Overview of included studies.

Study	Country	Purpose	Methods	Sample	conclusions
Andrew et al. (2009)	Scotland	The study investigated how prepared students are, both professionally and socially, for year one of an undergraduate nursing programme, with particular	Questionnaire and descriptive statistic Key findings formed the basis of discussion groups.	First-year nursing students (n = 418). Representatives of all first-year stakeholders	Initial findings indicate that, while most students appear to understand their role as nursing students, their understanding of what is expected in the first placement is less clear. There is also a lack of clarity regarding their role and that of the mentor in the

		reference to the first clinical placement		participated in the discussion group.	achievement of clinical placement learning outcomes.
Amoia-Watters (2017)	USA	This work evaluated the effectiveness of incorporating technology into a nursing class and to explore students' perceptions on the use of technology in the classroom in relation to their perceived learning and their perceived interaction with classmates.	A quantitative design was utilised. Data were collected from post-tests given to classes after traditional lectures as well as from post-tests given in lectures with the intervention of technology and a survey was distributed to gather total study sample information on student perceptions of the use of technology	The study included three sections of students enrolled nursing courses. The sample included n = 96	While the quantitative study results were inconclusive as to the effectiveness of incorporating technology in the classroom; it did show positive findings concerning students' perception of using technology in the classroom and their sense of connectedness with classmates.
Barnes (2018)	USA	The purpose was to provide insight into the associate degree nursing faculty perceptions of their students' transferability of knowledge to an actual clinical practice after having experiences in simulation activities.	Qualitative study including semi-structured interviews with faculty members	n = 11	The researcher found that all the faculty participants are able to work together in all areas where simulation is utilised, in order to produce competent graduates, however, there were no findings related to student's transferability.
Birks et al. (2013)	Australia	This study explored the experiences of beginning nursing students in adapting to their first year of study	A questionnaire that comprised three open-ended questions. Thematic analysis	First-year nursing students (n = 112)	Possessing an understanding of the issues and needs of beginning nursing students is the first step in developing strategies to ensure a qualitative and effective learning experience.
Clark & May (2015)	USA	This work investigated how academic support intervention influence first-semester nursing students scores and learning styles	Entrance test for nursing schools and questionaries on the perceptions of the students participating in the intervention	Junior nursing students (n = 55)	The results indicate that participation in the academic support intervention resulted in an overall higher grade point average at the end of the first semester. There was also seen a reduced rate of failure or dropout in subsequent semesters.

Jacobs (2016)	Canada	This study investigated the impact of pre-semester success workshops on establishing a connection between student and institution and on perceptions of confidence levels on their ability to persist and succeed in nursing education.	Questionnaires also included four open-ended questions. Descriptive statistics and summary of answers to the open-ended questions	nursing students (n = 25)	The participants reported an increase in their belief that they would be successful in their academics. Confidence levels rose, and the workshops helped students find a balance between academics and personal life. Lastly, the pre-semester workshops have been shown to increase student confidence relating to their abilities to persist and succeed in nursing education.
Jensen (2018)	DK	This article described newly graduated nurses perspective. The purpose was to describe steering relationships in hospitals from new graduated nurses' point of view and definitions of problems with help from institutional ethnographic view on their work with institutional texts	Participant observations in medical practice, and interviews with newly graduated nurses	New graduated nurses (n = 5).	New graduated nurses' institutional conditions are characterised by the reality shock and missing mentors.
Gatto (2010)	USA	The work identified the learning and study strategies and learner characteristics of first-semester baccalaureate nursing students with and without academic risk.	This study used a descriptive research design. The study included a questionnaire to measure the students' awareness and use of learning and study strategies.	n= 133	Contrary to other studies, in this study, age, number of transfer credits, and learning and study strategies did not predict academic risk. Higher-grade point averages lowered the odds of being at-risk while being of a minority race and ESL (English as a second language) increased the risk. The at-risk students were anxious and lacked concentration.
Holen & Lehn-Christiansen (2017)	DK	The research investigated current efforts to create coherence in health care professional education in nursing education.	The article is based on an analysis of nine studies from 2010 to 2016.		The article identifies four different problems related to coherence: 1) connection between professions and sectors 2) continuity of care 3) connection between education and labour and 4) correlation between theory and practice. The article shows

					that correlation between theory and practice is described as the dominant challenge that overshadows other important problems in clinical education.
Lehn-Christiansen & Holen (2019).	DK	The research aimed to show how different discursive practices of intimate care (IC)shape students' professional identity and their understanding of the nursing profession.	Six focus group interviews conducted after the end of the first 10-week clinical placement.	Forty nursing students in the first year of nursing education (n = 40)	The paper identifies three hierarchically ordered discourses related to students' experiences of learning in clinical placement. The paper illustrates how these discourses challenge students' possibilities for learning.
Mitchell (2012)	USA	The work investigated the transition of students from high school to community college associate degree nursing education to better understand factors that influence student persistence and program completion.	Individual and focus group interviews.	21 nursing students (n = 21)	Nursing students feel challenges in the transition from high school to nursing education. Nursing students are not used to reading and think critically
Thrysøe (2010)	DK	The study investigated nursing students' experiences and how perceptions of transferring to become a nurse and is influenced by the interaction with other health care providers in the community of practice.	Participant observations and interviews.	Ten nursing students (n = 10)	The conclusion is that if nearly educated nurses are potential new in the fellowship in practice, it may open possibilities for learning, which otherwise might be difficult. Participation in the Fellow Ship in practice can be strengthened if there is reciprocity in knowing each other.
Voldbjerg (2016)	DK	This explored how the socialisation into the clinical setting and interaction between newly graduated nurses and experienced nurses influences the new graduates' use of knowledge sources.	Ethnography using participant-observation and individual semi-structured interviews	Nine newly graduated nurses (n = 9)	New graduates are socialised into limiting their inquiry on clinical practice and unintentionally being restricted to using the experienced nurse as a predominant knowledge source. A limited inquiry into the complexity of nursing practice indirectly excludes the use of a variety of knowledge sources, which are fundamental to evidence-based practice.

Each record was read by the first author to identify and extract findings that were relevant to the questions of this literature review. The extracted data were analysed and discussed by the first and last author. Any disagreements that arose between the reviewers were resolved through discussions among all authors. This process revealed three transitions in nursing education that challenge nursing students. The extracted data were synthesised according to the three identified transitions.

Findings

Based on the research questions, the analysis revealed challenges in three main on- and off-campus transitions: transitions from high school to nursing education, transition between campus and clinical placement, and transition from nursing education to the occupation. The analysis also highlighted activities that may be utilised to overcome these challenges.

The transition from high school to nursing education

A qualitative study with individual and focus group interviews with 21 nursing students showed that the students did not feel prepared to study. The lack of qualifications was related to their experiences in high school, where they did not read; instead, teachers provided notes and told them what the tests were about, and there was no requirement for critical thinking and applying knowledge (Mitchelle, 2012). Students got lower grades in nursing education compared to their grades in high school. Further, the students were overwhelmed by the extent of time needed for studying and the lack of time for social life. All these elements placed the student at risk of dropping out of the programme. Nursing students suggested programmes in high school with faculty members to teach them how to study and programmes in nursing education on taking notes, tests, time planning and coping with stress (Mitchelle, 2012).

A quantitative research study on nursing education stressed that focusing on the academic programmes, in which students work in teams, take, and review notes, find the answers themselves, has a positive influence on students' academic performance and fulfilment of the education (Clark & May, 2015). Testing nursing students in different subjects could expose nursing students' challenges and make it possible to prepare workshops to support nursing students' learning. Furthermore, academic support for seniors and facilitation of first-year students have been revealed to have positive effects on nursing students' academic success, even reducing dropout (Clark & May, 2015). A Canadian quantitative study with 14 participants revealed that a five-week pre-semester programme has a positive impact on the students' trust in their performance. The pre-semester

programme seemed to help the students find the balance between education and private life (Jacobs, 2016).

An Australian quantitative study showed that the students want more information about computer services and computer skills training (Birks et al., 2013). A study from the United Kingdom revealed that if clinical supervisors and faculty members prioritise supporting students in the first year of the study, the students' wishes of being involved and a member of the team, as well as their need for academic and social support, would be met (Andrew, et al. 2009). In the same study, students reported that being successful in the first clinical placement positively impacted their academic achievement in the first year of the study. The students requested more personal interaction with faculty members on campus (Andrew et al, 2009). Moreover, a quantitative study found that the use of technology can support students' engagement, outcomes, and relationships with their study fellows (Amoria-Watters, 2017).

Students, clinical supervisors, and faculty members all emphasised that university and clinical placement work in partnership to support the students during their first year of study. During the first year, the students need help to gain realistic expectations and embrace the academic and professional skills as equal parts of nursing education (Andrew et al., 2009). A survey of first-year students (n = 133) aiming to identify forces and weaknesses in the learning environment and learning strategies revealed the importance of identifying students at risk for withdrawing from the study and faculty members' strategies for supporting students, particularly those with fear, difficulties in concentration, and minority groups (Gatto, 2010).

The transition between campus and clinical placement

Barnes (2018) investigated faculty members' understanding of transfer from clinical simulation to clinical performance. The study found that the participants liked programmes that included simulation, apart from the problems related to the simulation quality. However, it was unclear whether students were able to transfer the newly learned simulation skills to clinical practice (Barnes 2018). Lehn-Christiansen & Holen (2019) questioned the value of simulations on campus, as they argue that simulation might indicate that intimate care is a procedure you can control; consequences might be students feeling incompetent in real patient situations, which are more complex and demanding than simulation (Lehn-Christiansen & Holen 2019). A critical discussion of using simulation was recommended, as there seemed to be a risk of instrumentalization at the expense of ethical considerations, since simulation cannot provide students with the patients' perspectives (Lehn-Christiansen & Holen, 2019). In clinical practice, relational care logic is not as valued as education and medical ruling logic (Lehn-Christiansen & Holen, 2019). Therefore, the unvalued relational care means a reduction in learning clinical practice, which demands

discussion of values in nursing care (Lehn-Christiansen & Holen, 2019). There is also a need for discussions of the dominating gap between campus and clinical placement, which conceals essential problems in clinical placement (Holen & Lehn-Christiansen, 2017). Moreover, Andrew et al. (2009) stress that there is a lack of clarity regarding clinical supervisors' role, causing difficulties in students' achievement of learning outcome in clinical placement. Therefore, the author recommend that clinical supervisors provide time, support, and education for nursing students in clinical placement (Andrew et al., 2009).

The transition from nursing education to occupation

Jensen (2018) found that newly graduated nurses' problems cannot just be fixed; their institutional conditions are characterised by reality shock and missing mentors. They are afraid of harming the patients and feel guilty when they die (Jensen, 2018). Trysøe showed that students in the last part of education and newly graduated nurses feel uncertain about what health care professionals expect of them and how they attend professionally (Trysøe, 2010). Newly graduated nurses' express self-confidence when sharing knowledge and experiences gained from the education with other health care providers in professional situations concerning the development of clinical practice (Trysøe, 2010). Nevertheless, knowledge sharing is limited due to the other demands in clinical practice. However, the dialogue might facilitate participation both professionally and socially (Trysøe, 2010).

Voldbjerg's (2016) showed that newly graduated nurses feel overwhelmed by the responsibility and lack clinical practice competencies. The newly graduated nurses expressed that education does not prepare them for clinical practice. Most of the newly graduated nurses regard experienced nurses as their primary sources of knowledge, without questioning (Voldbjerg, 2016). Newly graduated nurses primarily base their nursing practice on procedures and tasks to become part of the social fellowship of the profession. Furthermore, their medical knowledge and clinical guidelines are limited, which limits their potential to ask questions or think critically about their own clinical practice. To some extent, they use knowledge from the patients, although they do not articulate this knowledge as a source of knowledge (Voldbjerg, 2016).

Limitations

The literature review above represents a relatively new sample of both Danish and English research publications. The sample include articles published between 2009 to 2020. Thus, relevant research might have been conducted before 2009 that could have strengthened the findings. Moreover, there might have been restrictions caused by using

only one database. However, these limitations have to some extent been accommodated by the manual search for relevant literature from Danish PhD studies.

The literature review's implication for nursing education in Denmark is restricted due to limitations of transfer caused by differences in the educational curricula across countries. These limitations include differences in the countries' educational structures. Nevertheless, this review's findings seem to add new reflection to existing practice, especially the Danish research literature that seems to address experienced problems recognised by the stakeholders, educators, and clinical supervisors involved in the project of overcoming transition problems in Danish nurse education in the north of Denmark. The review has contributed to a broader understanding of daily educational practice challenges and where and when these challenges are most present, adding new possibilities to intervene and qualify educational practice.

Conclusion

The review aimed to identify transitions and their affiliated challenges and possible solutions. We identified three transitions: a transition from high school to nursing education, a transition between campus and clinical placement and a transition from nursing education to occupation, as well as suggestions to overcome challenges in these transitions. Most of the scholars reviewed suggested that clinical supervisors and faculty members give priority to academic and social support of nursing students in the first year due to their challenges in reading, critical thinking, and balancing study and private life. In the transition between campus and clinical placement, they suggested discussing values in nursing care and the expressed dominating gap between campus and clinical placement where the students are challenged in learning intimate care. In the transition from education to occupation, dialogue between health care providers and newly graduated nurses might facilitate new graduated nurses' participation in practice and reduce reality shock experiences. Lastly, the suggestions presented to overcome challenges in the three identified transitions might prevent nursing students from dropping out.

The perspective of implications in relation to reflective practice-based learning (RPL)

In the following, the results of the study will be discussed related to reflective practice learning (RPL). RPL consists of six principles promoting learning and education in nursing education at the University College of Northern Denmark (Horn et al., 2020). The principles have emerged as a contribution to scaffold students in becoming more reflective and more confident in their learning trajectories and transitions in educational practice. The principles are:

- No. 1: The students' own experiences are incorporated into teaching and learning activities.
- No. 2: Teaching and learning activities designed to include appropriate disturbances.
- No. 3: Teaching and learning activities are organised as exploration.
- No. 4: The content of teaching and learning activities is based on the good example.
- No. 5: Lecturers and students work together on learning processes.
- No. 6: Lecturers and students create room for dialogue.

It seems that principles 1 and 4 in particular hold the potential to accommodate the transitions from campus to clinical placement and vice versa if the experiences are related to their practice in both settings. The explorative kind of learning activities addressed in principle 3 holds the potential to investigate and understand the connecting lines between theory and practice and reverse. However, these principles do not reveal the constraints regarding the differences inherent in each of these settings, their learning possibilities, and potentials, as Holen and Lehn (2017) have stressed.

The study by Birks et al. (2013) revealed that students request more personal interaction with faculty members on campus. Principle 5 and 6 include potentials for this kind of personal interaction, as both working together and dialogical practices are prerequisites for these two RPL principles. In particular, principle 5 seems to afford collaboration, which Clark and May (2015) have suggested is necessary for students' performance. Their research study has revealed a positive influence on students' performance when the students are working in teams (Clark & May 2015).

None of the principles distinguishes between the individual student's learning resources or personal resources, as they are generalised principles. Therefore, the findings from the doctoral thesis by Gatto (2010) underlining the importance of identifying students at risk for withdrawing might be relevant for future research investigating how certain kinds of students (students from minority groups and students with anxiety) cope with the RPL frame for educational practice.

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Digital transformation through reflection and action in continuing education

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Abstract

This paper reports Danish small and middle-sized enterprises' (SME's) learning and competence development on digitalization and new digital technologies through continuing education. The aim of continuing education courses in the KomDigital project, anchored at the Department of Applied Mathematics and Computer Science of the Technical University of Denmark (DTU), is to strategically facilitate participants' reflection and action in teams for digital competence development. With the goal of designing impactful continuing education, we inquire how a systematic approach to reflection and action learning in groups show characteristics of the digitalization strategy of the SMEs. This qualitative case study analyzes the observations of workshops, company documents on digitalization, and evaluation of the continuing education course of ten Danish SMEs. The companies' (course participants) reflection and action appear to have four categories of factors that characterize their digitalization profile: digitalization strategy and mindset, multiple viewpoints and common language, research collaboration and domain knowledge, and simple experimentation and adoption. In the future, based on the findings, a questionnaire tool will be developed for self-assessment of digitalization strategy for the pre-course expression of interest and post-course impact assessment.

Keywords

Reflection and action, digitalization, educational design, lifelong learning, SMEs, continuing education

Introduction

The small and medium-sized enterprises (SMEs) in Denmark are experiencing difficulties in the process of digital transformation and the sheer diversity of needs and expectations make it difficult to design and implementation continuing education that can facilitate desired learning. First, Danish companies are reluctant to attend continuing education, as they do not feel that these correspond to their specific competence challenges. It shows a potential for the improvement in the current practice of continuing education courses, which target the specific challenges companies face during their digital transformation processes. Secondly, SMEs often lack time due to their focus on daily operation and

therefore cannot prioritize continuing education (REG LAB & Digital Transformation, 2018).

The KomDigital project aims to strengthen SMEs' strategic and operational ability to utilize the opportunities in digitalization through the development of a customized continuing education concept considering the companies' daily operations. KomDigital project is a collaboration of eighteen companies, organizations, and educational institutions from the capital region of Denmark. During 2018-2019, a new design of continuing education was developed and tested. During 2020-2021, the project is facilitating companies through customized and growth-oriented continuing education program for digital competency boost in SME's. EU funds the project and offers free courses for competency boost. Participants fulfil the requirements based on the company's digital maturity and motivation towards digitalization.

Since SMEs' are heterogeneous in their digitalization strategy and practice, each of the courses has been custom-designed based on different needs and expectations. In this study, we are interested in understanding the differences and similarities of the digitalization strategy observed during the process of designing and conducting the course. Thus, we devised the following research questions:

> How are the SMEs different or similar in their digitalization strategy as evident through reflection and actions during a continuing education program?

The Design of KomDigital continuing education

The design of the KomDigital continuing education is inspired by REG LAB, which is a member based "laboratory" in Copenhagen for regional economic development. REG LAB (2018) pointing out a need for hands-on and practical initiatives with focus on leaders' digital mindset and employee/team involvement in the digital journey, both mentally and by competence (REG LAB, 2018). The competence profile for employees in companies in digital transformation should be characterized by problem solving, collaboration and expertise in the context-given domain (Hanne Shapiro Futures & Finansforbundet, 2019). Team and group learning in SME's are often characterized by action- and experiments, the accumulation of incremental knowledge and experience of 'what works', and while shared with others (Rae, 2006). In the KomDigital project, it was therefore essential that a course design process be made not only to make the learners become 'do'ers' but also 'reflective practitioners. The learners will not replicate but rather have the ability to work with problems of a developing nature in the settings of learning teams.

Social constructivist starting point

To develop the customized continuing educational design that is hands-on, team based, strategic and problem solving we found inspirations in two theoretical traditions from the social constructivist paradigm:

Firstly, applying Dewey's pragmatism (Dewey, 2009), we had a theoretical framework on a learning process that would start with an *experience* at the university followed by *reflection*, *conceptualizing* and *experimenting* in the company context. We refined the process with principles from action learning (AL) defined as team-based learning *in* and *of* practice, when a learning group of employees with the greatest possible diversity works with a complex and real challenge that does not have a known solution (Pedler, 2016). With scaffolding by a facilitator, goals are set, the problem is narrowed, a plan for actions is drawn up and it is negotiated which questions need to be answered before the actions can be performed. In addition, adding AL consulting that brings a business perspective in the design with the concept of *strategic intention* that captures the need for a focus on *outcome* (Molly-Søholm et al., 2014).

Secondly, applying the concept of Reflecting Teams (RT) in AL - activate listening, reflection, diverse perspectives and tacit knowledge in the learning group. By applying systems theory and questioning types (Tomm, 1988), we wanted to scaffold the emergence of new understandings, perspectives and solutions on digital problems in reflective teams (Madsen, 2013).

The question types used was:

- What did you see happen?: Linear and simple questions oriented towards the past (clarifying, defining and investigative)
- What other positions would also be possible?: Circular and complex questions oriented towards the past (relations, patterns, different positions and perspectives)
- What would it look like if…?: Reflective and complex questions oriented towards the future (possibilities, hypotheses and best-case scenario)
- So, what are you doing now?: Strategic and simple questions oriented towards the future (Leading, confrontational and inspiring)

The KomDigital continuing education design

Based on the theoretical starting point, the design of the continuing education program builds on the following activities that take place over 2-4 months (see Figure 1):

1. A dialogue meeting with manager and 1-2 key employees from the company, expert from DTU Compute and a business facilitator. The goal is to form a more or less customized competency development plan and adjust contents to match

each company's needs. Before starting the process, the plan must define company's digitalization strategy **(Strategic Intention, SI)** that facilitates the transformation process to implement specific technologies in the product or service innovation.

2. A group of learners from the company consisting of both management and key employees participate in three workshops eg. AI, UX, Machine Learning, Data driven Innovation, Blockchain, IoT, etc. Researchers at DTU with competence in new digital technologies conduct the digital workshops.
3. The learning group participates in two company-located AL-workshops with **Reflecting Team (RT)** as key method. AL-consultants with competence in learning processes facilitates the AL-workshops. All companies enter the project with a strategic intention, and it is this intention that sets the framework for the action learning process and the curiosity it calls for in the learning group. The focus is on: What do we already know from our practice and what new knowledge have we gained that can create hypotheses that can lead to experiments and actions. In the first action learning workshop (step 4) reflection focuses on hypotheses and formulating actions, and in the second (step 6) workshop reflection focusses on the observation and data from performing the actions and what that gives rise to.

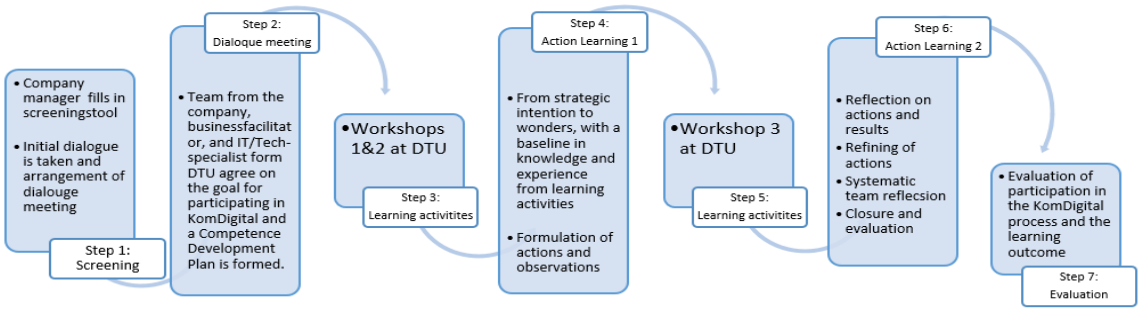

Figure1: KomDigital design for continuing education.

Methods

In this study, we looked at ten SMEs representing financial, production, start-ups and service segments. Case study is an obvious methodological choice, because it is defined as an approach used when the phenomenon one wants to investigate is not easy to define. For instance, Yin (2011) defines case study as:

> "An empirical inquiry about a contemporary phenomenon (e.g. a "case"), set within its real-world context - especially when the boundaries between phenomenon and context are not clearly evident." (Yin, 2011, p. 4)

The central concept of competence development also makes it necessary to choose a research design that can address such a phenomenon: How is it possible to locate digital competence development leading to digital transformation? How do we in this study locate something that takes place between humans and technologies, and how can it be the subject of investigation?

The cases used in this paper are constructed from screening documents stating company's strategic intentions (step 1 & 2 in the process, Fig. 1), semi-structured observations on digital- and action learning workshops (step 4 and 6) and from participants qualitative evaluation (step 7). The approach in the analysis is inductive, constructing new theory based on data in the cases (Brinkmann & Tanggaard, 2010). The analysis is based on a schema, which was constructed by looking at the data material collected in step 1-7. While looking at how each case participated at each step of the entire continuing education program, we developed categories from asking 1) What is the most essential intention on developing digital competencies and digital transformation (step 1&2)? 2) is focus and engagement in action high or low (step 4&6)? 3) is focus and engagement in reflection high or low (step 4&6)? 4) How do participants describe perception of learning outcome (step 7)?

Results

Through an inductive analysis, we categorized the companies' different reflections and actions during the continuing education process and the outcomes in four modes or learning profiles of the companies.

Digitalization strategy and mindset: Company A and B

The action learning process in these companies contributed the sparring of ideas and perspectives rather than leading to concrete experiments and actions. Company A formulated the following strategic intention during the initial dialogue meeting:

> "We want to gain greater knowledge and understanding of opportunities with different technologies, both at management level and broader in the organization."

This type of strategic intention taps into a company strategy regarding a general development of digital competencies and a desire for a general impartial introduction and an overview of the potentials and challenges of relevant technologies. When the learning group does not formulate a specific problem, it is hard for them to formulate concrete actions, because the focus is on a much broader level, which we see as an expression of focus on **Digital mindset and digital strategy**.

These companies seem to benefit from gaining new knowledge on digital technology from the workshops with DTU researchers - and less from the action learning workshops, as evident in the evaluation of Company A's learning outcome:

> "It has been the most important to gain insight into new technologies."

It is the sparring and dialogue with researchers at DTU that seem to inspire and support the reflections and the planning of organizational efforts.

Common language: Company C, D, and E

In these companies, the learning groups were investigating different approaches to digitalization and the use of data when discovering new business territories. Company E's strategic intention was:

> "We want to have a conceptual apparatus and language that can form the basis for asking the right questions about technology/digitization and look into the opportunities of Internet of Things for value-creating products and services."

This type of strategic intention shows the desire for a common knowledge and overview of relevant technologies. During the first AL workshop (step 4), we saw that the facilitated reflection in the learning group activated tacit knowledge and was scaffolding development of **common language** and direction within the company.

When it came to formulating actions, we saw a strong focus on investigating how to involve customers and other partners in development of new products/services driven by artificial intelligence, data, etc. The characteristic of these companies' actions was that they were on a level of preparing/scooping more thorough investigative work based on hypotheses and reflections structured in the action learning process. They seemed to benefit from reflecting on their current practice as a way to "take a step back" and look at existing practices and workflows; Why do we do as we do? What are the opportunities to make product development in the future? Furthermore, they seem to benefit from the facilitated AL process on questioning and reflecting on (digital technology) theory and creating hypotheses, which were expressed in the evaluation of Company E's learning outcome*:*

> "Good with a structure that mixes new knowledge and actions in own practice, and good to be maintained and reflect structured on the action learning workshops."

Simple experimenting: Company F, G, and H

This characteristic of *simple experimenting* type of companies are acting and experimenting within the praxis they know. The strategic intention of company F was:

> "We want to create growth through increased quality and lower costs through more cost-effective and flexible production and order execution. Among other things, through AI in various processes to reduce errors and also by increasing market share through increased customization."

This type of strategic intention indicates a direct potential for development with digital technologies and exploring the ways to go by experimenting. On the first AL workshop (step 4) we saw that the facilitated reflection in the learning groups helped making the "low-hanging fruit" among the further digital development directions visible and contributed to actual experiments - especially with a focus on developing and testing new services on relevant partners and customers by **simple experiments**.

The facilitated questioning session scaffolds reflection and enables tacit knowledge to be explicit. They benefit in particular from reflecting together during the two AL workshops. New group positions emerged that brought out new perspectives on the experiments, and questions were asked that led to deeper and broader dialogues than usual. This is expressed in an evaluation of one of the company G's learning outcome*:*

> "Although work was done on issues that have been known and discussed before, new perspectives and opportunities for action are added when working with reflective teams and actions. As a result, we have acted on some things that we have only talked about so far."

Complex experimenting: Company I and J

In this type of companies, we saw a focus on concrete and specific development of existing products and services by **complex experimenting***.* In company F, the following strategic intention was:

> "We want automation of shift planning - customization and maintenance, which requires minimal administration from our customers."

This reveals an ability to translate input and methods from the technology workshops very directly and develop new and existing services or prototypes. Common for these companies is that they have data competencies in house that has enabled this very direct transfer. Here, the action learning process mainly functions as a structural framework with deadlines, which has maintained momentum in a busy company, where development projects often is downgraded as opposed to daily operations.

The learning process is characterized by acting and experimenting with new digital technologies in collaboration with researchers and students at DTU- challenging and supporting the process of development ─ this is expressed in an evaluation of one of the companies learning outcome*:*

> "The KomDigital process has sharpened our focus on UX as a central part of our company's DNA. In addition, the course has also challenged our way of analyzing critical process data and provided a new perspective on how we can continue to work with time series analysis. The combination of the user-driven approach and the deep technical insight has undoubtedly made the KomDigital process a very valuable for our company."

Discussion and future work

Fig. 2 summarizes the learning profiles of teams and their reflection and action process during continuing education on digital competencies. The learning profiles show to what extent the company benefits mostly from reflecting or acting. Profile 1 & 2 are more oriented towards discussing opportunities/hypothesizing impact of digitalization (reflection), profile 3 & 4 are oriented towards experimentation with new technology (action). Among those who were oriented towards hypotheses, two types emerged: 1) Focus on organizational aspects and reflection on developing own **digital strategy** with very little interest in experimenting with new technologies and 2) Focus on general knowledge about new technologies and creating a **common language**. Among those who were oriented towards action and experiments, focus was on how specific technologies can develop new and better product and services. Here we also saw two different categories emerge: 3) **Simple experimenting** and 4) **complex experimenting**. Fig.2 also shows to what extent the participants benefit from a linear or a circular facilitating approach. The linear approach is when participants benefit from the guidance and directions from researchers' knowledge, and the circular approach is when the participants benefit from being researchers in their own practice and only guided by facilitating questions.

We propose the learning profiles of the SME teams as a theoretical model (Fig. 2) for differentiated facilitation and appropriate prioritization between reflection and action.

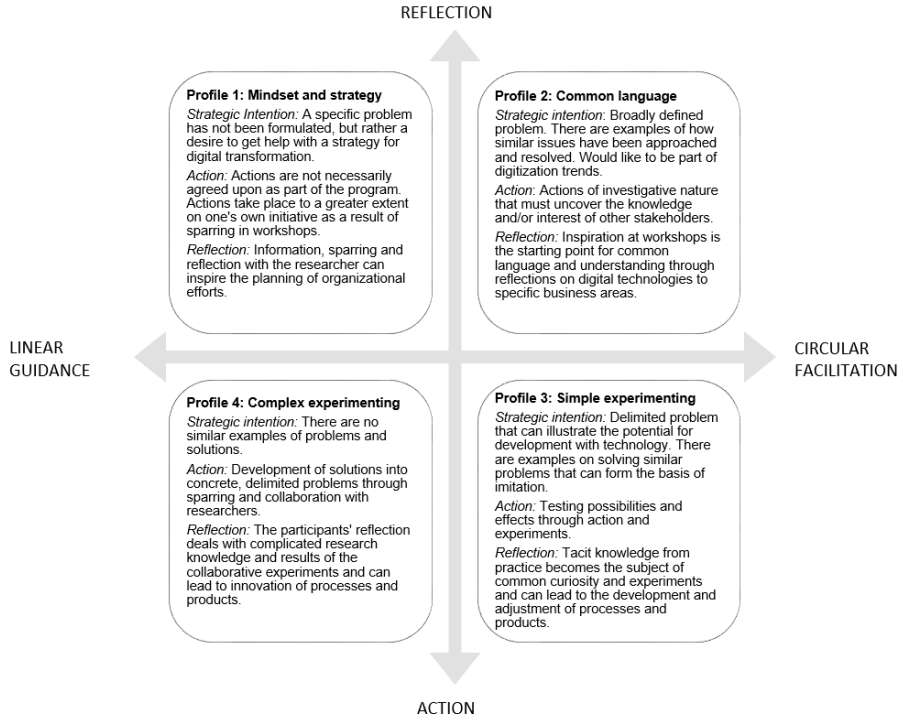

Figure 2: Typology of four different learning profiles of SME teams in continuing education on digitalization

Towards providing effective continuing education and aligning the learning goals of teams, the findings have contributed to identifying the similarities and differences in learning profiles of teams from SMEs, which paved the way for developing questionnaires as tools for need identification, digitalization agenda-setting, and self-reflection tool for team development through refection and/or action.

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Design for reflection of practical skills in teacher education

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Abstract

Danish teacher education is based on a dual principle meaning that student teachers oscillate between school and workplace periods throughout their education. However, making sense and use of learning in and from these different contexts and thus experiencing continuity between school and work has long been considered a major pedagogic-didactic challenge. In this pilot case study, we investigate student teachers' and in-service teachers' possibilities to reflect upon and transform their teaching practices through design for boundary crossing activities.

Based on two different cases, we study the didactic design for boundary crossing through design experiments with a) asynchronous video for students in music teacher education and b) work-placement periods and subsequent creation of thick descriptions for in-service teachers in vocational diploma education. The goal of both didactic design experiments is to enhance reflection-on-action to transform current teaching practices. In this paper, we elaborate on the different designs, and we focus on findings from interviews conducted in the preliminary phase of the study. While there are differences, both designs promote reflection, whereas transformation of practice needs further scaffolding and research.

Keywords

Didactic design, practical based reflection, boundary theory, teacher education, practical skills

Introduction

In Denmark, teacher education is based on a dual principle meaning that student teachers oscillate between campus and (future) workplace periods throughout their education. Students in both teacher education (within music education) and in Vocational Diploma Education need to learn how to navigate and make sense of the knowledge and practices they acquire in different domains, practices, and contexts. This points to a classical pedagogical and didactical design challenge with respect to the boundary between 'theory-practice'.

As stated by Horn et al. (2020) in a White Paper on Reflective Practice-Based Learning, many different relationships concerning the boundary between theory-practice exist and need to be studied. In this paper we study a) boundaries in theory-practice as different forms of knowing related to music education and b) boundaries in school-workplace as different forms of practice related to vocational education. Here we study such boundaries through the examination of two didactic designs.

The field of didactic design is relatively new and broad in perceptions and definitions, however, design as product and process is central in all areas of it (Dohn & Hansen, 2016; Rostvall & Selander, 2010; Sørensen & Levinsen, 2014). Didactic design focuses on teaching and learning as activities that ask for active engagement from all agents, that is both teachers, educators, students, and pupils: teaching and learning are processes and products that are always unpredictable, negotiable and thus call for iterative redesigns. Research in the field of didactic design is interested in describing, analyzing, and understanding these processes and products and oftentimes also interested in contributing to the designs, redesigns, and active co-engagement.

The notion of boundary crossing includes ongoing, two-sided actions and interactions between different domains, practices, and contexts with the purpose of finding productive ways of connecting and relating such differences to create meaningful sense of continuity and coherence (Akkerman & Bakker, 2011, Riis, Rasmussen & Brodersen, 2019). One typical boundary in dual education, is the difference in epistemic cultures, and thus practices and possibilities for participation. Although Akkerman & Bakker (2012) assert that boundaries can function as learning resources, the authors also emphasize that intersecting sociocultural practices do not per se lead to boundary crossing but rather necessitate deliberate pedagogical and didactical design to fulfil the potentials of dual education. As a means to facilitate the process of boundary crossing, Akkerman & Bakker suggest the use of boundary objects which are ‘artifacts doing the crossing by fulfilling a bridging function’ (Akkerman & Bakker, 2011, p.133). In this paper, we examine the use of a) asynchronous video and b) work-placement periods as boundary objects.

In boundary theory, participation and subsequent reflection and dialogue are considered particularly important in so far as such processes facilitate learning and potentially transformation of both knowledge and practice (Akkerman & Bakker, 2011, 2012). In this study, we focus on how the different didactic designs promote reflection and possibly transformation of knowledge and practice among student teachers.

The concept of practice-based reflection can be understood in several ways (Griffiths, 2000), and according to Schön (1984, 1987), reflection can be divided into three levels of activity. The first, ‘knowing-in-action’, is the kind of knowing that is needed, e.g., to play the piano, sing in tune, to build a roof, to cut hair or to cook; yet, if the knowing-in-action is verbalized, it becomes what Schön calls ‘knowledge-in-action’. The second level of

reflection is the concept of ‘reflection-in-action’. This is described as the “capacity of professionals to consciously think about what they are doing while they are doing it” (Edwards, 2007, p. 30), whereas ‘reflection-on-action’ is the action of reflection that takes place after the action ”in tranquillity” (Schön, 1987, p. 26). The third level is an iteration of reflection-in-action and described as a verbal description of the former reflection. Schön argues that this level of reflection on our “past reflection-in-action may indirectly shape our future action” (Schön, 1987, p. 31).

Based on this theoretical perspective we focus on how didactic design can promote reflection and transformation of practise in two different educations. Thus, we investigate:

How do different didactic designs with the use of asynchronous video and work-place periods as boundary objects promote reflection and possibly transformation of knowledge and practice among student teachers and in-service teachers?

Cases - methodological approach and case descriptions

In order to answer the research question, we analyse two case studies (Yin, 2009). The empirical data are collected through qualitative interviews with the participating teachers. The interviews were conducted by the authors based on one theoretical informed interview guide. The analysis has been an iterative process of reading the data across the two cases and each interview by connection of data in themes looking for sameness and differences of how the didactic designs promote reflection and enhance transformation of practice.

We present the cases and the findings from the interviews, and we keep a focus on the way reflection is understood and highlighted here. While the two cases studied in this paper are different, they also share certain commonalities. In both cases, a stated purpose is to foster the student teachers’ *practical* subject matter knowledge and skills for teaching such subjects.

Table 1: The cases included in the study

Case A Music teacher education	Case B VET teacher education
Design experiment with asynchronous video	*Design experiment with work-placement periods and thick descriptions*
Participants in this study: Two music teacher students Two music teacher educators	Participants in this study: Two in-service VET teachers Two VET teacher educators
Method: Case study with interviews	Method: Case study with interviews
Researchers' role: Co-design the experiment with two music teacher educators Follow-up research - Author 1	Researchers' role: Design the experiment and teach Follow-up research - Authors 2 and 3

CASE A: design experiment with asynchronous video for students in music teacher education

Music education in teacher education in Denmark is focused on both teaching the student teachers to teach music but also to teach them to play and sing not as professional musicians but as professional music teachers. As all subjects in teacher education in our university college are to be taught in the format of blended learning in a few years, two music educators and two researchers in teacher education collaborated on designing for e-learning in music education as part of a research project.

Didactic design

To create the didactic design for case A, a group of researchers and educators performed a literature review of research in the field of online or blended learning in music. On this basis they co-created, discussed, and finally analysed the implemented design.

Purpose

With the goal to encourage the students to practice music rehearsals and thus enhance their music skills, the educators produced videos that showed and explained how to play/sing specific pieces and genres of music. As a part of these videos, they included reasons, theories, music vocabulary and detailed learning paths for the students. Thus, the practice of the music teacher will in the present case be narrowed down to focus on the student teacher's practice of learning to play/sing as a professional music teacher.

Activities

Based on these learning resources, the students were to rehearse, film and upload their own videos that showed how they played or sang the specific piece and answered the theoretical or reflectional questions. The videos were shared in the learning platform, and the educators watched, evaluated, and provided feedback to the individual students. If any problems were found or the students asked for guidance themselves, the educators and the students meet for an online or f2f individual guidance on campus. Figure 1 summarizes the design.

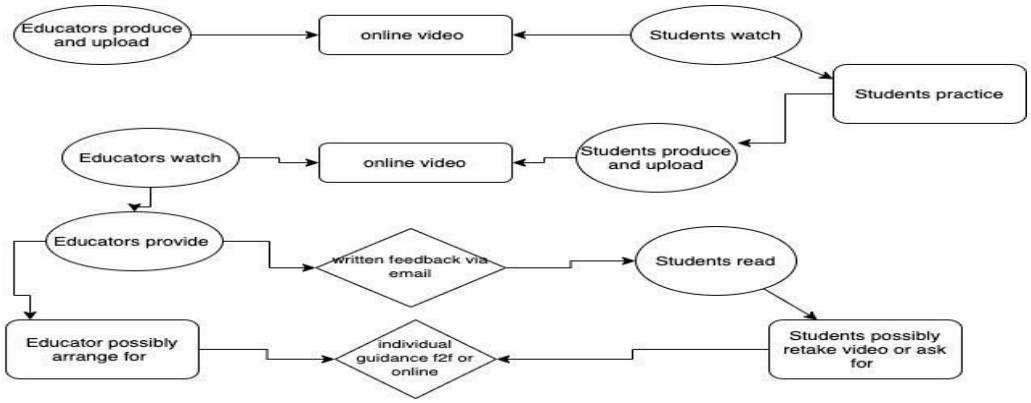

Figure 1 The didactic design for music practice and skills enhancement. (Read the figure as the following: “Educators produce and upload a video. Students watch the video online.”)

Artifacts

Thus, the students were asked to upload videos five times during the semester, ending in videos that contained both skills demonstrations in piano and song accompanied by comments and reflections as independent imitations of the educators’ videos.

CASE B: design experiment with work-placement periods for in-service teachers in vocational diploma education

The Danish Vocation and Education Training system is based on a dual principle, where the VET students alternate between school and workplaces periods throughout their education. This alternation constitutes recurring pedagogical and didactic challenge for both teachers and students in VET (Riis & Brodersen, forthcoming; Riis, Rasmussen & Brodersen, 2019). Upon employment, Danish in-service vocational teachers must qualify for teaching by completing a diploma education in pedagogy aimed specifically at VET. Many vocational teachers are already professional craftsmen and -women. This means that the diploma education is focused on developing the in-service teachers’ knowledge and skills with regards to *teaching* their original vocations, rather than teaching them

subject matters of their vocations. In this sense, case B differs from the previous case, where the teacher students also needed to learn music as a subject matter to a certain degree. Despite being professional craftsmen and -women, VET teachers often find it difficult to relate school subjects to the practices in the different vocations the students engage in during their apprenticeships (Riis, Rasmussen & Brodersen, 2019). Broadly speaking, the purpose of the diploma education is to transform professional craftsmen and -women into professional teachers of vocations and subject matters (Duch, 2018).

Didactic design

Purpose

The design experiment was part of a module called 'Practice related teaching' where the curricular focus is on teaching the in-service teachers how to relate their teaching activities to the practices their students engage in during their apprenticeships. The main purpose of the didactic design was to update the in-service teachers' practical literacy knowledge and skills and transform their knowing-in-action to knowledge-in-action. Therefore, the in-service teachers were encouraged to spend a minimum of two days in different workplaces where they would interview and observe students and their masters in action. As shown in figure 3 below the work-placement period was situated between the second and the third teaching session:

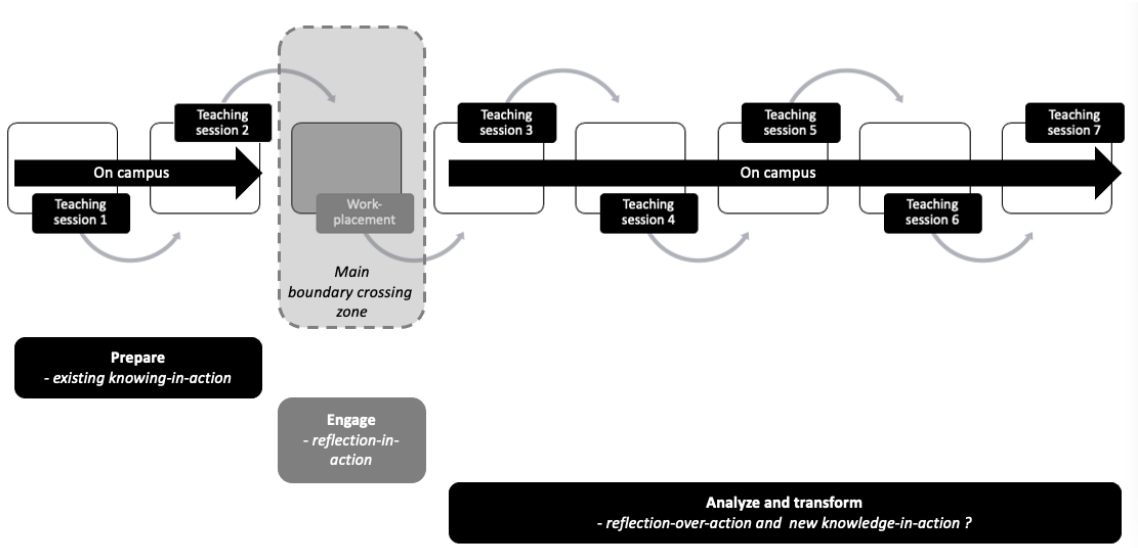

Figure 2 The didactic design for case B

Prior to the work-placement, focus on the teaching session was on preparing the in-service teachers with regards to interview and observation methods, but also on discussing and thus making explicit their knowledge of the field. After the work-placement, focus shifted to analysis and transformation of new knowledge. This also included challenging the students' knowledge with relevant theory.

Activities

The in-service teachers documented the work-placement experiences via text, photos, and videos, which were shared with the rest of the participants in the module upon return to campus. On campus the in-service teachers would engage in reflection and dialogue with their peers and teachers discussing what their experiences meant and what pedagogical and didactic consequences could be drawn and potentially lead to transformation of their future teaching. During these activities, the focus was on identifying differences between the way the students' learning processes are facilitated in school (by the in-service teachers) and in the workplaces (typically by the master or more experiences apprentices), thus making it possible to discern, reflect upon and discuss differences in domains, practices and contexts as seen from a didactical point-of-view.

Artifacts

Besides documenting during the workplace-period, on campus the in-service teachers were asked to create 'didactical close-ups' meaning they had to transform their experiences into thick descriptions of learning situations experienced in the workplaces. Such situations typically included an observation of a student learning something which the in-service teachers had to analyse from a didactical perspective as part of the 'close-up'.

Findings from Case A

Knowing and knowledge as foundation for reflection

The focus in the didactic design for online music practice was on the knowing-in-action in the beginning of the semester facilitated through the educators' explicit knowledge-in-action and ending in the students' reflection in/on action after all three semesters. When the educators during the interviews are asked to describe how reflection was supported in the video-design, they explain it as the following: "the students hand in five videos to us where they play and sing and explain what they do. A big success… they actually learn." Because the students must demonstrate that they master both knowing and knowledge in action, they need to rehearse a lot. On the videos, the students can imitate the educators' playing, singing, and explaining but they are encouraged to play and sing in their own way. Peter frames it as follows: "They are not to just imitate; they need to understand

what they do. I make the videos, but I don't show everything. They must learn to do it on their own".

Reflection in action is challenging

However, the educators face more challenges when asked to elaborate on their students' potential professional reflection-in-action. Sarah explains: "[reflection] probably happened when we pointed them in the right direction. They should be made aware of it. All of them, including the best ones. But they are quite young: we need to help them open their eyes". Thus, to help the student to reflect in action, the educators considered letting the students evaluate other students' videos as a first step: Sarah says: "[next time we implement the design] their videos are to pass a fellow student first to find out if "it works" before handing it in to us [the educators]". Reflection on (other students') actions appear to be less challenging.

Reflection on action though an artifact

The educators found that it can be very difficult for student teachers to reflect in action, not least when the action itself demands a lot of attention. They might need extra time to "stop and think" (Schön, 1986, p. 26), thus, an evaluation of the specific practice and reflect on action after action can be easier for them. To do this, the educators found that the videos could be used as a "freeze" of the situation and instead of only using memory as the means for the object of the evaluation or reflection, the video could contain the action and keep it at a 'reflectionable' distance. Thus, another way of helping the students reflect on action was to let them evaluate their progress in music skills and competences by comparing their own videos. Peter says: "[I tell the students:] "Go and watch your first video and pay attention to its ineptitude. And then consider what you can do now!" They do see it!"

When teaching students in a classroom e.g., during placement, inexperience often urges students to focus more on their self-image (Kwo, 1996) to begin with. This was found in the music education design too as some of the students try to hide a bodily appearance that they do not find appropriate for a music teacher. Peter explains: "some of them edit their video afterwards. They might hide their face and comment: "I was very angry, and you are not allowed to see how angry I looked." Maybe due to a professional shyness, Sarah finds that both she and her colleague need to incite the students to listen to their playing and singing before uploading: "We have to ask [some of the students]: Have you listened to your own video? What did you think?" Sometimes they don't listen; they just upload. So, we must turn them 180 degrees. We guide them quickly when something worries us… They need to enjoy being "on stage", if they are to become music teachers."

Transformation of learning practice through didactic design - step by step

To sum up: the educators found that video technology was a very useful learning resource in their didactic design for online music education as an enhancement of not only knowledge but also knowing in action. However, when focusing on facilitation of reflection in action in music, the educators faced more challenges: many students were too shy or embarrassed by their self-image as musicians or music teachers to listen to their own performance in the video. Thus, a prospect design should include a peer evaluation of the performances as a reflection on (other students') action as a first step. The didactic design showed that video technology created an opportunity of separating the performance and the reflection: the video showed and thus made an object of the music practice situation upon which the students could reflect on action at a less challenging distance.

Findings from case B

Reflection as foundations for transformation of knowing-in-action

The focus in the didactic design was on transforming the in-service teachers' existing knowing-in-action to new knowledge-in-action through reflection in different stages in the design. During the interviews, the in-service teachers point to different aspects of the design which they felt had changed their knowledge. For Axel the work-placement period made him more aware of how his students need more practical skills before engaging in the apprenticeship periods; "Our approach to the electrician education is very theoretical making it difficult to focus on the practical aspects, but my interviews and observation showed that the companies prefer students with basic practical skills". One of Axel's conclusions was that he and his colleagues need to focus more on practical skills and in particular the tools of the trade. Oliver had similar experiences but also noted a discrepancy between what the companies expect from the apprentices'/the students' practical knowledge and skills and what the school sees as its responsibility. Oliver also stated that in future designs he would focus more on the differences in his students' prerequisites.

For both Axel and Oliver, the work-placement period provided updated knowledge of both the companies' and the students' needs and expectations. While this knowledge was not completely new, they both appreciated the reminder and stated that the concrete experiences in practice gave legitimacy to and unearthed their tacit knowledge of the boundaries between 'school-workplace' and 'theory-practice'.

Reflection in action needs scaffolding

Neither Axel nor Oliver came to these conclusions solely by engaging in the work-placement. They documented their reflection-in-action but needed help in transforming these observations into reflection-on-action and new actionable knowledge. The design with

subsequent dialogue and the creation of didactical ‘close-ups’ (thick descriptions) provided the scaffolding they needed.

Reflection on action though artifacts

Based on the documentation from the work-placement periods Axel and Oliver created didactical ‘close-ups’ with text and pictures, making it possible to reflect and discuss their observations with others. Oliver explains that “it has been very educational, easier to understand - we’re not academics, so we can’t just read”. In other words, in-service teachers like Oliver and Axel appreciate experiencing rather than (just) reading about didactical phenomena, but such experiences need to be processed afterwards to connect them to relevant theory and make them actionable.

Transformation of teaching practice through didactic design

For Alex and Oliver, the design both confirmed what they already knew, but perhaps previously had chosen to neglect, and it also gave them new insights with regards to the importance of collaboration with colleagues and the workplaces/companies. They both decided to design new ways of promoting their students’ practical and theoretical knowledge and skills. They also became more aware of the tools of their different vocations and subject matters, and how such tools can have bridging functions. This awareness was raised through their own experiences as learners because of the exemplary design.

Discussion and conclusion

Student teachers oscillate between campus and schools, and between learning a subject and learning to teach the subject to pupils. Moreover, both groups of informants in our cases oscillate between and work to combine learning activities in theory and practice, and these different oscillations might create experiences of missing links between the arenas and learning contents. However, the boundaries between the learning spaces, content and activities can be crossed through didactic design that enable reflection and knowledge in action.

As we have shown above in case A, asynchronous videos that were produced by the educators created links between the music teaching space on campus and the learning space of the students’ home contexts. As the videos both illustrated the practice of playing the piano and explained how and why, it created the links between knowing-in-action and knowledge-in-action. Likewise, the students’ video production imitated and elaborated on the educators’ instruction and thereby created an opportunity for combining theory and practice as a point of departure to becoming a reflective music teacher.

In case B, we showed that the didactic design that encouraged the in-service teachers to create didactical close-ups as artifacts mediated through the in-service teachers' campus space and their student' workspace. When the educators facilitated reflections on action, the in-service teachers found that an awareness of their double role of both practitioners and teachers were created and illustrated through the close-ups.

In both cases the artifacts functioned as boundary objects that enabled connections and promoted dialogue and reflection, which are prerequisites for transformative learning. The boundary objects were also designed to enhance the students' focus on (and practice of in case A) practical subject matter/vocational skills and knowledge. Further, the two designs served as reminders of the different kinds of boundaries students encounter in dual education.

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Originality and Convention in Journalism Supervision

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Abstract

A key principle of Reflective Practice-Based Learning is that lecturers should design their teaching as a form of exploration, encouraging students to innovate and work creatively. Play and experimentation must, however, be balanced with the need to socialize students into the culture and norms of their future profession, including dos and don'ts as established by tradition. While the balancing act between 'originality' and 'convention' has been studied extensively in the realm of PhD supervision, the topic remains nebulous in the context of practice-based journalism education. Providing a review of existing literature as well as a theoretical framework, this short paper outlines a preliminary qualitative research design that focuses on the role of the journalism supervisor. The paper proposes the methods of interview and observation as ways of gathering empirical data on how journalism supervisors at the Danish School of Media and Journalism balance originality and convention in practice. A possible strategy for case selection is presented and discussed.

Keywords

Originality, Convention, Journalism, Supervision, Reflective Practice-Based Learning, Reflection

Introduction

The purpose of this paper is to present a research design for the following research question:

RQ: How do supervisors balance originality and convention when supervising BA journalism projects?

This is a dilemma I have frequently encountered as a supervisor and examinator of BA journalism projects at the Danish School of Media and Journalism. Students come to me with projects that make me think about the concept of originality – the extent to which I should encourage it as a supervisor, its place in a journalism school context, as well as the question of what it even means (to me, to my colleagues, to the school where I work, in the profession of journalism). On the one hand, the school's website mentions 'curiosity' as a core value, emphasizing the discovery of new ideas and the ability to go beyond

boundaries (Danish School of Media and Journalism, n.d.). On the other hand, the assignment guidelines for the students' final project put emphasis on argument analysis, discourse analysis, research, and 'new information', while originality is not highlighted as a criterium in itself (Danish School of Media and Journalism, 2020).

Helverskov Horn et al. (2020) point out a similar tension in Reflective Practice-Based Learning (RPL). Lecturers should design their teaching as a form of exploration, encouraging students to innovate and work creatively. RPL, however, also stresses the importance of play and experimentation being steered towards quality, soundness, and professional integrity. Students should be actively socialized into the culture and norms of their future profession, including dos and don'ts as established by tradition. Supervisors, in accordance with this theory, must navigate between trying to encourage originality and making sure that students are aware of and respect conventional boundaries. In this regard, they operate in a continuum where every project poses its own challenges as to how and to which extent 'experimentation' may be considered viable. For students, a particularly demanding challenge is posed in terms of *reflection*, a key component of RPL. While engaging in the BA journalism project, they must reflect on their own choices and thereby learn how to think and act independently. For projects that deviate from the norm, pushing one or more conventions, there is no path already established, and this makes for a, at the same time, great learning opportunity and a potentially anxiety-provoking, risky endeavour in which continuous reflection and the ability to argue for choices made is key.

Before proceeding, I should stress that this short paper is a *preliminary sketch* – a first glance at what might eventually become a piece of completed research. A stronger theoretical grounding is needed, and empirical studies must be carried out. For now, however, I will define the concepts of 'originality' and 'convention', review the relevant literature, and present a set of methods as well as a case selection strategy.

Theoretical framework

This paper uses the concepts 'originality' and 'convention' as presented by Tanggaard and Wegener (2017). Writing specifically about the process of doing doctoral work from the perspective of both PhD student and supervisor, they introduce the concept of originality when referring to the fact that on the one hand, doctoral research is expected to result in some sort of novelty in order to be considered a significant contribution to the field. On the other hand, all researchers navigate within a certain set of standards, traditions, and expectations that must be adhered to in order for work to be rendered acceptable.

While originality and convention are often seen as a mutually exclusive, Tanggaard and Wegener define the relationship between the two as a balancing act. This implies an

emphasis on humbleness, discipline, and tradition as a means to lay the groundwork for experimentation. A supervisor who intends to encourage originality may, for example, use the metaphor of the adventure – a process where the student ventures into unknown territory. However, in the case of a PhD, the journey travelled by the student is hardly ever a journey into the blankly undiscovered. Rather, it is a journey into a territory already occupied by other researchers, a territory with a history, feuds, conflicts, rules, and boundaries. Tanggaard and Wegener, thus, suggest that the metaphor of 'moving at the edge of the box' may be more suitable than what we colloquially refer to as 'jumping outside of the box', in so far as it takes into account the social context all creative work is produced within.

This emphasis on the social dynamic of creativity is characteristic of what Glaveanu (2010) has dubbed the 'We-paradigm'. This is summed up in Table 1: Paradigms in creativity research.

Table 1: Paradigms in creativity research

	He-paradigm	I-paradigm	We-paradigm
Key characteristics	The image of the lone genius, divine inspiration, genetic inheritance, creativity as a feature of unique individuals, exclusivity, the individual disconnected from the masses, creating ex-nihilo (out of nothing), the highest level of creativity (ground-breaking discoveries)	The 'regular' individual as unit of analysis, the view that everyone is capable of being creative, the idea of 'creative personality', creativity as something within the psychology of the individual	Focus on the role of social factors in the creative process, creativity as the result of human interaction and collaboration, interconnectedness between the self and the environment, creativity as an interplay between a person, a field, and a domain
Source	Glaveanu (2010)		

Literature review

The dilemmas associated with student creativity in a supervision context have been studied primarily in the realm of doctoral work. Seeman (1973) highlights a tension similar to the one emphasized by Tanggaard and Wegener, namely that while the contribution to knowledge expected by a PhD by definition involves novelty, the process of entering a domain "without knowing fully its form or boundary" (p. 900) involves the risk of getting lost without returning from that lostness with a palpable result.

In order for supervisors to help students navigate this process, Seeman suggests they make sure to distinguish between what he calls 'the helping process' and 'the evaluation process'. In the helping process – that is, in the early stages of supervision – students should be invited to follow their own curiosity, and they should not be blocked at this point

by the demands of form and method they will later encounter. This openness is necessary in order for students to engage with their subjects rather than look for pre-established questions or answers “out there” (p. 901). At this stage, the supervisor plays the role of a helper who helps facilitate an open exchange. Later in the process, however, the role is more akin to that of a policeman. When making a formal approvement of a subject, for example, the supervisor must make sure that the student’s work is at least on par with the minimum acceptable threshold, and that the student can genuinely be expected to produce adequate quality. ‘Adequate’, significantly, does not mean excellent or groundbreaking – but the supervisor must be certain at this stage that the student’s project can stay afloat.

Cherry (2012) notes that when supervising PhD’s, supervisors are caught between two conflicting goals. On the one hand, the endeavour of doing doctoral work should substantially develop the student as a practitioner by pushing him or her out into difficult territory. On the other hand, the work must also result in something that will be recognized and acknowledged by others as a thesis. The latter makes it tempting for supervisors (whose job it is help the students accomplish the task of handing in the PhD) to try to push away anxiety by establishing tools and procedures, techniques, and check lists. Cherry warns against this tendency because it may create a false sense of security – a caution also advised by Holligan (2012). Kim (1990) suggests that while ‘research supervision remains a gray art’ (p. 72), supervisors should make students document their exploration of a topic and measure the demonstrated effort rather than focus, initially, on results. By tracking this phase systematically, students are helped towards laying the groundwork for novelty while an openness persists in the research process that allows for sideways and stumbling on things.

Doing a journalism project at BA level obviously differs significantly from doing a PhD in terms of scope and the fact that one is journalism and the other research. While PhD work is typically carried out over a period of three years, a BA journalism project at the Danish School of Journalism has a time frame of approximately two months, including two-and-a-half hours of supervision. Therefore, simply transferring research done on PhD supervision to research on BA level supervision is not viable, and some may even argue that doing a BA journalism project is not at all about demonstrating originality – that the task at hand, rather, is to show that a certain set of skills have been acquired.

As pointed out by Albæk (2014), however, journalism and science have much in common in terms of the process of finding ideas, the ways of gathering information, as well as the mission to seek out evidence, although they differ with regards to the time available, the form requirements, and the standards of when something is considered valid. This paper therefore finds it reasonable to expect some overlap between the two.

Methods and methodology

In order to answer the research question, this paper proposes a qualitative, interpretative research design that employs the following methods:

- Interviews with supervisors
- Observation of supervision sessions

The interviews may help understand how supervisors define ‘originality’ and ‘creativity’ in the context of bachelor’s journalism projects, what dilemmas they believe they encounter with regard to this, and how they seek to balance originality and convention. While qualitative interviews as a method may provide data on supervisors’ perception, the language they use, and the values they emphasize, they cannot, however, be used to draw any conclusions on how the supervisions are actually carried out.

What supervisors express in an interview may be different from what they do in practice, and the social dynamic between student and supervisor cannot be captured fully through interviews only. Capturing this aspect is crucial when considering the theoretical framework of this paper as summed up in table 1. If creativity is best understood as an interplay between a person, a field, and a domain, observing this interaction between student, supervisor, and assignment regulations in practice is a vital element. This requires careful planning in terms of getting consent from both supervisors and students, as well as defining precisely the focus and scope of the observation sessions. Preliminary focus points include:
How is ‘originality’ defined by supervisors – in interviews and in practice?

- What dilemmas occur in the supervision process when student ideas challenge convention – as perceived by supervisors and as seen in observation?
- How do supervisors seek to balance ‘originality’ and ‘convention’ – according to their own perception (interviews) and in practice (observation)?

With regards to case selection, the case selection will be non-random and will attempt to maximize variation. While further research is required here, two parameters might be suggested as a starting point for how to choose cases, namely journalistic field and supervisor experience. The BA thesis regulations at the Danish School of Journalism define three main fields for journalism students: journalism, conceptual work, and communication. ‘Journalism’ is further divided into radio/podcast, tv/video, and written work. A preliminary

distinction between ‘less than 5 years’ supervision experience’ and ‘more than 10 years’ supervision experience’ may be used here to exemplify what a case selection scheme might look like.

Table 2: Case selection scheme

	Supervisor experience level	
Assignment type	Less than five years' experience	More than 10 years' experience
Journalism: Radio/podcast	Case 1	Case 6
Journalism:	Case 2	Case 7
Journalism:	Case 3	Case 8
Conceptual work	Case 4	Case 9
Communication	Case 5	Case 10

The case selection scheme takes into account both different fields (the five different assignment types) as well as different characteristics of the supervisor as an individual (experience level). In doing so, the research design assumes that the concepts of 'creativity' and 'originality' are fluid rather than static, meaning that how they are interpreted and acted out changes depending on the social context. In this sense, the research design takes as its point of departure the 'We-paradigm' presented in table 1 with reference to Glaveanu (2010).

Further research

The purpose of this short paper was to present a research design that might serve as a starting point for further research. There are, however, several questions that need to be clarified, particularly with regard to the use of supervisor experience level as a case selection parameter.

First, what constitutes a 'high' or 'low' experience level? What is a meaningful way of quantifying this? Second, how is experience level quantified? Does supervision experience include only supervision experience in the specific context of the Danish School of Journalism, or is a new employee considered experienced because of extensive experience at another institution? If the latter is the case, the research design must be based on the assumption that supervision experience can be smoothly transferred from one institutional context to another. This is, however, troublesome when considering the theoretical premise presented in this short paper, namely that the concepts at stake *change* and *adapt* in an interplay between person, field, and domain.

Next steps, thus, include – aside from a stronger theoretical grounding of the project – clarification of the case selection scheme as well as a pilot study where the interview and observation methods may be tested.

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Reflecting on or with practice?

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Abstract

This paper highlights how reflection on or with practices can be seen as a transformation and resituation of knowledge across settings from formal education to professional practice. Two different activities involving reflection are given as examples, showing how differences in life settings have an impact on how reflection *on* or *with* practice is carried out.

A theoretical approach and framework for analyzing situated knowledge and its transformation at three contextual levels is illustrated, framing how to see different reflective practices as related to students Situated Readiness, that is socio-epistemic negotiations, drawing on students' dispositions and patterns of participation to meet the situational demands of the setting. Situated Readiness as a focal point of attention towards designs for learning, fosters continuity between the Teacher Education Program and school, giving students opportunities to recognize and reflect upon their sameness and differences as part of their reflections.

The empirical offset of the article is a design-based intervention study investigating how student teachers' reflections occur in response to traversing between a course at the Teacher Education Program and a middle school classroom setting.

Findings of the study reveal that within educational settings, the students' reflections and theorizing on practice are characterized more as retrospective documentation of intentions, than reflections on what happened in the classroom, with the danger of reducing reflective-based activities to ways off passing a course here and now, rather than professional development.

Keywords

Teacher Education, Transformation of knowledge, Designs for Learning, Collateral transitions, Situated Readiness

Background

An ongoing question in research within the fields of teaching and learning sciences is how students are being prepared to face the requirements of their future professional lives after finishing their formal education. A central goal to professional education is therefore to provide learning opportunities and experiences that are useful beyond the

specific conditions and settings in which they are initially encountered (Lobato, 2006). The question of how knowledge, developed in one context, can be put to use in another has been investigated for more than a century, and it has been issued most commonly as the question of learning transfer. Even though research on the issue of transfer dates back to the beginning of the 20th century it still poses a major challenge for present-day educational systems. Today's demands for practice-based education, which integrates and simulates professional practices and furthers the interrelatedness between educational and professional settings, require students to develop dispositions for taking up learning opportunities within and across these settings (Greeno & Gresalfi, 2008).

The Danish Teacher Education Program (TEP) builds on a dual educational system where periods of curricular teaching interchanges with periods of practicum. According to the ministerial order, this interrelatedness aims to strengthen the continuity between formal education and practice and creating opportunities for students to "acquire theoretically founded practical skills in preparing, carrying out, and evaluating educational sequences" (Ministry of Higher Education and Science, 2020). An important point here is that the interrelatedness between theory and practice as a focal point of attention is not only pursued during the periods of practicum but also as part of teachings within the disciplines and subject-domains of the TEP.

Within the field of Reflective Practice-based Learning (RPL) the relations between practice, reflection, and learning are highlighted with a particular weight on reflection as the foundation of the learning process, and as a way of connecting theory and practice (Horn et al., 2020). Although there seems to be a lack of consistency on how concepts of practice, reflection, and learning are understood, the definition of Reflective Practice-Based Learning given by Horn and colleagues proposes learning as a process involving both thinking and action in specific settings.

Contemporary research on learning through transitions between education and practice settings suggest a focus on *expansive framings* of activities (Engle et al, 2012), where student engagement and development of professional identity and judgment is qualified through reflections on and engagement in practice (Andersen et al., 2021; Hald, 2021). In this light, the question arises around students' abilities to reflect and connect situations and hereby qualifying their past and future engagement in practice (Solomon & Perkins, 2015). As shown by Haastrup and Knudsen (2015) a major challenge within the TEP is not the differences between professional education and practice and how theory and practice are understood respectively, but rather that there is a lack of explicit focus on them, hence a lack of implementing them into a pedagogical framework for furthering the student teacher's professional development (Haastrup & Knudsen, 2015, p. 15). Other empirical studies support this claim (Mogensen & Henningsen, 2013; Haastrup et al., 2013; Kamstrup, 2015; Hachmann, 2020) suggesting alternative approaches of bridging education and practice are needed, thus providing new opportunities for reflections. Major

points here are whether there is a lack of using students' own experiences as part of their formal education or that educators often simply assume, that the students can reflect professionally on practice. Further, it raises considerations on what the focus of the teacher students' reflections are or should be? Or in other words, *the that*, which is reflected upon and from which perspective.

Knowledge Transformation and Situated Readiness

The research informing this paper is based on a sociocultural view on learning, that is an ongoing development through social participation, mediated by artifacts and situated in specific practices (Greeno, 2011; Säljö, 2003; Wertsch, 1993). From this perspective learning and transfer are seen as the transformations of knowledge through the resituation of patterns of participation and individuals' dispositions to engage and interact with others in social practices (Hachmann, 2020). This participatory approach responds to the current developments within the field of educational research, where professional development is connected to identity and participation across different settings as part of trajectories of learning (Akkerman & Bakker, 2012; Wenger, 1998). Learning trajectories help to capture the temporal dimensions of how situations and activities play out. They provide a way of seeing learning not as static and limited to a specific setting or resource, but as a continual development between many situations and how the individual's knowledge, understanding, and participation transforms in response to the situational demands (constraints and opportunities) pertaining there.

The development of patterns of participation and dispositions to engage and interact with others rely on what I have earlier framed as *Situated Readiness* (Hachmann & Dohn, 2018). Situated Readiness is a sensitivity toward the demands of the situation and the ability to recognize sameness and differences between settings and attuning to the specific affordances and constraints of specific activities.

In the case of the student teachers, Situated Readiness comprises their involvement through socio-epistemic negotiations around roles and positions in the social configuration, intertwined with the engagement into the curricular content. To clarify the notion of negotiation of socio-epistemic positions, the dual concept of *systemic* and *semantic positioning* offered by Greeno (2011) can be of help. In this perspective systemic positions are negotiated concerning the content matter based on, what skills and accountability each participant brings into the situation. The term systemic signifies the social system and that the negotiations of identities here are concerning how participants are taking and given roles and positions in different configurations e.g., in the classroom or group work. In contrast, semantic positions refer to the cognitive modes by which the students engage with the content. Pickering (1995) distinguishes between two ways of agencies regarding semantic positioning. The first being disciplinary, meaning that one is positioned to

uncritically apply specific procedures to a problem, and the second being conceptual agency where one is expected to make choices based on critical judgments on how a problem should be understood and which methods should be applied to solve it meaningfully. Summing up Situated Readiness encompasses socio-epistemic negotiations of knowledge and the dispositions to put that knowledge to use based on recognizing situational demands.

A similar notion is suggested within the field of Reflective Practice-based Learning drawing on theoretical offsets provided by Dewey and Kolb amongst others (Horn et.al, 2020). Especially abilities to reflect based on experience is central to these theoretical approaches. As suggested by Dohn and Klausen (2020) knowledge forms, however, cannot be seen as isolated and independent from each other. Distinguishing between five forms of knowledge: Propositional, practical, experiential, episodic, and procedural realized routines (Dohn & Klausen, 2020) they argue, that these forms are interrelated and informing each other. Student teachers' development of experiential knowledge within a domain e.g., teaching, may depend on both prior practical and propositional knowledge within that same domain, giving them skills to act and ways of communicating appropriately. At the same time development of practical knowledge and routines will be informed by previous experiences with that domain, and likewise, propositional knowledge will be informed by previous experience and understanding propositions about this domain. From this point of view knowledge in its different aspects must be seen holistically, but that situational demand requires individuals to bring some aspects of knowledge to the front, leaving others in the background. This has implications for reflection and experience as basic concepts for learning within the field of RPL. Namely that these cannot be seen as isolated processes or aspects of knowledge and as argued by Dohn and Klausen (2020), and shown later in this paper, the situativity and demands on different contextual levels of the setting are important elements regarding how both practical and experiential knowledge is put to use.

A Contextual Framework for analyzing Knowledge Transformation

To aid the analysis of the situational demands and when students traverse between educational and professional settings, an analytical framework is presented here (figure 1). The framework building on Bateson's ideas of analyzing contexts as a hierarchy (Bateson, 1987, p. 410) and was initially developed by Nina Bonderup Dohn (Dohn, 2017). It has previously been outlined (Dohn & Hansen, 2020) and used to investigate student teacher's put previously learned curricular content-knowledge to use when teaching middle school pupils within the same subject domains (Hachmann & Dohn, 2018; Dohn & Hachmann, 2020).

The framework offers a way to analyze participation as engagement and socio-epistemic negotiation on three levels: Domain, Activity, and Life setting. It operationalizes the previous socio-cultural articulations of Säljö, Wertsch, and Greeno and helps to shed light on the Situated Readiness required by the students to take up opportunities to learn, hence recognizing and meeting situational demands through transforming and resituating knowledge and patterns of participation.

Figure 1 is illustrating the contextual levels and provides an example of how traversing between settings requires resituation and transformation of patterns of participation and dispositions. The horizontal arrows showing situational demands, and the vertical arrows indicating the connections between all contextual levels. (Hachmann & Dohn, 2018).

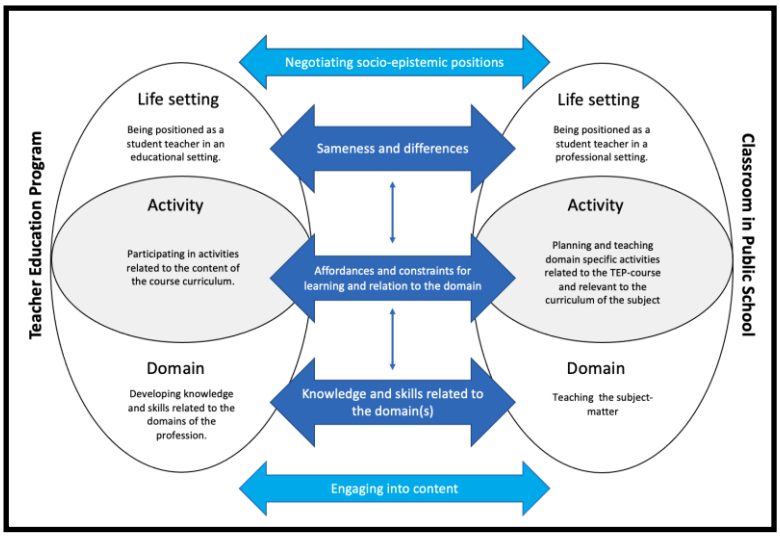

Figure 1 Illustrating the contextual levels and how traversing between settings requires resituation and transformation of patterns of participation and dispositions. The horizontal arrows showing situational demands, and the vertical arrows indicating the connections between all contextual levels. (Hachmann & Dohn, 2018)

The *domain* level is concerned with the content area of the activity. With regards to the forthcoming examples, this could include didactic theories when reflecting on teaching, knowledge about theory within rhetoric, or narrativity when discussing this in class. The student teachers are at this level required to recognize which specific knowledge is related to the domain and how to transform and resituate this knowledge accordingly to contribute meaningfully to the task at hand e.g., teaching subject matter to pupils in school.

The *activity* level is concerned with the activity itself e.g., teaching specific content, engaging in group work, or presenting in front of the class. The student teachers are here required to recognize rules of engagement and how specific skills and knowledge is put to use. For instance, engaging in solving a problem in group activities rely on knowledge

and experience with giving and taking the word in a dialogue, identifying the skills of each group member, and structuring the problem-solving process from beginning to end.

The *life setting* level frames the activity. Group work at the TEP does not have the same situational demands as teaching in a school classroom as a group. Even more, fine-grained, groupwork differs by methods and process in different subjects and domains. Hence reading and analyzing a text in the subject of Danish requires other skills and dispositions, than conducting a laboratory experiment in the subject of physics or chemistry.

Two points should be further noted. First, that dividing contexts into different levels as done in the framework solely serves analytical purposes. It offers a more fine-grained view on the situational demands of the practice and which aspects of Situated Readiness these demands entail on part of the learners when engaging in and across settings. Secondly, it is important to stress that the different levels are sensitive towards each other and cannot be separated. However, the framework opens for empirical investigations of how different settings enable and require specific ways of engaging in the content, as well as transformation and resituation of patterns of participation in different settings and the practices unfolding within them.

Situating the empirical study

The findings presented in this paper builds upon a design-based empirical study (Amiel & Reeves, 2008; Edelson, 2002) conducted at a Danish Teacher Education Program. The study underwent two iterations and two consecutive classes at the TEP were followed through a full semester each. Nine groups of two to four student teachers and two TEP-educators were followed. A learning design was developed in collaboration between the author, a TEP-educator, and a middle school teacher. The design was applied to a course within Danish (mother tongue language) called Verbal Skills and Communication and the students participating were in their 3rd semester. The design required the students, in groups, to plan and teach modules of 90 minutes at a local public school. The teaching activities planned by the students were aimed at middle school pupils (5th and 6th grade), and subject areas from the student teacher´s course, were to be used. The students visited the public school in two groups at the time. One group teaching and the other observing and taking notes. Immediately after completing their teachings, both groups were asked to participate in a reflection session called "didactic conversations" ["didaktiske samtaler" in Danish] at the primary school. Here the students would discuss and reflect together on what had just occurred in the classroom. Some of the topics for discussion were given by the TEP-educator, but with the possibility for the student to take up topics based on the observations or events that occurred in situ during the teachings. After all groups in the course had finished their teachings an overall evaluations session

was conducted. Here the groups presented and reflected on their learning designs in front of the course class, the TEP-educator, and the middle school teacher.

All classroom activities, both at the TEP and in the school classroom, were observed and video recorded. The didactic conversations were observed, and audio recorded, and all available elements from the student's learning designs (plans, handouts, products, etc.) were collected. Video recordings were watched several times and compared to field notes. This allowed a condensation of these materials into "teaching depictions", offering transcriptions of central passages of the classroom interaction along with dialogues, pictures from the recordings, and interpretative comments setting the stage. Specific teaching depictions were selected for further analysis, when found central or related regarding the student's reflections on planning and teaching the subject matter of the course. The teacher depictions were compared to the full transcriptions of the didactic conversations of the groups to further qualify the analysis.

The context-level framework was used to analyze selected passages and the analytical distinctions between the presented knowledge forms were applied. The design and analysis allowed for an investigation on how the situational demands between the settings changed and how the teacher student's Situated Readiness regarding transforming and resituating knowledge between settings occurred.

Collateral transitions as opportunities to learn

In the following the contextual framework is put to use, showing how situational demands on the different contextual levels in the TEP and the public school, respectively, entails teacher students to reflect differently on what happened in their teachings and on the implications of their choices regarding subject-matter teaching issues. Due to space limitations, one illustrative example is given from the collected data with a specific focus on activities involving student´s reflections. For a more in-depth analysis of the full data set covering the learning trajectory of the students and their collateral transitions between the TEP and School see Hachmann (2020).

As noted already the teacher students were asked to participate in both a reflection session (didactic conversation) right after finishing their teachings in the classroom as well as a final evaluation activity at the TEP near the end of the course. The didactic conversations took place in a meeting room close to the classroom, where they had just taught. The evaluation activity took place in a classroom at the TEP and was led by the educator. In both cases, the students were asked to discuss and reflect upon their initial thoughts followed by a comparison to how their learning designs and ideas unfolded in class respectively. In terms of the context levels, the transitions between the settings and the two types of reflective sessions were meant to support the student in developing different forms of knowledge e.g., propositional knowledge within the domains of Danish as a first

language, practical knowledge on planning and teaching, procedural realized rhetorical routines, and experience with teaching pupils. Further, the students Situated Readiness to attune to the situational demands required them to 1) at the life setting level to recognize sameness and differences between the settings and how transitions between them could offer opportunities to learn, 2) at the activity level to recognize affordances and constraints of the activity for learning and how the activity is related to the domain, and 3) at the domain level to recognize which knowledge and skills are related to the domain.

As suggested by researchers within the field of transfer and boundary-crossing (Akkerman & Bakker, 2012; Tuomi-Gröhn & Engeström, 2003) collateral transitions (Beach, 1999) between settings such as educational and professional practice offers opportunities for learners to continuously develop knowledge and skills by engaging in activities, that both build upon previous experiences and prepare learners for future situations (Bransford & Schwartz, 1999). Inspired by the notion of expansive framing (Engle et al., 2012), the learning design that was implemented in the course at the TEP aimed at creating activities that did not only facilitated physical transitions but also tried to frame an intercontextuality between the TEP and the school classroom. Both the didactical conversations and the evaluations session should be seen as activities aiming at creating this intercontextuality, where the activities were not isolated or bound to a specific here-and-now situation, but ways of creating continuity (Akkerman & Bakker, 2012), where the two settings became relevant to one another in a particular way through the learning trajectories of the student teachers. Further the educator at the TEP made an effort to be explicit and metacommunicative on how the activities, content, and theories of the course could be seen in relation to teaching the pupils at the specific school.

Reflecting *with* or *on* practice

From an overall perspective, the analysis of the data indicates how the life setting of the activity had a significant impact on the focus of the student´s reflections. Being located at the school and engaging in dialogue right after teaching the pupils, highly influenced the themes brought into the foreground of the discussions. In the same way, being located at the TEP had an impact on what was brought into the discussions. The following excerpt is an example of, how students during a didactic conversation, take up a single teaching episode for further reflections:

S1: Well, I think it occurred to me that I had chosen four pupils who had actually made drawings fitting different phases on the dramatic arc model. And then I thought that if I could visualize it even more to the other pupils… It did not go very well because all of a sudden there was noise and talking in the class. Mainly because these four kids were a little bit too happy ... in a good mood and they liked to be in the spotlight. But when I saw the two of them standing next to each other I came to see that…The drawings were actually following the curve on different phases.

S2: Yeah, cause I and S3 we were sitting in the back of the class wondering about the purpose of them drawing while you were reading the story out loud. But it became clear when you started hanging their drawings on the [dramatic arc] model in front of the class. In this sense they didn't draw, just to be drawing.

S1: Yes, that the activity had…

S2: That the activity had a learning purpose

S3: A reason to do it.

S1: Right…

Figure 2 Excerpt from didactic conversation

As shown in the excerpt the students took up very specific examples (in some cases even single utterances) from the lessons they conducted. Examples like these often became the primary focus of the ongoing discussion and a nexus of the socio-epistemic negotiating of meaningfulness, based on the student teacher´s experiences, theoretical and practical knowledge. In many cases, the primary interest of the students were themes like the ability to manage the classroom or how well they performed e.g., articulation, gesticulation, attention towards the pupils' needs, etc. But as in the example shown here, discussions also involved small cases, related to domain-specific issues of the subject matter.

In the session at the TEP, the students were primarily concerned with the theories related to their initial ideas and intentions regarding their learning design. Following this, the data suggest that from an overall perspective, the students did not see the course activities and the teaching activities at the school as continuously interconnected, as it was intended through expansive framings. They saw the teaching activities at the school as an isolated way of gaining experience in terms of standing in front of a class, classroom management, and how the planned activities were realized in practice. This led to discontinuities between the activities in both settings. At the TEP the students here were primarily concerned with an effort to relate the learning design already taught to the theoretical domains of the course:

Educator: Well, the learning design seems very elaborate and from what you show here, the pupils were working in depth with different aspects on using rhetoric means to engage in a debate. What were your initial thoughts on using Toulmin's model of argumentation in the way you do here instead of other theories within the field?

S1: To be quite honest, we didn't really discuss it during our planning. It became a focus when we were planning our presentation for today.

S2: We did of course discuss how we could use the model to…as a way of supporting the pupils in the debate activities, but we didn't really discuss the theory behind it…before now.

S1: Yes, we kind of focused on getting the lesson running, not so much on the theories

Figure 3 Excerpt from final evaluation session

Three points are made from the two examples above.

First, it became clear during the observations of the reflection session at the TEP, that the domain-related theory often was applied in a sense of retrospective legitimization of the learning design. Meaning that the students used theory to justify their choices after the lessons at school were conducted and not as part of their planning. Several examples from the didactic conversations support this claim, as when students were asked to reflect on the domain-specific theories related to their planned learning design, they here often argued that the theory was not of concern at this point or that they were unsure of which parts of the presented theories at the TEP were applicable in their teachings or meaningful to directly teach the pupils.

Secondly, through the lens of the context level framework, the didactical conversation as a reflection activity is embedded in a life setting that requires the students to position themselves and each other in the roles of professionals, taking on perspectives that from their experiences would be of concern in the professional practice. In both excerpts, the students express how their focus is on teaching the subject content meaningful to the pupils by "getting the lesson running" and having "a learning purpose" with the activities. In this sense, the students are displaying a Situated Readiness towards the demands of the professional practice as they perceive it. On the contrary, being positioned at the TEP, the students are meeting the demands to pass the course. It is clear from the conducted observations, that the students are trying to do so. This supports the claims of other researchers within the field of educational research, that the dichotomic view of the relation between theory and practice, hence theory being primarily a concern within educational settings, continues to be highly embedded in the historic and cultural understanding of life setting within the TEP and school practice (Haastrup et al., 2013; Haastrup & Knudsen, 2015; Mogensen & Henningsen, 2013). The learning design implemented in the TEP course did an effort to offer opportunities that would overcome this dichotomic approach, but a main conclusion of the research project is, that the design solutions applied, were not sufficient to create the continuity between the settings that was hoped for.

A third and final point that should be made concerning the definition of Reflective Problem-Based Learning given by Horn and colleagues, highlighting the difference between reflecting with and on practice (Horn et al., 2020). The point made here is, that the correlation between the life setting and domain level has pervasive implications on the reflective practices carried out. The Situated Readiness of the students toward meeting the demands applied in the life settings has shown to have a strong impact on, whether they reflect on or with practice. At the TEP it became clear, that the students reflected on their learning design and own teachings from a mainly abstract and theoretical level, leaving out what actually happened in the school classroom. In other words, the student rather reflected on their initial intentions, than on the realized practices that unfolded in the classroom. To clarify, an example of this was an episode where students (at the TEP)

reflected on the importance of and on how their learning design supported the pupils through different kinds of differentiation regarding both materials, and levels of complexity. Looking back at the video recordings of their teachings in the classroom revealed, that these reflections were not in accord, with what actually played out in the classroom at school.

In the didactic conversations, however, the continuity between the intended design and its realization proved to be stronger as situations from the teaching became the content or subject matter of the discussions. In this sense practice became examples to reflect with instead of on, giving students other opportunities to learn, than at the TEP.

Concluding remarks

As stated at the beginning of this paper the field of RPL promotes a wide range of how concepts like practice, reflection, and learning are understood. The outset of this paper was to provide a more fine-grained approach to discussions regarding the correlations between reflection and practice within Teacher Education. Examples hinting at the consequences of not taking these into account have been shown, pointing at the importance of considering the students' Situated Readiness, when designing for learning opportunities entailing collateral transitions and reflection as ways of connecting educational and professional practices. It is often assumed that students can transition smoothly between educational and professional settings, applying what they have learned and reflecting on their own performance. The study grounding this paper shows, that this is not the case and that both students and educators need to be more explicitly aware of the differences between them, and how these impact on the reflective processes that unfold within them.

The paper is not intended to be exhaustive or conclusive on the matter. On the contrary, the topics presented here call for the research community to further examinations and investigations of reflective practices taking on a socio-epistemic perspective and a participatory stand. It is the hope that the perspectives given in this paper can contribute to further development within the field of RPL by providing a framework for analyzing situational demands on different contextual levels within a practice. The framework can hopefully be a tool to discuss how education and professional practices are both interrelated and different from each other creating productive tensions in a dialectic sense, that furthers and develop the students in becoming professional teachers.

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Reflective Practice-Based Learning as a Path to Practical Professionalism, High-Quality Relations and Self-Efficacy

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Abstract

The empirical paper presents and discusses a current development project at a bachelor's programme at University College of Northern Jutland. The project aims to increase students' self-efficacy, relational and self-reflective skills through development of their professional identity. The project is designed with inspiration from theory on neuropaedagogy (Fredens 2012, Mortensen 2018, Hart 2016), jamming (Barrett 2012) and herein especially students' self-efficacy (Bandura 2006), relational (Brown 2018) and self-reflective skills (Horn et al. 2020).

Keywords

Reflective Practice-based Learning, Self-efficacy, reflective competence, improvisation, neuropedagogy, professional identity, high-quality relations

Developing Practical Professionalism

As an education and knowledge institution, University College of Northern Denmark (UCN) has a major influence on the future; locally, regionally, nationally, and internationally. The most important task is to "educate and develop the people who, now and in the future, will work to resolve the various challenges and tasks that businesses and institutions are experiencing every day" (Horn et al. 2020, p. 5). This task calls for taking an interest in increasing students' knowledge and competences in various fields of practice, but also contributing to their growth as professional practitioners. Most importantly, it calls for institutional attention and a professional capacity with educators to enable engagement from students in experiential learning processes, that challenge them suitably and stimulate them appropriately through their individual learning trajectories as aspiring professionals.

In the 2030 strategy for UCN, the institutional goal is to work towards the level of University of Applied Science (UAS). In this pursuit, *reflective practice-based learning* (RPL) is at the backbone of UCN's educational strategy, paving the way for "independent entrepreneurial-creative thinking and acting" through "relevant specialist, decision-making and social skills" (UE 2020). This is in line with international 21st century goals and research in

educational conditions for creativity (Robinson 2016). In this paper, I discuss the essentiality of this approach, in creating learning environments, where students experience a safe but challenging space as a point of departure for unlocking reflective and relational skills as well as a means to increase their *self-efficacy*. Bandura defines self-efficacy as an individuals' belief in own abilities to succeed (Bandura 2006) and, along with strong relational and selv-reflective skills (Horn et al. 2020), we view this as a generic learning objective across UCNs many educations.

The Issue

In 2019, the ministry of education granted 25 million danish kroner to improving well-being in higher education. UCN applied for a part in the resources with the intention to initiate a general development project. Arguments for the grant was largely found in rising concerns for students' well-being in higher education, as reports show, that this demographic group in general has a relatively high occurrence of stress, anxiety, and loneliness in their everyday study life.

According to national examinations on higher education in Denmark, the main obstacle to students thriving in higher education is a perception that ”perfection” is the new ”normal”, which causes the students to construct unrealistic expectations, mainly for themselves. These unrealistic expectations cause feelings of anxiety, guilt, and shame, which again prevents engagement and social integration in their studies (Thorsgaard 2020). Feelings of insecurity, guilt and shame are referred to by professor Brené Brown as ”an unspoken epidemic”.

The Danish Evaluation Institute (EVA) further concluded that efforts to increase well-being with students will lead to better quality of education (EVA 2020). The financial resources are to be employed in pilot projects that gather experiences from experiments to counter these challenges. The outcome of the investment is the redistribution of these experiences as inspiration to relevant actors in higher education (UFM 2019).

Some of the trials for the RPL approach that we experience in the everyday educational setting is that RPLs pedagogical principles of exploration, dialogue, collaboration and especially appropriate disturbances (Horn et al. 2020, p. 17-19) is challenged by students' varying degree of relational and reflective skills as well as their self-efficacy. In this sense we experience a paradox because, what ought be the product of RPL also functions as a prerequisite for engaging herein.

In contributing to navigating this paradox, the relationship between the level of scaffolding and the steepness of learning curves becomes an important part of the roadmap. The idea of scaffolding the RPL process stems from the understanding that disturbances in learning and development processes pushes individuals from their zone of comfort towards a higher degree of discomfort as the level of disturbance rises (Vygotzky 1926).

The discomfort makes learning more difficult to attain without aid, which in education most often takes the shape of “scaffolding”, which “enables a bridging between the individual’s existing ability to learn and that, which is too difficult to learn of her own” (Valbak-Andersen 2019, p. 7-8). The figure below illustrates the relationship between scaffolding and disturbance.

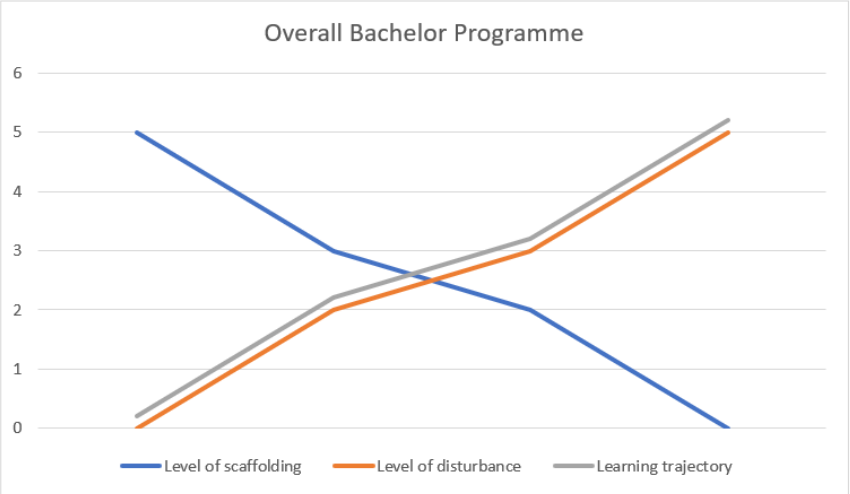

Figure 1 The Principal Relationship Between Scaffolding and Disturbance (Valbak-Andersen 2019)

Enduring some discomfort is necessary in other to take part in RPL processes, and this should be discussed when adjusting expectations for committing to a higher education. Designing these disturbances as “approproate” poses a challenge, though, as educators must strike a fine balance between safety and challenge, when confronted with the complexity of students’ varying background and consequently differing learning curves. These varying points of departure for learning can seem illegible and even unknowable to educators, and there by posing frustration in planning the scaffolding that is necessary to get students to engage in the RPL processes.

Drawing on neuropedagogy, and especially concepts of “self-agency” and “mentalization”, it becomes possible to take a step further in deciphering students’ point of departure for learning trajectories” (Lobato & Walter 2017). Mentalization entails an operationalizing of empathy through an ability to envision and connect with other perspectives than one’s own, and “self-agency” refers to an ability to recognize one’s own influence on a situation (Fredens 2012, Mortensen 2019, Hart 2016). The human nervous system is designed for protection and survival, and may be understood as three combined systems[3]. The eldest part of the brain is the sensory brain, which controls our autonomous nervous system. This part of the brain deals with desire, aversion and it controls our basic functions such

[3] This perspective of the brain was developed by Paul McLean.

as breathing and vital organs. The second brain system is the “limbic system”, which is the centre for our feelings, relations with others and skills such as connection through empathy and sympathy. Finally, the third system is the “neocortex”, which is the system for cognition, language, prioritizing, mentalizing, imagination, and abstraction (Hart 2016). This system is already well accounted for in most educational systems, including our RPL environments at UCN. The problem is that both the neocortex and the limbic system are subjects to hijacking from the sensory brain, when this system detects threats to the person that it regulates. This hijacking entails a cognitive and relational shutdown or going offline, making the person unable to engage with a sense of and attention to their own influence on the situation and with the sole purpose of protecting oneself.The hijacking may lead to exertion of less than constructive strategies for self-protection (Hart 2016), but is also makes it impossible to make oneself vulnerable to the exploration and collaboration that is a condition in RPL. Combining this knowledge with inspiration from “jamming” and relational theory, we present an example of how students themselves may be involved in bettering their conditions for engaging with RPL and launching their development as aspiring professionals.

The Project

In the following I present a single case study based on a 2-year development project in a UCN educational environments, at the bachelor of public administration (BPA).

The main working question for the project is

How might we design RPL processes that stimulate students’ self-efficacy, relational and communicative skills, inspired by key elements in neuropaedagogy (Fredens 2012, Mortensen 2018, Hart 2016), jamming (Barrett 2012) and relational theory (Brown 2018)

Fundamentally, at BPA we are strong adherents of the perspective that thriving makes possible and cultivates learning. Thus, we are always on lookout for chances to increase the quality of our learning environment, making it more dedicated, well-functioning and fun, for our students and for us. In adherence to this, and to bringing the RPL approach to life, the Business section of UCN has invested heavily in resources and activities, that support the development of our students’ professional, personal, and social skills. For more than 10 years we have worked closely with Insights Denmark to create individual personality profiles for our students and employ these continuously and competently throughout their education with us. In this employment we mainly work with the students in larger groups during the education period.

The overall purpose of the PBA project is to strengthen students’ engagement in their education and development as aspiring professionals. All activities focus on developing abilities to plan, structure and manage everyday life as a student. The purpose is to develop

awareness of expectations for a full-time study, prioritizing time and resources, in order to adjust energy and engagement in learning of their everyday study-life. As will be elaborated on below, we view this as scaffolding self-efficacy.

In Brown's research on vulnerability, shame has been the root explanation of holding ourselves and others back from being innovative, creative, and open to change. Putting ourselves "in the arena" by being vulnerable with others occurs when we embrace uncertainty and expose ourselves to emotional risk by being seen by others or being honest (2018). Brown's research concludes that while it is feelings of shame that keep us from being vulnerable, it is also keeping us from exerting the bravery to experiment and engage with the unknown or unfamiliar. In fact, research on creativity and innovation suggests that this institutionalization of control, compliance, and conformity significantly hampers value co-creation, partly because through creating "(…) a culture of fitting in and seeking approval at work, we are not only stifling individuality, but we are also inhibiting people's sense of true belonging" (Brown 2018, p. 107).

RPL as a learning approach requires training of students' ability to experiment and explore as a part of engaging with the experiential learning process. They do this on the basis of different and differing levels of uncertainty, self-efficacy and lack of social trust or competence. In RPL processes of exploration, disturbance and consequent discomfort, this engagement are courageous acts that require willingness to be vulnerable (Brown 2018). Therefore, is it appropriate that they learn to assist their own scaffolding so they may benefit as much as possible from RPL.

As explained in the unpredictable nature of improvising in a musical jam session, Barrett specifies, the necessity of developing skills through rehearsing and modelling. This training principle of building a repertoire of experience through action has been a founding source of inspiration for the development of RPL. The latter mentioning of modelling is described by Barrett as informal interactions such as "hanging out" and "jamming", where practitioners (musicians) with varying degrees of competence and experience engage in joint exploration of a common interest (2012). This may be translated into an educational context as interaction between students and educators. It is our understanding, that the willingness to make oneself vulnerable is connected to reflexivity and self-agency, and that it may be furthered, if students are trained in these skills. We also believe that training of mentalization and self-agency enables students' ability to relate and collaborate ("jam").

Activities in the Development Project

Activities are organized in four levels corresponding to existing institutionalized communities in the education;

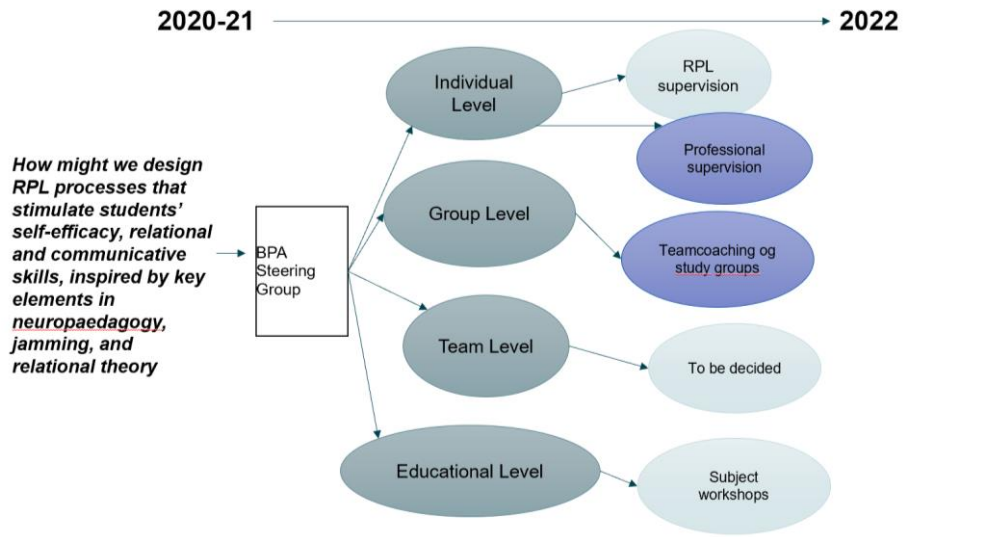

Figure 2 Overview of activities in the development project

In the following I focus on activities on two activities from the individual and group level.

Professional supervision

Since 2017 we have allocated time for individual talks with students for 20 minutes every 6 months. The re-thinking of the RPL talks was informed by the perspectives of the development projects conceptualization. Initially we decided to double the allocated time for RPL talks, making them more frequent. Also, we adapted the RPL talks to the expected stage of educational and professional development in the students overall learning trajectory. This led to a decision to use the individual Insights profile as an anchorage for the first RPL talk. Here we could use students beginning acquaintance with the Insights language, as a common point of reference for our talk. In the conceptualization for the following RPL talks we have drawn on the skill acquisition model from Dreyfus & Dreyfus, the curriculum, and the white paper on RPL in order to form questions in a semi-structured conversation guide. The minimal structure for improvisation in the RPL talks is made up of the systematization and progressive adaptation of the conversation guides and the reference to students' insights profile. This allows for navigation points that help students sense of cohesion and thereby their conditions for succeeding.

In addition to the RPL talks we have initiated a second activity at the individual level. In January 2021, we decided to allocate approximately 15 students to each person in the teaching team. The teacher is then responsible for establishing contact with each of these students once every week. Conversations last from 4-5 minutes to 20 minutes, varying

from student to students and week to week. Conversations have an informal ”small talk” character and usually begin with a general inquiry into the student’s well-being.

In the teaching team we exchanged ideas for small talk to get the students talking and feeling comfortable (which was often about being comfortable ourselves). The weekly talks we intended to open a relational channel between the students and the educator, that simulates an informal ”hanging out”. The frequent contact with students provides an opportunity to develop “particular trust” (Svendsen 2012) in our relationship, leading to them feeling more secure and open to exchanging view on their situation, collaboration with others and the education in general. Recognizing signs of stress or triggers for cognitive functions being hijacked by the sensory brain and sparring on these may lead to a heightened level of self-agency and more constructive self-protection strategies.

The conversations are also a means for training conversational skills in a professional context, because we were able to model conversations where students as less experienced could access our repertoire as more experienced. The practice-space that they have with us every week also fosters an experience of legitimizing the practice of ”hanging out”, and if this feels good for the students, they will reproduce this behaviour themselves and feel comfortable in reflecting on selv-agency and developing a “growth mindset” (Dweck 2015). ”Hanging out” allows us to exchange perspectives and experiences that bring about a deeper understanding of those, we hang out with. Increasing this understanding invigorates out ability and attention to mentalizing, which further qualifies our collaboration with others (Mortensen 2018). As hanging out is not associated with the same level of performance as teaching sessions or educational group work, the expectations for perfection may lessen to some degree, allowing the students to exert courage and increasing their reflectivity on-action, and their receptivity to new perspectives on this. Our joint reflection on the issues that they bring up serves as an opportunity to activate reflection on their self-agency and thereby their actionability in situations. The stronger the channel of particular trust becomes, the more vulnerable students may be, and the more inclined they are to scan our repertoire and experiment with possible actions and strategies for handling the dilemmas and challenges that they may be faced with. The coordination of small talk and the repeated approach to engaging with students in an informal ”hanging out” makes the practice transparent, recognizable and predictable for students. This makes it more likely, that students are able to decode the interaction and work out how to succeed in this.

Teamcoaching of Study Groups

The ability to engage with colleagues (here co-students) is often connected to specific personality traits, but in our view, it is a part of the student’s professional development.

Learning is a social process, and collaboration and dialogue is a central building block of RPL processes (Horn et. al. 2020).

From October 2020 we invited all study groups to a team coaching session of approximately 15 minutes per student. We developed a team coaching guide that revolved around students' Insights profiles and preferences for collaboration in study groups. In the invitation we encouraged students to re-read their personal profile and consider the significance of this for strengths and weaknesses in collaboration with others.

In the team coaching session, the moderator frames different rounds of conversation around selected themes. The themes are designed to work as an "appropriate disturbance" generally in relation to the stage of their education, but they are moderated in the specific practice in accordance with how the conversations develop.

Below I present two selected rounds of team coaching; One from the 1st semester and one from the 4th semester of the education.

1st semester:

- Please present your highest and lowest energy colours and how this is expressed in your way of collaborating with others
- How would you characterize your behavior on a good day vs. a bad day?
- When you have a bad day, what do you need from your collaborators?
- Do you have these ressources in the group?
- What do you need to practice? Individually? Together?

4 th semester:

- Please present your highest and lowest energy colours and how this is expressed in your way of collaborating with others
- How would you characterize your behavior on a good day vs. a bad day?
- How does it look, when you are under pressure?
- Do you have experiences with this in the group?
- What are your plans and deals for handling conflict?
- Is there anything that you need to be especially attentive to in your collaboration?

Figure 3 Two examples of team coaching of study groups

Both initiatives centre on activating and developing students' self-agency and mentalization in order to stimulate their development as aspiring professionals, and better enable them to benefit from the potential of RPL's explorative and collaborative character. The skills that we strive to model and train are taught before they are necessary, on the basis of a strategy that we teach skills in a time of peace that may be employed in times of "war" – should this arise. The intention of articulating and developing sense of self-agency and mentalization is that this may serve as a part of the students' tool box, and that this sense will lead to a heightened degree of self-efficacy, when faced with times of "war".

In both examples, students initially present their highest and lowest preferences (energy colors), and briefly comment on how these manifests in their collaboration with others. We then move on to a dialogue, where the students elaborate on these preferences and discuss how it is possible for them to express preferences in a professional manner, and to meet others' needs in a competently, so they can collaborate most constructively on their joint enterprise. This is a very strongly structured form of "hanging out" or "jamming", which scaffolds the students conversations rather rigidly. The structure still allows for students bringing something specific into the conversation, and as a rule, the sessions develop very differently. The "minimal structure" (Barrett 2012) consists of role allocation, insights language and the functioning of the study group, and it means that the concept is recognizable for the students over time, thus allowing them to build on existing experience and progress in learning.

The intention is here to develop their shared repertoire of a professional language for externalizing own and others' preference (Epston & White 2011), and to advance receptivity for how these preferences may appear in behaviour, as well as how they can be articulated and discussed. The sessions also enact a safe space training ground, because they are highly structured and built on the premise, that students are willing to engage with their own professional development to create constructive study groups. This expectation to share something about oneself offers an occasion for being seen, and thus being vulnerable with others. The externalizing language from the Insights tool and the scaffolding from strong facilitation works as a counter to the mechanisms of shame, where preferences can be internalized as personality traits, which means that discussing the value and appropriateness of these entails a discussion of the value and appropriateness of the person.

This externalising language also empowers students with an understanding for anticipating and preventing conflicts in collaboration, because conversations on varying preferences can be taken initially the collaboration, and because variations are viewed as legitimate negotiation ground and a basis for mentalising ability. This qualifies relational professionalism because it allows students to show empathy and adaptability without compromising their personal integrity.

The sessions also serve as an occasion for scaffolding relations of trust between students, leading to the forming of study groups as training grounds. In being vulnerable to each other the students contact increase in depth, because the exertion of vulnerability is a signal of particular trust, which strengthen the quality of their relation and mutual understanding. Danish philosopher K.E. Løgstrup referred to this inherently human interpersonal mechanism as the ”ethical demand”, and explained that contact between two humans entails that they hold a small piece of the other person’s life in their hands. This means that each person is obliged to act ethically in accordance with responsibility for what she has come into contact with. Experimenting in these sessions thus lets the students train their skills for engaging with others and with themselves, thus increasing their means to influence what they need to succeed in collaboration exploration in the RPL processes.

Educating Competently Reflective Practitioners

The development project is not yet finished, but already has given rise to new agendas in the structuring of education.

Firstly, the activities are intended to scaffold development of students’ self-efficacy. We do this in the way, that we model and train skills in simulated situations, where students experience that they have options in engaging with others and in regulating their influence on situations. Our intended success is tested when students experience times of “war” and find themselves with a stressed nervous system that leads to hijacking of their cognitive and relational executive functions. These situations are a condition of RPL, as they are of human interaction in general, and thereby they are a condition of the reality that we train and educate for.

On the basis of our preliminary experiences and the theoretical and empirical foundation for the project, it is our strong conviction that training, scaffolding and developing these skills throughout the educational process increases the possibility for students to counter hijacking when faced with disturbances that stress their nervous system. Instead of succumbing to hijacking the heightened self-efficacy and sense of self-agency enables them to think: “*I can do this, I have trained for this. I see more than one possible road. I have options here*”. And that this will make them more likely to handle the hijacking from their sensory brain, and engage in a reflected manner, and more freely with the explorative and collaborative process of the RPL environment.

In the team of teachers, experiences with the new activities have sparked conversations on what we can expect at certain stages of the education? And how can we best challenge students to stimulate progression? These generic perspectives have also led to discussions of how to balance meeting students’ sense of vulnerability and encouraging them to experiment with being brave. For this we needed tools and qualifications to take

leadership of interactions where we practice the ”Leaning in” mentioned by Brown as engaging with vulnerability (2018).

Engaging with students in this way also calls for curiosity, which is often articulated as a personality trait, but just like tolerance for ambiguity and receptivity, it can be taught and trained. Brown describes how ”curiosity” requires taking off one's armour and leaning into vulnerability because we make ourselves open for something new. Learning phrases like ”Tell me more about how this plays out for y’all. I want to understand” (2018, p. 48) makes it possible to allow for honesty and make oneself open for new inspiration and perspectives. It also requires skilful handling of our ”inner hustler” (2018, p. 74), the ”ego,” which represents the ”knower in us,” and which draws us to armour up when we are confronted with others feedback or perceptions (2018, p. 172). It calls for teachers’ courage to make decisions, recognize their limitations, and seek counsel and support when this is needed. While the challenges of leaning in may be recognizable to most, the practice of backing off must not be underestimated. Watching someone stumble and letting them find their way can be frustrating, especially if the performance department is breathing down your neck. Still, it is key to experimental learning premise of RPL, that students must live experiences themselves. Leaving them to this, may be underestimated in the didactics.

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Reflective Practice-based Learning Across Technical Educational Disciplines

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Abstract

Students have traditionally been educated within a mono-disciplinary educational program in the technical domain, e.g., as a mechanical engineer or a software engineer. Hence, learning has traditionally taken place in a homogeneous educational setting. However, the development in workplace practice has created an increased demand for students with cross-disciplinary capabilities, especially for educational programmes within the technical domain. As a response, students are increasingly engaged in cross-disciplinary educational activities. However, the educational approaches need to adapt to this situation. One such approach is Reflective Practice-based Learning (RPL).

This article aims to contribute to the discussion within RPL, focusing on the approach in a cross-disciplinary technical educational setting. This article presents a study of a cross-disciplinary educational setting consisting of related technical disciplines and how this influences the individual students' reflection and their cross-disciplinary capabilities. We find that working in cross-disciplinary groups consisting of related technical disciplines supports the student's contextual skills and ability to reflect. Thus, this makes them more aware of their competencies and capabilities and further strengthens their understanding of their own and related disciplines. However, the findings of this study call for further investigation.

Keywords

Cross-disciplinary groups, supporting reflection, 21st century skills, Reflective practice-based learning

Introduction

The teaching at educational institutions educating for the manufacturing workplace practice is adapting to the changes currently taking place in the industry. The technological convergence increases the complexity of manufacturing enterprises. It intensifies the need for an even more cross-disciplinary approach to education (Schumacher, Erol, & Sihn, 2016). This corresponds with the concept of 21st-century skills, where, e.g., digital skills are divided into core skills and contextual skills (van Laar, van Deursen, van Dijk, & de Haan, 2017). Consequently, the focus of predominantly technically oriented

educational programs is shifting from a mainly single discipline's core skill to collaboration and integration between several disciplines to ensure contextual skills (Enke, Glass, & Metternich, 2017). This article aims to contribute to the development of Reflective Practice-based Learning (RPL) through a specific focus on RPL in a cross-disciplinary technical educational setting. Hence, the article takes the point of departure in the concept of RPL, developed by researchers at UCN.

Through this article, we seek to answer the question: "How can reflective practice-based learning aid the development of competences among students from different technological domains working in cross-disciplinary groups?". It investigates how a cross-disciplinary educational setting, consisting of related technical disciplines, influences individual students' reflection and their cross-disciplinary capabilities. We hypothesise that working in cross-disciplinary groups supports the students' ability to reflect, making them more aware of their competencies and capabilities, and further strengthen their understanding of their own and related disciplines.

In the following, we first present the theoretical foundation on which this paper builds. Then the data collection and methods of analysis are presented, followed by analysis and findings. Lastly, the findings of the study are summarised in the conclusion and put into perspective.

Theoretical background

Historically, industry development has impacted educational programs' learning processes in content and embedded pedagogies and didactics (Abele, Metternich, & Tisch, 2019). This relationship between workplace practice and industry is not new. Nilsson (1981) comprehensibly describes the relationship between workplace practice and education within technical education, taking departure in the industrial revolutions. Nilsson argues that companies and tasks in workplace practice determine the needed competencies among the workforces (Nilsson, 1981, 1982, 2000). This implies that learning should include authentic workplace practice to develop professional language through an inner dialogue (reflection), to achieve mastery of work complexity (Nilsson, 2000). Nilsson's work relies on the history of learning and how technological education developed during different industrial states. In the 1990s, Wenger also started looking into how knowledge is formed between individuals within a group. His community of practice theory is also based on the technical domain's apprenticeship, and describes how students obtain a shared knowledge through peer-to-peer learning within apprentice-communities. These peer-to-peer networks was centered around the tasks of the apprenticeship (Wenger, 2004, 2011). Operationalisation of the task-centric educations has been developed by Merrill. The 'First principles of instruction', places the task, and the reflections upon it, as the central element in the learning process (Merrill, 2002, 2015), which resonates well

with Nilsson's work rooted in technical educations. Herrington et al. (2004), argue that teaching should follow ten principles of authentic task design to ensure that the tasks become more authentic, thus encouraging reflection. A major requirement for this authenticity is relevance for the educational practice towards which the educational programs aim (Herrington, Reeves, Oliver, & Woo, 2004). This workplace practice is composed of various authentic tasks (Reeves, Herrington, & Oliver, 2002), rooted in the 21st century skills, which can be devided into core and contextual skills (van Laar et al., 2017). A central, contextual skill is cross-disciplinary thinking, which is promoted by collaboration across disciplinary boundaries (Klein, 2013).

However, is the learning of the student ensured by only focusing on authenticity? Suppose the students need to relate cross-diciplinary knowledge. In that case, they will need to both add, adjust and connect new and existing knowledge, which is a reflective process (Rutting et al., 2016). RPL is an approach that can aid to ensure relevance and relatability to a learning activity. The operationalisation of the theoretical foundation of RPL is supported by six core principles for teaching (Horn et al., 2020):

- The students' own experiences are incorporated into teaching and learning activities
- Teaching and learning activities designed to include appropriate disturbances
- Teaching and learning activities are organised as an exploration
- The content of teaching and learning activities is based on a good example
- Teachers and students work together on learning processes
- Teachers and students create room for dialogue

These pedagogical planning and teaching principles may serve as a guideline or inspiration in the design of educational activities. The principles can be further expanded by domain-specific educational theory (Abele et al., 2019; Herrington et al., 2004; Oakley, 2014, 2015; Reeves et al., 2002). Furthermore, neither cross- nor inter-disciplinarity within the learning activities is investigated in the RPL White paper (Horn et al., 2020).

In this study, we are inspired by principles 1, 3, 5 and 6 as design criteria for the educational activities investigated. Hence, these principles are discussed in the following and related to the literature, specifically targeting technical disciplines. Furthermore, the connection to cross-disciplinarity is unfolded.

By incorporating the students' own experiences into the learning activity, we enable students to form patterns with existing knowledge (Merrill, 2002, 2015; Oakley, 2014). This supports the learner in acknowledging both multiple right solutions and multiple solution methods (Herrington et al., 2004; Reeves et al., 2002). The activation of prior experiences lets the student perform chunking of the course content which is already anchored within their existing knowledge (Oakley, 2014, pp. 59–64). This chunking, where the new knowledge is bound together with existing knowledge into chunks, is a reflectional process where the interconnection between different knowledge areas and disciplines is

formed. In order to make this happen, the teaching and learning activities should be designed in such a way that it allows for contributions from the students, for their sharing of past experiences and prior knowledge, and for the recognition of this by the teacher.

Learning as exploration is described as "the process of seeking to re-establish meaning in learning situations that are characterised by the breakdown of meaning (…); not necessarily by providing clear answers to the problem" (Horn et al., 2020, p. 18). This way of working has been an integral part of technical and engineering education for decades (Nilsson, 1982, 2000). More recent approaches to this include the Learning Factory approach (Abele et al., 2019), where the build-in reflection has been pointed out as a central part of the maturity of the learning activities (Enke et al., 2017). Examples of this can be authentic task design, where an ill-defined activity is formulated, and the student by themselves identify relevant tasks and subtasks (Herrington et al., 2004). In order to support exploration in the teaching and learning process, assignments need to be open-ended, and a focus on the flow and structure of the explorative processes is often necessary.

The RPL-principle that students and teachers work together on the learning processes is based on the understanding of learning as a social phenomenon. This can be e.g. workshops and other activities with a high level of interdependency between the involved parties (students and lecturers). A much-used way to ensure an authentic industry workplace practice setting in education is to let students work in groups, and often in cross-disciplinary groups (Herrington et al., 2004; Reeves et al., 2002). It can even be argued that an authentic task requires complexity that can be hard to create and sustain without group work (Reeves et al., 2002). Furthermore, these groups need to be cross-disciplinary to resemble authentic workplace practices (Abele et al., 2019). The value of group work is profound in technical educations: It lets students catch errors within their own thinking and helps them ensure a deep understanding by explaining the content of a task to other group members (Oakley, 2014). Hence, group work is used as the pedagogical implementation of principle 5 in this study.

The principle in RPL emphasises the importance of dialogue in the learning process. The educational design must create rooms for dialogue. Both students and lecturers will need to engage in giving and receiving feedback on the work carried out. Through dialogues, the lecturer and the students focus on quality and potential for development of work, and the feedback given is instrumental for the students' reflection. In authentic task design, feedback is implemented as a continuous assessment of the solution and process combined with supervision to let the student explore the solution space further (Reeves et al., 2002).

In summary, the discussion above describes how the four mentioned principles from RPL can be operationalised even further into a technical educational context. The activation of prior knowledge, exploration and feedback fits well with relevant literature within technical

education. However, a major point about this technical context is the need for cross-disciplinarity concerning the principle of learning as a collaborative enterprise. The need for contextual skills is increasing within the job market, and hence, students need to aquire these along with core, technical skills (Prensky, 2014; van Laar et al., 2017). These contextual skills can be acquired through cross-disciplinary collaboration (Abele et al., 2019; O'Rourke, Crowley, & Gonnerman, 2016; Reeves et al., 2002).

The nature of cross-disciplinarity has been investigated by several researchers (O'Rourke et al., 2016). It can be argued that cross-disciplinarity's central characteristics is to overcome disciplinary conflicts to gain new, shared insights (O'Rourke et al., 2016). Cross-disciplinarity iteratively generates mutual understanding and can be composed of a full range of elements, such as disciplines, participants, methods, goals, knowledge, skills and competencies (Klein, 2013). The process of obtaining cross-disciplinarity, called integration, can be seen as a three-phase process composed of inputs (theories, data, problems), processes (knitting, fusing, mixing, and synthesising), and output (understandings, explanations, solutions). The inputs and the processes can contain various disciplinary conflict degrees, while the outputs have solved these conflicts (O'Rourke et al., 2016). The processes which create the cross-disciplinarity can be obtained by adding, adjusting, and connecting existing theories, methods and results within the single disciplines engaged in the cross-disciplinarity (Rutting et al., 2016). As a result of these processes where the cross-disciplinary work output is rinsed for conflicting theories and assumptions, the adding, adjusting, and connection of different elements can be seen as a reflection or chunking upon all the disciplines that are part of the cross-disciplinarity (Oakley, 2014; Rutting et al., 2016).

Accordingly, cross-disciplinarity can be seen as an approach to teaching and learning through which the students learn and get new insights.

Method and Data

This study is empirically based on a case study. The case study approach was chosen because it allows the researchers to understand the phenomenon being researched (Yin, 2012), which resonates well with the more explorative nature of this study.

The case consist of two separate training courses, undertaken at respectively University College of Northern Denmark (UCN) and Fagskolen i Viken (FiV), Norway. Having two independent courses broadens the empirical foundation for the study. Moreover, by selecting training courses from two independent and geographically separated educational institutions reduced the risk of interference between the courses. Both courses represent a cross-disciplinary setting with enrolled students from various technical programmes (e.g., IT, automation, and mechanics) at technician level (EQF 5) (UCN) or at vocational level (EQF 4) (FiV). Furthermore, both courses aimed at the changes currently taking place in

industry. Moreover, both courses took a point of departure in an approach with an underlying focus on authentic tasks related to real-life industrial problems. The courses were on a college-level (EQF 5 FiV and EQF 6 UCN), with approximately 25 students participating in each.

The data was collected based on two online semi-structured focus group interviews with respectively 3 and 4 students, each addressing one of the courses. The semi-structured approach was chosen because it allowed the interviewers to ask follow-up questions based on the students' answers, following the explorative nature of this study. The interviews aimed to understand how RPL aid the development of competencies among students from different technological domains in a cross-disciplinary setting by investigating the students' own experience of reflection in a cross-disciplinary educational setting. The interviews were conducted as semi-structured interviews based on an interview guide with open-ended questions.

To further support the development of the two focus group interviews, a questionnaire was conducted after the course. The questionnaire was sent to 23 students (receiving 16 responses). The questionnaire was only sent to the students from the UCN-course as it was not possible to reach the students from Norway, after the course had ended. The students were asked if they had strengthened their competencies by sharing domain-specific knowledge and/or participating in a cross-disciplinary team. This was followed by questions about self-identified learning needs (regarding their discipline) and the relation between different cross-disciplinary perspectives (business, technology and human) and their discipline.

The questions of the focus group interviews were divided into two groups. The first group of questions was related to group dynamics, e.g., asking: How did you experience the group work? Was the group work efficient? Did you have different methods and expectations towards the group work?. These questions were mainly to allow the researchers to better understand the circumstances within the groups participating in the interviews. The second group of questions aimed to understand what kind of knowledge the students had obtained about the other disciplines (represented in their group) and how it affected the students' understanding of their own disciplines. The students were, e.g., asked: What did you learn about the other discipline(s)? Have you obtained new knowledge of the boundary between your and the group members' disciplinarity? Has this made you more aware of your own disciplinarity and its methods, approaches and perspectives? A total of seven students (four from UCN and three from FiV) were interviewed. The interviews took 35 and 39 minutes. The interviews were conducted in respectively Danish and Norwegian. Any citations used in the article have therefore been translated from Danish/Norwegian into English. Due to Covid19 and the geographical distance between the institutions, both interviews were conducted online. Both interviews were recorded for documentation.

The data from the interviews were afterwards analysed using the Gioia methodology to group and categorise relevant statements (Gioia, Corley, & Hamilton, 2013). The analysis of the statements was conducted in two steps, a "1st-order" analysis (using the students' terms for grouping and categorising the statements) and a "2nd-order" analysis (also using researchers' terms for grouping and categorising the statements).

The Gioia methodology was chosen because it generally aims to bring structure and quality to qualitative, inductive research. Accordingly, the methodology helps to create transparency between the empirical data and the findings and conclusions.

The courses

The two selected training courses took place during fall 2020 and were both part of full-time educational programmes, respectively Product Development, Integrative technology (PTi) at UCN, and Technology and Industrial Production (TIP) at FiV.

The UCN course

The duration of the training course was six weeks (5 ECTS) and it consisted of five lectures (one per week).

The topic for the course was *product development* with focus on the *front end of product development*, including *problem understanding*.

The courses contained a project (developing a wheelchair) the students had to solve in groups. Accordingly, the students were divided into groups with a project manager. The groups were formed based on both the students' personalities (tested using Insights profile tool) and their various disciplines, ensuring cross-disciplinary groups. The project task was presented as an *ill-defined problem (with inadequate information)*, forcing the students to explore the topic by developing a technically feasible, economically sustainable, and valuable product.

Each lesson consisted of a flipped-classroom approach, where the students would have studied the topic (reading, watching, or listening) before the lesson. The lesson would then consist of a short lecture summarising the topic, followed by a discussion and reflection (e.g., stimulated by questions, supervision, or discussion in smaller groups).

The course was ended in an oral examination, taking point of departure in the student projects.

The FiV course

The case is the main project in the third and fourth semester of the 120 ECTS Mechatronics program under the Technology and Industrial Production department. The main

project is a subject of 10 ECTS, and the main objective is to integrate the subjects of the program into an inter-disciplinary task provided by the world of work.

At the beginning of the subject, the students receive two lectures concerning the frames of the projects such as required qualification of task, mandatory submissions, feedback from tutors and assessments. The final assessment of the course consists of a review of the group work and an oral individual examination.

The composition of the student groups has been influenced by the disciplinary background of the students and personalities (based on the Belbin team roles).

The group in question has obtained a commission from a large company to develop a system for monitoring and analysing the energy consumption in the company's buildings to identify an energy leakage and propose countermeasures against it.

The mission is a genuine, authentic task and complies to all design elements for authentic tasks, apart from the seamless integration of assessment as this is organised as obligatory submissions and formal examinations at the end. All assessments are, however, directly linked to the outcome of the students' work on their mission.

The course task has relied on the disciplinary backgrounds within the groups, where the students explore different solutions. Furthermore, the learning in and as a group and feedback and feedforward are planned as rooms for reflection.

Analysis and findings

The focus group interviews have been analysed. This has provided an overview of which areas of the students' knowledge, skills, and competencies that have changed through the cross-disciplinary work by investigating the student's ability to reflect.

Overall, the students report that their communication of, and thoughts about, their own competencies has been altered through the cross-disciplinary group work. In the focus group interview from UCN, a student expressed that the following: "It is pleasant to get some new views and knowledge. It helped me understand the problem at hand and obtain new knowledge myself" (time: 32:30-32:55). The FiV course strengthens this where one student uttered that "we bring up a different point of view on different subjects, and it is good to bring those forward, so we don't become narrow-minded". (00:21:30 – 00:21:40) Another student described how the plurality in backgrounds affected teamwork; "Very positive as we have different backgrounds and complement each other." (00:20:40 – 00:20:49). This setting, where students learn from each other, aligns to the findings of Wenger. His community of practice theory describes a learning system where learning is obtained through interactions in a community of learners (the group) rather than through the teachings of a lecturer (Wenger, 2011). In this context, the students enhance each other's understanding by questioning the existing knowledge in a new way, enabling them

to rethink their knowledge. The students work together to learn by aiding each other in adding, adjusting and connecting new and existing knowledge. Hence, it is a tangible use of the RPL principle of group reflection in technical education.

Furthermore, a student from UCN expressed: "I needed to create everyday examples. I could not use my IT lingo, which I used to do in my previous study." (time: 29:50-30:17). Several of the other students said that this process let them reflect on the tools and skills they use and hence activate and demonstrate their knowledge in new ways. As the students activate their knowledge as a group, they also build a basis for demonstrating this knowledge. Hence, there is a reflection related gain for the students, activating their prior knowledge, which has been described as the foundation of effective learning (Merrill, 2002, 2015). This can be seen as an example of the RPL principle of group learning, which describes learning as a social phenomenon. The students obtained the required experiences to reflect upon how their skills could be presented in various group settings, and hence, they obtained new insights into their skillset. Furthermore, it is also an example of how the RPL principle of building on prior knowledge can be utilised within technical education, even for a knowledge-diverse group.

The interviews also revealed that the students understood their disciplines through interactions and, afterwards, reflections. One of the students from UCN said: "I liked the new perspectives I got on my own discipline. The terms used within a discipline are not necessarily transferable to this context "(30:50-31:25). Based on the interviews, the students seemed to better understand the limitations of their disciplines/capabilities. As a student from UCN said: "I have obtained new insights into both barriers and options, I can encounter within my discipline." (29:30-30:10). This is summed up by one of the FiV students in his statement "We sat down and discussed what we are good at, and what we can contribute. And we tried to structure the group according to what each member feel can be their main contribution, and maybe most [importantly] what one prefers not to go into." (00:16:44 – 00:17:06). Another student said, "I have started to study the company I work in and see that - wow, here it is done in this and that way. You get "pegs on which to hang things". I feel this has been really good!" (00:30:13 – 00:30:30)

While the students express a positive outcome regarding their ability to reflect based on the educational activities, they also pointed at another aspect where this did not apply. Within the core technical skills, they did not experience any gains. Neither of the students expressed that they gained any new insights into, e.g., programming proficiency, and hence it can be said that these proficiencies should be obtained elsewhere or in a different setting. Although this is a limitation in developing the students' core skills, it also offers room for developing contextual skills: The shared interpretation that the students create through the study activity gives them a broader (contextual), but not a deeper (core), skillset. Hence, the group learning principle of RPL can be scoped towards reflections that broaden the student's knowledge domain by cross-disciplinary teamwork.

Both courses had designated project managers within the groups. The students expressed that the project managers could have facilitated the room for dialogue even more. This could be an improved usage of the RPL principle of creating rooms for reflection. Hence, they could be supervised to use the group's knowledge resources to enhance all participants' learning by the teacher. This insight can also be utilised further by teachers and supervisors if it becomes a part of the group assignment to get all students' skill sets represented in the final solution. This can be seen as an operationalisation of the RPL principle. The students and teachers create a room for dialogue; this room does not simply emerge in every possible group configuration and might need to be cultivated and cared for, even though the Necessary disciplines are represented within the group.

Moreover, besides the different disciplines, the different personalities of students in the groups also affected the collaboration. However, the different personalities seemed to affect the student's abilities to reflect as a group. As a student from UCN expresses it: "Everybody in my group wanted to come forward and say something. It can be hard to be the only introvert in an extrovert environment, especially if you also represent a different disciplinarity than the rest. The project manager should take this into account". (27:05-28:10) However, this is also a part of the authentic workplace practice, where different personalities contribute in different ways. This confirms the core of the principle of group learning from RPL – that reflection can be supported through interaction between people, creating a foundation for reflection.

The students work in a cross-disciplinary group, which enabled them to gain new knowledge, skills and competencies through adding, adjusting and connecting knowledge areas. Addition was obtained as the students worked together on learning in a room for dialogue which the designated project manager managed within the group. This is an implementation of the group learning and room for dialogue RPL principles. Furthermore, the prior knowledge RPL principle which the students brought into the educational activity was adjusted as the students shared their theories, data, problems. This adjustment was the result of both reflecting upon presenting this knowledge, as well as the response and perception within the group. Lastly, the dialogue enabled both groups and individuals to connect new and prior knowledge. This process was a collaborative learning process. Hence, the RPL principles of prior knowledge, exploration, group learning and room for dialogue offers opportunities to improve technical educations. These opportunities are found within this study for contextual skills, which is a vital part of 21st-century skills (van Laar et al., 2017).

This study has two major limitations: the core skills and the amplitude of improvement. We could not confirn that core skills were improved during the pilots. However, e.g. the learning factory approach has been proven to do this in somewhat similar settings (Wank et al., 2016). Hence, further piloting could benefit the understanding of how RPL can aid the development of core skills along with contextual skills. The amplitude of improvement

due to RPL within technical education with cross-disciplinary groups cannot be estimated from the present study. Hence, this effect needs to be investigated to find how much RPL aid the development of contextual skills.

Conclusion and perspectives

Based on this study, we find indications that working in cross-disciplinary groups strengthens students' ability to reflect. More specifically, we have seen how RPL has aided the development of contextual skills among students with different, technical backgrounds. The students become more proficient in the communication of their skillset to non-specialists. Hence, it also improves their ability to participate in a company with various professionals on the payroll.

The findings support our hypothesis that working in cross-disciplinary groups supports students' ability to reflect on their domain, making them more aware of their competencies and capabilities, strengthening their cross-disciplinary capabilities. The findings are aligned with the expected reflectional gains, as described in the theory section: The students have added, adjusted, and connected their prior knowledge to the new knowledge of their team members, and hence obtained a better, adjusted understanding of their initial discipline.

The interviews also revealed that the students felt that their more general competencies were strengthened rather than their more discipline-specific competences. The collaboration and communication with the students from other disciplines sharpened their understanding of their domain of knowledge but did not enhance it. However, they felt that their capabilities regarding more general competence, e.g., communication, leadership, and negotiation, were strengthened.

This implies that cross-disciplinary groups can be used under specific settings to improve the learning outcome within the RPL methodology. These learning outcomes tend to be the width of the learners' disciplinarity, the understanding of its limitations and boundaries towards other domains, and the ability to communicate relevant content to other professionals.

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The Everlearner. An approach to operationalize The Reflective Practitioner

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Abstract

Digital design students educate themselves in a rapidly evolving technological landscape. The Danish Union of Journalists published a report that covered the media business at large, indicating that both products and tools used in media are constantly changing (Journalistforbundet, 2019). Developed with the intention of teaching students how to cope and adapt to constant and inevitable changes in the demand, this short paper unpacks the Everlearner didactic model. The presented model is inspired by the works of Nelson & Stoltermann (2012),Fallman (2008) and (Schön, 1987) and suggests a new approach, that makes students perceive themselves as being objects of learning. The model serves as a tool for planning courses and facilitate learning and reflection in the classroom through self-reflection, individual exercises, and plenary discussions. By means of exemplary cases, from students at Interactive Design at The Danish School of Media and Journalism, the model is presented and discussed. Conclusively, the short paper asserts that The Everlearner model effectively aid students' self-reflection on their vocational practice, and positively changes their approach to unsolicited seek out new knowledge in their effort to remain current and relevant.

Keywords

Experiental Learning, Self-directed Learning, Learning Strategies, Reflective Practice-based Learning

Introduction

One key shift in the 21st Century is that technology have developed apace and the requirements for practitioners are everchanging with frequent revolutions in tools and underlying theories (Centre for Educational Research and Innovation, 2010) . Add to that, knowledge-based work being automated at an increased rate (Lester, 2020) a trend already seen in industrial and administrative tasks. While tasks are automated, the changes also drive the creation of new jobs, but in fields that are more technology-driven, creative, and value-based. This requires a modern practitioner to hone skills like complex problem solving, critical thinking, creativity, and cognitive flexibility (World Economic Forum, 2016).

For practitioners, there has always been a tight coupling with the tools of the trade, adding a layer of complexity, that cannot solely be studied in literature, but need to be practiced repeatedly in order to gain proficiency. Experience is gained by being in an implicit or explicit dialog with the material, reflecting both during a task and evaluating after (Schön, 1987). The relationship between knowledge and tool needs to be a subject of focus for the practitioner, in order to advance in both domains, as well as building up flexibility to adapt knowledge gained from previous experiences to new situations. That focus falls under the general concepts of reflective practice-based learning (Horn, et al., 2020) and can also be seen investigated in contributions like *the organic learning cycle* (Borthwick & Ferris, 2017) and initiatives like *The Alliance for Self-Directed Education* (2021). The purpose of this paper is to present a model used at Interactive Design to help in course planning, plenary discussions, and students self-reflection. The model is the product of an attempt to conceptualize previous practice at the school and a key ingredient in Interactive Design's effort to make students see themselves as *everlearners*.

Defining the Everlearner

The notion of the Everlearner, and its associated model, is an attempt to bring a new mindset to the students and the way they interpret and work with assignments and their own practice. I define the Everlearner as *a person who learns unceasingly; not being content with their current level of knowledge, and always strives to learn learn something new as a part of the solution*. It requires reflection and a dedicated focus on key aspects of the process; what can be used? what to learn in order to succeed? how can this be used in different ways? etc.

Teacher and student can use the model presented below to plan, discuss, and reflect on learning. It shifts the focus away from the artefacts produced to the individual actions involved in the process – make the student see themselves as a product of design. While other didactic models like SOLO (Biggs, 1979), The Didactic Relationship Model (Hiim & Hippe, 2007) etc. are mainly for planning and assessment, the everlearner model is intended as a shared didactic tool for both student and teacher, giving it an active role in the classroom.

The Everlearner Model Described

The Everlearner model (Figure) can help develop learning processes and to pick up through self-reflection. It depicts a mental schema that points at what happens when a specific competence (row) is coupled to an intention (column).

	Explore	**Study**	**Practice**

Mindset (I am …)	**Philosophy** (Creativity)	**Introspect** (Judgement Criteria/Ethics)	**Motivate Behavior** (Conceive/Self-Efficacy)
Knowledge set (I know …)	**Critical Question** (What if …?)	**Build Knowledge** (Alter or Reinforce)	**Inform Decision** (Reasoning)
Skillset (I do …)	**Challenge Solution** (Inspiration/How Might We …?)	**Empirical Insight** (Transfer)	**Materialize Design** (The Knowing Hand)
Toolset (I use …)	**Change Usage** (Abstract Qualities)	**Define Affordance** (Alter or Reinforce)	**Utilize Skill** (Predict Practice)

Figure 1 The Everlearner model is a framework that describes specific areas where a set of competences intersects with an intention. The wavy lines in the box indicates a tight coupling between a specific skill and underlying knowledge or a given tool. This coupling is leveraged by cognition and psychomotor.

The following terms is used when working with the model.

Competence layers. Along the left side are the competence layers. They resemble the set of core competences described by Harold G. Nelson and Erik Stolterman (2012) and expand on the terms used in the danish qualification framework (Ministry of Higher Education and Science, 2016).

Intention. The top row depicts three intentions. The intentions are inspired by the The Interaction Design Research Triangle developed at Umeå Institute of Design (Fallman, 2008) where the terms are used to segment research and other activities. Practice is when the practitioner is producing content, expressing herself. Study, is when the practitioner has the intention on making meaning out of something, being external content or own practice. Explore is when the practitioner is moving outside the known and connect unrelated parts to a new whole.

Focus is the intersection where intention and competence meet. The title in the field depicts which key activity is in focus. The terms underneath is supporting terms for the focus. The foci can be described as a combination of competence and intention, e.g. *"What is in focus when you practice a given skill?"* or *"What is in focus when you study your mindset?"*

The box is the thick stroked area. It is the natural efficient area in play, when you practice in a profession. Initialized and maintained by inner motivation from the mindset, the box performs all necessary action and reflection for a skilled practitioner, while working with familiar knowledge and tools and building experience and proficiency in professional practice.

Membrane. In the box are two wavy lines called the membranes. They relate to the progression of a skill. A skill excels in the ability to use a knowledge or a tool proficiently. Therefore, the skill layer is tightly coupled to knowledge and tools through a membrane.

How efficient the membrane can be passed, is defined by a Cognitive Taxonomy (Anderson, Krathwohl, & Bloom, 2002) and a Psychomotor Taxonomy (Petersen, 2015)).

Dynamics is the relation between individual fields of focus. Sometimes reflection needs to be focused on a single point. At other times, the reflection is based on movement or interoperability between competences or across intension.

Selected dynamics in the model

The following present three relevant dynamics in the model

Practicing the box

The black frame (**Fejl! Henvisningskilde ikke fundet.**3) mimics the traditional approach f or a practitioner - make designs or products by intuitively practicing a skill. It feels like the hand knows what it is doing, because the practitioner, at the same time, intuitively inform her decisions by practicing relevant knowledge, and in order to get a concrete output, utilizes her skill by yielding various tools.

While materializing a design, the practitioner study the process at the same time (reflection-in-action). This results in empirical insight. Some of the insights relates to declarative knowledge used in the process, and other relates to the tools used. If the knowledge produces an unintended result, the knowledge layer will be less likely to inform that decision in similar situations. On the other hand, if the knowledge was well suited the cognitive patterns leading to that decision will be reinforced. In the same way, the handling of the tool will be adjusted if the outcome didn't match the predicted practice.

The process can be seen as two circular movements moving between practicing and studying practice. The process is orchestrated by the skillset coupling with the knowledge layer at a cognitive level and the tools layer at a psychomotor level. A stimulation of these circular windings and deliberately addressing them through reflection during the design process will strengthen the practitioner's competences and ability to cope in similar situations.

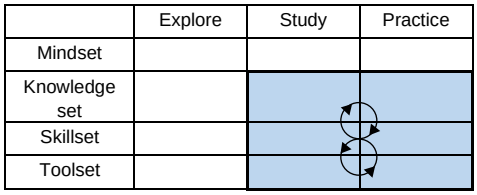

Figure 3 The process in the box can be seen as two circular movements going to and from the skill layer.

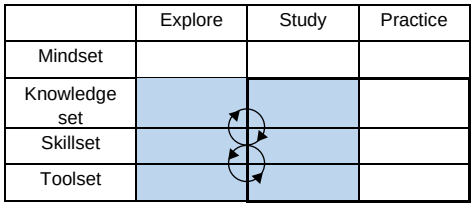

Figure 4 A similar process as inside the box is between explore and study. This dimension focus on including new knowledge and previously unknown aspects into the box.

Going outside the box

A look at **Fejl! Henvisningskilde ikke fundet.** shows the same process as described in t he box (see figure 3). As soon as the practitioner has materialized something, it can be challenged, by asking questions to it. Instead of informing decision by already known knowledge you ask critical questions to the product and alter the design in an attempt to accommodate them. At the same time, the practitioner tries to alter the use of a tool and abstract the qualities to find alternate usages that can be tried out in the exploration. Empirical insight gained from studying the result will again divide into cognitive and psychomotor activities inside the box and be used to alter or reinforce the practitioner's knowledge- and toolset.

Forcing the student into exploration result in a divergent state, with a search for something new and not already known as an end goal. Multiple iterations will have multiple different outcomes as a result. Having practice focus will need a defined goal and all tasks will converge toward an ideal end state.

The mindset as a motivator and mediator

The mindset layer includes categories like personal traits, emotions, habits, motivation, ethics, aesthetics, creativity etc. It operates in tandem with the skillset and motivates practice and exploration while evaluating the process continuously. The mindset can be seen as a first mover of the process. The power of imagination and ability to conceive solutions to problems forms into a task set that can be executed. During the process of execution, the mindset layer perform judgement based on internal criteria such as aesthetic and ethic.

Taxonomies used in the membrane

The membrane between knowledge set and skillset is elevated through Bloom's cognitive taxonomy (Anderson, Krathwohl, & Bloom, 2002) building up from *remembering*, *understanding*, *applying*, *analyzing*, *evaluating* to *creating*. Each level in the taxonomy strengthens the ability to inform decisions when materializing a design. Basic knowledge can be learned once and applied to solutions without degradation – if you know, you know. The competence strengthens when used in different contexts and with the ability to explore domains, challenge solutions and ask critical questions to the already known.

Working with tools is different. You can continuously be better at a tool. Riding a bike, drawing with pencil etc. is all skills that can be strengthened with practice. The membrane between skillset and toolset elevates through a psychomotor taxonomy going from *observe*, *imitate*, *train*, *adapt* to *design* (Petersen, 2015). Each level in the taxonomy build

toward higher proficiency and finally mastery, enabling the practitioner to think freely through the tool.

Moving up through the levels is achieved by circular movement through the membranes in the model. The first levels in both taxonomies (remembering and observe) is solely achieved through studying. The two next levels (understanding/applying and imitate/train) is a progression from the intention of study to an intention to practice. The higher levels of the taxonomies (analyzing/evaluating/creating and adapt/design) is achieved with an increasing intention to explore as a part of the process.

Practicing the Everlearner model

The following are a set of cases from practice taken from teaching students at Interactive Design. They will suggest examples of didactic approaches that connects to the model.

Schedule and learning outcomes

It is tempting for students to focus on products rather than process. Products are visible manifestation of skills. In an Everlearner's mindset *good process leads to good products*, so courses are laid out in a way, so the shift in intention is visible during the course.

Table 1 shows a one-week game design course, where colors depicts switch in intention. A few pointers are:

- Every morning except Friday the student has study and then practice as main intention.
- Monday afternoon leaves time to explore modelling and concept generation.
- Tuesday afternoon has a focus on finishing concept before further exploring.
- Tuesdays exploring also include new insights about movement gained in the morning.
- Thursday afternoon and Friday morning are reserved for production and handing in the assignment.
- Friday afternoon is set to synthesize. That is to discuss and reflect on outcome and key learning points.

Table 1: Week schema for a Unity Course

	Monday	Tuesday	Wednesday	Thursday	Friday
Morning	Introduction to interface	Input and Movement	Enemies and Collision	Shot and points	Production
	Get comfortable with interface	Input and Movement	Enemies and Collision	Shot and points	Hand in
Afternoon	Level modelling and Concept Generation	Finish Concept	Game mechanics and Dynamics	Production	Review and Critique
	Modelling and Concept	Modelling and Movement			
Legend: Study, Practice, Explore, Synthesize.					

The student has a clear indication on how much time is set for production and exploration. This stimulate the exploration phase and postpone the student's desire to prematurely begin production. As a part of the main assignment, there is a section called *learning outcomes* (Table 2).

Table 2: Learning outcomes

Mindset	Knowledge Set	Skillset	Toolset
• Self-learning • Explorative • Curious • Creative	• Unity • Game Design • Graphic Design • 3D Environments • Game mechanics	• Handle Unity's IDE • Design a Game Concept • Create simple scripts • Work with objects, light and camera in Unity • Create an engaging story	• Unity • C# • Animation • 3D modelling

The table direct the student's attention towards relevant competences during the course. Some of the competences are not taught during the week but gained from previous

courses. The student is past the lower part of the cognitive and psychomotor taxonomies and can practice these skills in order to study and explore new material in the course. During teaching, this is explicitly discussed with phrases like: *"What knowledge from Graphic Design can be used to inform your decision here (color, typography, layout)?"* or *"How does navigating the 3D viewport differ from what you have previously experienced in 3D-modelling tools?"* This prompts students to reflect on previously gained knowledge and gives a deliberate focus on overlap, similarity, and differences among tools.

Learning portfolio

Another case derived from the Everlearner model is the learning portfolio made during a 9-week course called *Visualization* on 1st semester. In Table 3 is a list of topics covered during the course.

Table 3: Visualizing course schedule

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
Drawing/ sketch-ing	Drawing/ sketch-ing	Form	Move-ment	Typogra-phy	Photo	Color	Moving Picture	Learning Portfolio

In the beginning, the student is introduced to the different types of competences and they are given a template for a learning portfolio. During the weeks, they take notes of learning points and insights, knowing that the knowledge gained in the coming weeks will be subject to reflection with fellow students later.

In the last week Monday is reserved for self-reflection. Given a list of guiding questions, the students study their own notes and reflect upon key learning points in all competence layers. Students gather in groups on Tuesday, for a broader reflection. The session reminds the student of learning points that other students had and is a key part in forming the students Self in the light of fellow students. When creating the portfolio from Wednesday to Friday, the students are asked to use their newly gained skills in visualization in the design, exemplifying their achieved level of proficiency.

Discussion

Setting off with a title claiming a way to operationalize the reflective practitioner is a clear reference to the tradition of Schön and the dialog with the material. It can be argued how constructive and operationalizable this model is. The model is a mental schema, not a method, and in no way suggests actions in itself. The schema is an organizational framework for information with relationships between individual pieces of information. It needs a layer of methods on top to get direction and momentum. Two cases are presented

here, and more are experimented with at the school, where it is used to in different areas like stimulate transfer through weekly goals, to plan course progression etc.

Working and discussing the model together with students show that they get a new vocabulary and approach their profession in a more reflective way. Research on novice versus expert performance also suggests that elements of expertise involve having mental schemas that guides perception and problem-solving (Chi, Glaser, & Farr, 1988). The work up until now has not made the students work fluidly with the model by themselves but has mainly been used when facilitated by teacher instructions and assignments. The hope is that the model will be adopted through repetition and consistent use for a more intuitive integration in student's self-reflection. It is a theoretical model that is evaluated through real life cases. As more examples of use are generated, a more solid didactic approach to introduce the model for the students will emerge.

Future work

The model is fundamental for many of the didactic considerations at Interactive Design but is believed to be relevant for all practitioners. Feedback from usage and further research particularly concerning validation in relation to established didactic frameworks is needed to formalize the concepts and develop educational material explaining the theory and use cases.

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Reflection, dialogue, and hybrid learnings spaces

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Abstract

This paper presents a metanalysis of three studies of designs for structuring the time between lessons in four university college programmes. The metastudy seeks to qualify homework activities. The aim is to establish virtual connections between lessons and homework. The studies suggest that while designing a course the lecturers could benefit from acknowledging that the virtual representation of the course in the learning management system could be given more attention in new learning designs. The traditional learning designs, that this paper investigates, focus the pedagogical attention on the physical lesson in the university classroom and it relies on traditional approaches to teaching and learning in a physical and simultaneous meeting. The paper promotes experience-based learning designs that seek to establish an equilibrium between the virtual (homework) and the physical (classroom) aspects of a course. This shifts the lecturer's workload from predominantly being spending time on preparing the lesson, to paying equal attention to the activities and interactions with the students between lessons. The paper presents pedagogical designs that, potentially, create good conditions for reflection and dialogue between the lesson that also serves as the fulcrum for the lesson, thereby, defining the circumstances for both virtual learning space and lessons. In the investigated cases, the mediational means are discussion fora utilised to connect the activities between lessons and the lesson. When the lesson and homework-time are connected by an online discussion it, potentially, frees the lecturers time to take part in the interactions between the lessons. Thus, we suggest a change in the way lecturers approach the distribution of their workload leading towards a new equilibrium between 'virtual learning space' and 'physical learning space'.

Keywords

Reflection, Dialogue, Online discussion, hybrid learning designs, Virtual/Physical

Introduction

The increasing application of digital technologies in education during the past 25 years has created a virtual strand, parallel to the physical strand in education. The virtual strand has emerged in all levels of education from elementary school to higher education. Traces of the virtual strand can be identified by a few examples; in 1995, all students at the Faculty of Humanities at Aalborg University were given an e-mail address. During the

same time, the Ministry of Education introduced a discussion board, SkoleKom (FirstClass), for teachers. In Denmark, an internet-connected computer became a mandatory demand for all schools in 1999 (Undervisningsministeriet, 2003 p.: 5-11). SkoleKom remained the backbone for teacher communication until 2014 when the Ministry of Education introduced mandatory learning platforms for all schools. Alongside the institutional upscaling of the students' access to computers, the students have become increasingly self-reliant and equipped with their personal computers, smartphones, and tablets (OECD, 2015; Selwyn, 2014; Selwyn et al., 2016). The efforts to introduce digital technologies at most levels of education in Denmark during the past 25 years has created significant changes in the circumstances for teaching and learning. The ubiquitous access to information through personal devices, beyond the teacher's immediate control and the attention-stealing social media, has challenged the traditional conditions for teaching. Conversely, the pedagogical focus is still on the physical meeting in the classroom. In the interest of exploiting the digital technologies accessible to the student in the context of education, it seems necessary to develop a deeper understanding of the affordances of digital technologies.

This metastudy seeks to investigate virtual connections between education and the professional practice the programmes aim at. The three studies include; a study of blended learning in further education for teachers (Kjærgaard & Sorensen, 2014a), a study of utilising roles and digital tech in communities of practice (Kjærgaard & Sorensen, 2014b), and finally, a study of how lecturers can design and facilitate the students' homework and how lecturers can design conditions for 'Hybrid Homework' (Kjærgaard, 2019). The connection between lesson and homework is a connection that is both virtual and real and that both students and teachers recognise and accept as an important part of the pedagogy. The virtual connection should serve as a vehicle for creating good conditions for reflection in action, even when the action is mediated by technology. Thus, the virtual connection between education and practice becomes part of the teacher's design and, in the context of digital technologies, digital learning materials and digital media are regarded as just as real as the physical lesson or actual encounters with practice (placement, internship etc.). It is the assumption that when the virtual is regarded as equally real as the physical encounter then it will gain as much attention and care as the physical encounter. Thus, allowing the online discussions, video conversations, digital collaborations, and online learning designs to unfold their affordances. In the practice of university teaching, it means that the lecturer's role as a learning designer also involves setting up a 'virtual learning space' (VLS) to serve as a platform for reflection.

Theoretical aspects

In the metastudy of the three studies, we use Mezirow's definition of reflection in this context because it regards a transformative learning process where the reflection is not

solely focussing on learning a skill but also on developing personal competencies required in the professional practices. Mezirow offers a definition that places an 'experience' in the centre of the reflective learning process. He says reflection is:

> "The process of critically assessing the content, process, or premise(s) of our efforts to interpret and give meaning to an experience" (Paprock, 1992 p.: 104)

This definition centres around 'an experience', which is also the fulcrum for learning in Reflective Practice-based Learning (Horn et al., 2020). At UCN, all programmes include long term internships and shorter exchanges with the professional practices that the programmes aim at, thus, experiences with practice is crucial for the student's learning process. This constitutes the 'experience' with the professional practice as the main event for reflecting on the relation between what is presented in the course and what happens in the professional practice.

The physical strand of education (the classroom, the auditorium, the library etc.) has been the main focal point in education for centuries, thus, the physical, actual strand represents the commonly shared, layman's understanding of what teaching is and what constitutes a place for learning. This notion is challenged by the recent introduction of computers, smartphones, learning platforms and digital teaching materials into education. It also challenges the common conception of what is 'real' and 'not real', which in turn challenges what is important to address for the teachers and students. Assumably, it is commonly accepted that the experiences we have in social media are real, we get affected by the interactions on social media and they influence us, even though, the experiences don't have a physical being beyond the screen. However, the virtual strand of education is widely regarded as subordinate and secondary to the physical, actual strand (Palloff & Pratt, 2013; Phillips, 1998; Tess, 2013). The virtual is not as 'real' and, thus, not as important, seems to be the general conception. In modern applications of the word 'virtual' from the Dictionary of Philosophy and Psychology, Peirce defines 'the virtual' as; 'as if' (Peirce, 1902). The definition implies that the virtual is almost something real but not quite, which could lead to the assumption that the virtual is less real and less important. It also led to the assumption that the 'real' is a thing of physical matter. The materialistic approach to what is 'real' and what is not 'real' may lend itself to understanding the physical world. Things of physical matter are either tangible or not, there is, traditionally, not an ephemeral ontology of a physical thing. This understanding of the 'real' has been contested in philosophy for centuries. Instead of understanding the dichotomy of 'real' or 'not real' by negating the term 'real', it is suggested to understand the distinction between tangible physical things and ephemeral concepts through the binary pair actual/virtual (Bergson, 1983; Deleuze, 1991; Deleuze, 1999; Pearson, 2005; Tomlinson & Habberjam, 1990). If the physical and the ephemeral are described through the terms 'actual/virtual' as Bergson and, later, Deleuze suggest, then the terms become equally 'real'.

In the postmodern era, it has become increasingly important to constitute another distinction between physical things and ephemeral concepts mainly because of the rise of computer technology and the metaphorical user interfaces that the 80ies and 90ies brought along in Windows and Apple Macintosh operative systems. In 80ies postmodern philosophy, the hybrid context where the virtual and the actual meets were described by the term 'hyperreal', a term coined by French philosopher Baudrillard in 1981. The 'hyperreal' describes a 'pure' reality that is more than the physical reality. The notion of the 'hyperreal' was described by Baudrillard in 'Simulacrum and Simulation' (Baudrillard, 1994). The term describes the situation where something becomes represented by a phenomenon that accentuates the original in ways that make it more evident what defines the original. For instance, vanilla essence accentuates parts of the taste and smell of vanilla to an extend where one who is normally only exposed to vanilla essence would not necessarily deem vanilla as more original because the copy, vanilla essence, accentuates the defining character of vanilla pod, thus making vanilla essence a hyperreal copy of the original. In this context, the 'hyperreal' is 'virtual' and understood as pure, ideal, and real. The term 'virtual' is derived from the Greek term 'virtue' implying that is to do with high moral standards and acting in accordance with a specific code of conduct, protocol, rule of law or religious discourse. The 'virtual' is a potentially perfect design like an idea deliberated through dialogue. It is important to note that in this line of philosophy (Bergson, Deleuze) the 'virtual' is opposed to the 'possible'. The 'possible' represents a false notion that is not 'real' (yet) (Smith, 2009 p.: 35). 'The virtual' is real because it has gained an ontology through either an internal reflection in the mind of an individual, where the internal language constitutes a discourse for the thought or idea that the reflection leads to or a dialogue between more individual reflection in a community leading to the deliberation of a shared idea. The ontology of the idea is given by its teleological character, it leads to something.

Context of study

The investigation was carried out in four different bachelor's programmes at University College North, Denmark (UCN). The programmes strive to develop models for utilising selected principles of blended learning in traditional F2F programmes. The reasoning behind the wish to develop the programmes in the direction of blended learning is both pragmatic and pedagogical. The pragmatic reasons are that teaching and learning at a distance allows for students from different campuses to attend the same courses, thus, making it possible to offer a broader variety of courses to smaller campuses. Another reason is that teaching at a distance minimizes the cost of commuting between remote campuses. The pedagogical reasons include a belief that there is an unrealized potential nested in technologies that are already present in the context, either supplied by the university (LMS, learning materials, group room screens etc.) or brought from home by the

students (smartphone, computer, social media, audio/video recording/playback etc.). The pedagogical potential includes a quest to integrate the professional practices into the classroom, either through digital simulations of the professional practices or through videoconference connections to practitioners. The notion is a cardinal part of UCNs approach to learning, Reflective Practice-based Learning (RPL) (Horn et al., 2020), as the aim for UCN is to create good conditions for learning the theories of the professional practices through reflection on and in the professional practice (Nursing, Teaching etc.). Thus, it is important for the learning designs deployed in the programmes to facilitate reflections on the designated professional practice. Normally, the conditions for reflection are related to having a dialogue in the classroom, however, potentially the digital platforms that are available to lecturers and students may also provide a space for reflection and dialogue. The students are used to having dialogues with peers in Facebook Messenger (primarily), however, our experience and research show that they are reluctant to have academic dialogues in online fora (Hew et al., 2010; Kjærgaard, 2021). The pedagogical task then is to create the circumstance needed for the students to engage in online discussions to reflect on the relations between theory and practice.

Method and methodology

In the interest of honing in on a methodology and useful methods that lend themselves specifically to investigate the relations between practice and learning by the means of reflection, we chose to utilise Mediated Discourse Analysis 'the nexus of practice' (NOP) (Scollon, R., 2002; Scollon, R. & Scollon, 2004). This choice entails a hybrid view on what is being said (discourse) and what is being done (practice). Thus, we investigate hybrid learning designs (HLS) and analyse the affordances nested in the HLSs and the utterances of experiences with HLS expressed by the students. The intention is to deliberate an exemplary way of investigating the relations between practice and learning through reflection and, thus, start the discussion of a generic method in RPL research. Scollon suggests cardinal points of interest in the analysis of the nexus of practice (Scollon, R., 2002): 1 Mediated action, 2 Site of engagement – the 'chronotope' of the engagement: time/place Synchronous, 3 Mediational means, 4 Practice and mediational means, and 5 Nexus of practice.

NOP aims to emancipate the 'crucial actors' in the 'social action' from restraining incommensurability in the interaction between discourses, place, mediational means and actors (Scollon, S. W., 2004 app p: 2). When the procedure for analysis from NOP is applied to this study the analytic categories are constituted by:

- The 'crucial actors' are students and lecturers.
- The 'social action' is represented by the activities described in the lesson plan.
- The discourses are the lesson plan, the curriculum, the practice of participating in education, the professional practice that the programmes aim at.

- The ‘place’ and the ‘mediational means’ represent the two extrema points of the HLS. One being synchronous actions in the physical classroom, the other being asynchronous actions in the VLS.
    - Unique to the physical classroom is that the place is a ‘brick and mortar’ room.
    - Unique to the physical classroom is that in the physical classroom the ‘mediational means are language (dialogue, instruction etc.), blackboard, physical teaching materials.
    - Unique to the physical classroom is that it holds an intimacy of the confined space of the room and the immediacy and unsurveilled nature of the dialogue in the classroom.
    - Unique to the VLS is that it has no physical presence it is only represented metaphorically through a digital device on a two-dimensional screen.
    - Unique to the VLS is that every action is potentially documented
    - Unique to the VLS is that it offers asynchronous dialogue
    - Unique to the VLS is that it offers an individual timescale. The participants may choose to spend as much time as they need in the asynchronous activities.
    - Shared by both physical and VLS is the synchronous instruction and dialogue, synchronous collaboration, digital sharing, student response systems and backchannel communication (Kjærgaard, 2021)
        - Mediational means in the physical room: Language, touch, gesture + presentation technologies
        - Mediational means in the VLS: Videoconference, language, presentation technologies, digital content (audio, video, comments, hashtags etc.)
    - Mediational means in the hybrid learning space: Language, touch, gesture, presentation technologies, videoconference, digital content (audio, video, comments, hashtags etc.), student response systems, documentation of activities, asynchronous dialogue in online discussion fora
    - The physical classroom is constituted by covert, internalised practices over time
    - The VLS is constituted by overt, explicit practices that need to be learned

The final element of NOP is to change the prior practice to emancipate the actors from what may have held them back. In the case of this study, the aim is to pinpoint incommensurability between the discourse that communicates the course (lesson plan) and the affordance and utilisation of the mediational means (digital technologies). In other words, do the affordances of mediational means create conditions for learning what the lecturer expects? The analytical approach to analysing the discourses is inspired by the coding strategy for Grounded Theory. The analysis of the interviews utilise the analysis strategy put forth by Usher and Scott (Scott & Usher, 2011). The method of NOP and the analysis strategy guide us to read the documents (curriculum, lesson plans etc.), investigate the learning designs, and study the students and lecturers’ experiences with the virtual part of the learning design.

Data

To investigate the relation between the discourses of a course and the actual actions in practice, we conducted interviews, surveys, and analysis of the VLS designs. The data has been produced on campus in the fall of 2017 and throughout 2018. We visited the campus a total of 5 times and distributed 4 surveys digitally. During the fall of 2020, we interviewed students and lecturers through videoconference.

Table 1 Data: Interviews

Students	Bachelor programmes			
Spring 2014	nN9, Further education students (teachers)			
Fall 2014	n25, Teacher education			
Fall 2017	n11, Nurse, n4 Ba. Social Education, n4 Finance			
Spring 2018	n8, Nurse, n6 Ba. Social Education, n6 Finance			
Fall 2020	n16, Nurse, Teacher, Midwifery,			
Lecturers	Nurse Education	Social Education	Finance/Marketing Education	Teacher Education
Spring 2014				n2 lecturers surveys + observation
Fall 2014				n1 lecturer surveys + observation
Fall 2017	Field notes + survey Interview	Field notes + survey Interview	Field notes + survey Interview	
Spring 2018	n2 Lecturers	n2 Lecturers	n4 Lecturers	
Fall 2020	n6 Lecturers			

Quantitative data

In the study of Hybrid Homework, we generated a battery of questions related to the students digital learning strategies. These questions were chosen because the students were matriculated to a traditional programme, which did not, initially, include a

displacement from physical to virtual learning designs. Thus, we anticipated a low interest in or awareness of learning strategies and a frail focus on self-regulatedness.

The list below presents the most protruding tendencies in the quantitative data. The categories investigate the students' learning strategies (Kjærgaard, 2019 p. 6-7):

- 94% strongly agree/agree that they need the teacher present to learn
- A minority of 11% agree (0% strongly agree) that they keep a log/portfolio of their learning processes.
- 72% strongly agree/agree that they take lesson notes systematically
- A minority of 6% strongly agree and 28% agree that they need time alone to learn
- 56% strongly agree/agree that they need a study group to learn
- 11% strongly agree and 11% agree that they can learn without a teacher present if the conditions were ideal
- 22% agree (0% strongly agree) that they are experienced with learning with digital media and producing digital artefacts (web 2.0)
- 78% strongly agree and 22% agree that they need affirmative feedback telling them if they are on the right track or not.
- 33% of the students have some experience with learning in e-learning courses
- A minority of 7% have experience contributing to online discussion forums.
- A minority of 20% strongly agree/agree think that they can learn through e-learning
- A minority of 27% strongly agree/agree think that they can learn through online discussion forums
- 47% agree that they can learn from teacher produced videos
- The students express an increased need for scaffolding in the VLS
- The students expect the lecturer to be present in the VLS
- The students experience that the circumstances for dialogue are made difficult in the digital learning space

Summary of quantitative data

The empiric data suggest that the students are inexperienced with other learning designs than attending lessons in the physical classroom. They rely on a teacher present in the physical classroom, this finding is supported by other studies (Mahiri, 2004 p: 217). The empiric data suggest that the students regard good conditions for learning to be constituted by being present in the same place at the same time as the lecturer (the more knowledgeable other (MKO) (Vygotsky, 2012). However, they are (47%) open to the idea that they could learn from a lecturer produced video, this finding is supported by other studies (Cicconi, 2014 p: 58). Furthermore, they respond (56%) that they rely on a study group as an active part of their learning process. The students suggest that the VLSs share a common design across courses and lecturers. They express slight frustration that lecturers utilize digital technologies and mediational means in different ways. The frustration is empathized by the fact that the technologies utilized as mediational means are the same, used in different ways. In this case, the digital technology and mediational means

are represented by the LMS. The LMS offers three different ways of sending messages and communicating a lesson plan, which all vary slightly to much confusion for the students. Therefore, the students organize their studies in a shared facebook-group with their peers.

Analysis

The importance of recognising the VLS as a 'real' space that is just as real as the physical classroom becomes evident when analysing the data. Consequently, the VLS needs as much attention as the physical classroom. According to the students in this study, the VLS has become the fulcrum of how the students organise and participate in the courses. The VLS provided by the institution is the mediational mean for formal communication (student to institution), academic communication (student to lecturer), exams, assignments, teaching materials, texts and resources for class and homework. Conversely, the VLS provided by the institution sees little use in collaboration amongst students. According to the data, students primarily use Facebook Messenger for group communication and Google docs for collaboration. This entails that there are two (at least) parallel VLSs operating simultaneously. The institutional VLS is hierarchical, governed by the inherited user rights settings in the LMS and the lecturer, however, it is open to all participants. In contrast, the parallel VLS is ahierachical, however, the Messenger groups and Google docs are only open to those who get invited.

Discourse of place

The overt practice of organising activities and roles in the physical is nested in the students' prior experiences with 'going to school'. They know how it works, what their role is, and the expected behaviour is in the context. The discourse of the classroom is constituted by tacit patterns of interaction learned through many years of being socialised into the practice of education. The discourse includes student gambits (acknowledged phrases) like 'may I be excused?', 'When is the paper due?', 'please, help me…?'. From the teacher's perspective, the gambits may be 'be quiet', 'sit down', 'Raise your hands…'. These gambits are reproduced in the VLS either as functionality in the LMS (e.g., raise hand function) or as an assimilation of the practices from the classroom (applying gambits in chat or videoconference). We interpret this observation as an indication that discourse of place (classroom) is transferred directly onto the metaphorical counterparts in the videoconference tool and in the LMS. Within the discourse of VLS one observation protrudes, which is that the VLS is designed to assimilate the physical classroom. The interactions, activities and resources are metaphorical replications of those found in the physical classroom. Thus, the affordance of the LMS is to replicate a metaphorical classroom. The mediational means used include presentations, instruction, messages, hand-ins, feedback, roll call, grading and homework. Within discourse of e-learning the LMS did

support more e-learning oriented functionality, such as automatic peer-feedback distribution, learning paths, rubrics, online tests (auto-grading) and discussion fora. However, only very few lecturers utilised the extended functionality of the LMS to accommodate to the circumstances for teaching and learning at a distance. Thus, the VLS is experienced as subordinate to the classroom and less real than the physical classroom. We interpret this notion to be partly because all the tacit practices in the physical classroom need an explicit representation in the VLS for the practices to flourish, hence, the lecturer needs to be more systematic and explicit in the VLS than in the physical classroom.

A new nexus of practice and a new discourse of place

This observation may call for a new nexus of practice between the physical classroom and the VLS. A nexus of practice that utilises the mediational means of the VLS to connect the tacit practices of the classroom and create explicit and overt practices in the VLE, which in turn would create a dialectic relation between the two equally real arenas for teaching and learning. The dialectics of the realities is what we promote as the hybrid learning space. The new nexus of practice plays out in the space between the lessons in the physical classroom. It represents the interactions between the students and the lecturer that may be both synchronous and asynchronous. The new nexus of practice calls for a new discourse of place, which in the practice of teaching establishes a demand for a new way of formulating a lesson plan. The lesson plan should address the new nexus of practice in which the virtual and the physical is regarded as equally real. The lecturer's obligation to present a meaningful and rigorous description of how to engage, what to do and what to learn in the lesson is expanded to also include the time between the lessons. The time between lessons becomes an active part of the lessons and these virtual activities, in e.g., the LMS, are just as important and real and they should be included in the lesson plan. The students in this study are generally experiencing a lack of attention paid to the activities between the lessons. In the investigated courses, we saw one instance, where the lecturer established the new nexus of practice. In discussions in the online fora on the LMS, the lecturer used to tie the exchanges in the lessons together with the reflection questions for the homework between the lessons.

The synchronous interaction is facilitated by a live chat, a videoconference, or a shared, simultaneous experience. The experience could be to watch an online lecture on YouTube while sharing the experience in a backchannel. The YouTube lecture becomes the place where the 'rubber meets the road', that is, where the discourse meets the practice and where the nexus of practice is acted out. Scollon uses the metaphor of a tyre gripping the asphalt to describe the precise 'geography' of the action that epitomises the nexus of practice (Scollon, R., 2013 p. 192). The 'geography' of an action is overtly observable in the physical classroom, conversely, the 'geography' of an action in the VLS may seem less observable. It relies on reifications in either language or another digitally

provide modality to be shared and experienced. This notion also calls for a more explicit communication strategy and for a recognition of the need for developing learning strategies for learning in the VLS. According to the data, it seems as if the responsibility for teaching learning strategies for engaging in the VLS falls on the lecturer.

Reflecting on practice

The notion of acknowledging the virtual as real also holds the potential for connecting the professional practice that the course aims at and the academic work between the lessons. We saw recorded videoconference calls between practitioners and students included as learning material for reflection on practice. We saw synchronous video calls with practitioners to prepare for internships, however, the examples were few. They all represent a virtual experience with the practice, which in turn becomes the object for reflection, thus underlining the importance of the experience in the reflection process.

The fact that lecturers can enrich the homework through virtual, multimodal learning materials and asynchronous interactions in discussion forums leads to a pedagogical situation where the homework phase of the course can be the platform for reflection. We saw one example of extensive use of rubrics. In that example, the rubric was used to scaffold the students in their learning process and to provide transparency between requirements for an assignment and assessment of an assignment. A rubric is merely an assessment grit with predetermined evaluation criteria presented in a matrix (Andrade & Du, 2005; Jonsson, 2014). Thus, it is very easy for the lecturer to set up and it is simple for the student to utilise as a scaffold for completing the assignment and for reflecting on her/his learning process. The rubric was designed for teacher students, and it was designed to include categories from practice e.g., 'how would this activity pan out in a 5th grade?', 'how would your role as a teacher change in a flipped classroom scenario', 'how could you adapt your teaching material to include dyslexic pupils?'. We saw indications that, with few, simple tasks and mediational means, the homework phase could be guided towards reflection on practice. The homework tasks and the virtual, mediational means combined with the dialogue-driven lesson in the physical classroom is what constitutes the hybrid learning space. The mediational means include:

- Discussion fora in the LMS – connecting lessons and homework
- Rubrics for structured and scaffolded guidelines for completing the assignment and for assessing own achievement
- Peer-feedback structures organized in discussion fora and guided by a peer-feedback rubric
- Designing a learning path that starts in the lesson and continues in the homework phase and constitutes the content of the next lesson.

Findings – The hybrid learning space

We found a need for formulating a new discourse of space between the physical and the virtual space. We have dubbed the new discourse of space 'The hybrid learning space' (HLS). The HLS represents a way of including both the lesson and the homework activities with equal attention in the learning design. The HLS suggests a learning design that 'takes the best of both worlds', that is, the organic dialogue of the physical classroom and the possibilities of interaction at a distance known from e-learning. The interactions between students and lecturers are divided into three categories in the analysis:

- Contact: Practical 1-1 communication. Answering individual questions on practical issues related to assignments, lesson plans, homework etc.
- Communication: Practical 1-many communication. Presenting information from lecturer to students. Lesson plan, where to be when what to do and prepare.
- Dialogue: Academic class conversation with the intention to learn as a community. Learning through participating in a guided dialogue.

Parallel VLS - educational vs. personal

- There are two co-existing VLS; one constituted by the lecturer through the selection of digital technologies provided by the university. Another constituted by the students' personal digital technologies and their private practices in social media and their needs for communication in relation to attending the course.
    - The university VLS is overt, equal, and accessible to all students.
    - The personal VLS is covert, individual, and only accessible to invited peers
    - There is a significant overflow of information from university VLS to the personal VLS in messenger groups, however, there is no overflow from the personal VLS to the university VLS, which leaves the lecturer ignorant to the communication in the personal VLS. Albeit the information in the personal VLS, messenger groups, might be very important for the lecturer in order to adjust the pedagogies of the course (further investigate here (Kjærgaard, 2021))

According to the students in this study, the contact with the lecturers in the VLS is good and the mediational means are e-mail and in rare cases telephone calls. According to the students, the communication is adequate in the VLS and that the mediational means are LMS messages, lesson plans, direct messages in the LMS. However, they bemoan the lack of the fluid dialogue in the VLS that the presence in a physical classroom provides. The experienced lack of dialogue is explained by the challenging conditions for dialogue that the videoconference provide. The students express a reluctance to participate in the dialogue because it seems intrusive to the communicative flow of the videoconference if they interfere with a reply, a comment, or a question. The approximated feel of 2-way communication still feels abrupt and easily interrupted by the technological ability of the videoconference tool, thus, the students hesitate to take part. Conversely, the number of students taking part in the dialogue appears to resemble the number of students who

take part in the dialogue in the physical classroom. We had the chance to compare interaction counts in a class in both the physical classroom and in the VLS. In that particular class, the same 5 out of 26 students participated actively in the dialogue in both the physical classroom and in the VLS. However, the two situations were experienced very differently because the dialogue in the physical classroom also included acknowledging gestures, gambits and confirming/unconfirming exclamations from the other students which were absent in the videoconference due to the interruptive feel of all the small linguistic markers we utilise in face-to-face communication. This leads to the interpretation that even though the mediational means in the two contexts are both spoken language, the technological capabilities of videoconference still lack the feel of reel two-way-communication.

Different from blended learning or flipped classroom

The programmes and specific courses in this study are traditional courses constituted by several lessons and a specific amount of reading material. The context is not blended learning. However, the number of lessons offered to the students in, e.g., teacher education, has declined from 2700 lessons in a bachelor's programme in 1986 to 1300 lessons in the curriculum of 2010 (Grunert & Aisinger, 2011). This decline in lessons happens simultaneously as the academic demands raise (Kjærgaard, 2016 p.: 3). Hence, the programmes are under stress to provide good conditions for learning. This development presents a predicament because the lecturers in this study generally express an interest in teaching lessons in the physical classroom, however, they also mourn the low number of lessons. This dilemma calls for a re-focussing of the workload from mainly attending to the physical lesson to an equal focus on homework and lesson. This could resemble the concept of 'flipped learning' (Bauer-Ramazani et al., 2016 p: 430), where the content of the lesson is presented via video clips that the learners watch as their homework, while the lessons are spent understanding the content, the idea being that the lecturer's time is better spend guiding the learners in class rather than presenting content. In the HLS the content, dialogue and process are nested in the discussion forum and all the sub-threads and in other dialogic tools for organising brainstorms and collective processes such as Padlet, Mindmeister and portfolios. The idea isn't necessarily solely to displace content presentation from the lessons to the homework phase but rather to connect lessons and homework in a shared, ongoing, reflective dialogue with the purpose of relating theory to practice through experiences. The shared reflective process is key in RPL because the knowledge shared is not 'hard science' with ultimate answers, it is, rather, deliberation of the best questions that the learners can raise in the field of tension between the theories of a professional practice and the actions of the professional practices.

The aim of the HLS is to facilitate RPL in addressing the special, ethical, knowledge-based actions that a learner of a professional practice needs to achieve a higher state of understanding the professional practice.

Conclusion

The metastudy of the three studies of utilizing the time and virtual space between the presence lessons suggests a few pointers on how we could formulate principles for creating good conditions for reflecting in the space between educational practice and professional practice. We suggest that lecturers displace the workload from preparing lessons to interacting with students during the homework phase between the physical lessons. We also suggest that lecturers free up the time needed to pay attention to the homework phase and to interact between lessons by making the students dialogues, brainstorms, questions for practice, cases, portfolios, and rubrics from the discussion the vehicle for the content of the lessons. The new knowledge and theory that the course relies on could, according to the students in this study, be conveyed by other mediational means. The suggested mediational means in our empiric data include video clips, audio (podcasts) and learning paths all of which lend themselves to being deployed in the homework phase. similar tendencies can be detected in the recent evaluations of the displacements from physical lessons to online teaching and learning brought on by the COVID19 lock-down. The quote below is taken from an evaluation of online teaching and learning experiences during the first lock-down (March to June 2020) in an institution comparable to UCN. The students express the following:

> ‘The students prefer to interact with their lecturer and their peers. This requires that the lecturer creates the conditions for interaction and for activities […] The lecturers should consider the students' social needs and set aside dedicated time and space for maintaining relations‘ [translated from Danish] (Jensen, 2021 p. : 10)

This evaluation is in line with other, both Danish and international, evaluations of experiences with online teaching and learning in higher education during the lock-down (e.g. Georgsen & Qvortrup, 2021; Kidd & Murray, 2020).

Overt revolution or covert evolution

The results of the recent evaluations of lock-down online teaching are relevant to the findings in this study because the rapid displacement from traditional, physical classroom teaching is comparable to the general, less overt displacement that the programmes in this study have experienced over the past 20 years. The change in the traditional programmes has happened so slowly that we may not be aware of the significant changes in conditions for teaching and learning that the change has brought (Kjærgaard, 2016).

When the content of the courses isn't hard science but rather the acquisition of ethical competencies to help others (patients, pupils, disabled citizens etc.) the need for dialogic reflection amongst peers and with the lecturer becomes even more important. This notion along with the fact that the number of physical classroom lesson has halved in 20 years (Teacher Education) makes it urgent to develop alternate learning designs that create good conditions for reflections on the relation between the theories discussed in the classroom and the application of theoretical knowledge in the professional practice. Thus, we promote an approach to the HLS that focus on making the VLS a dialogic learning space where the principles of RPL can be acted out. That is, to create conditions for learning through (Horn et al., 2020 p: 17-19):

1. The students' own experiences are incorporated into teaching and learning activities
    1.1. In the VLS: the use of discussion fora, digital portfolios, and logs on smartphones
        1.1.1. Take pictures, audio memos, field notes etc.
2. Teaching and learning activities designed to include appropriate disturbances
    2.1. In the VLS: The lecturer designs the learning path with unexpected challenges for the students
        2.1.1. Change the premise of the task slightly. I.e., the patient in the case has an undiscovered condition that changes the treatment. Or, the school class, that the students are preparing a series of lessons for, receives two new special need students to include in the lessons.
3. Teaching and learning activities are organised as an exploration
    3.1. In the VLS: Find answers by raising new and better questions
        3.1.1. The students are required to raise a question at the end of each discussion post. Conversely, all students are also asked to answer 2-3 questions from their co-students' posts
4. The content of teaching and learning activities is based on a good example
    4.1. In the VLS the examples from the professional practice should be univocal and clear. The examples should be the best examples available
        4.1.1. The examples should be fundamental (the basis), elementary (ability to break down and analyse) and they should portray a recognisable representation of practice to the students.
5. Lecturers and students work together on learning processes
    5.1. In the VLS the lecturers and students work together in creating good conditions for reflection
    5.2. The lecturer provides the framework, requirements and rigour and participates, while the students bring the content and raise the question in a reflective dialogue
6. Lecturers and students create room for dialogue in the hybrid learning space
    6.1. The HLS is what emerges from the connection between the VLS and the physical classroom.
        6.1.1. In the HLS the dialogue from the homework phase in the VLS is continued and qualified by extended dialogue, clarification of academic content and deliberation of 'good' professional practices

The principles of RPL are developed as guiding design scaffolds for designing courses that hone in on the intersection between education and educational practice, however, RPL does not, explicitly, address the VLS. Therefore, this study suggests an overt focus on developing the HLS to connect the VLS with the physical lesson.

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Reflective practice-based learning in further technical education

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Abstract

The current digitalisation taking place in the industry, often referred to as Industry 4.0, alters the traditional job functions. Industrial employees, therefore, need to update their skills and competence to fit the future need of the industry. However, to fully exploit the new possibilities embedded in digitalisation, industrial employees require skills and competencies beyond the technical domain, e.g., collaboration, communication, creativity, and critical thinking, also known as 21st century contextual skills. Due to this, the educational practice within the technical fields need to adapt to a broader learning output beyond traditionally technical skills and competences (core skills). One way to increase and broaden the learning output, emphasising the contextual 21st century skills, is to adopt reflective practice-based learning (RPL).

This study investigates the adoption of RPL in further education, focusing on the upskilling of employees in the industry. The study is empirically based on the analysis of two educational designs (pilots) for further education, and for future implementation. The two pilots are developed as a proposal for industrial upskilling at respectively UCN and UCL, as part of a joined research and development project. The development of the pilots takes a point of departure in a setting inspired by the Learning Factory approach. Building on the concept of Learning Factory enables the learning activities to have a strong link to the industry workplace practice, creating a setting for practice-based reflection. This study reports the opportunities, integrating the principles of RPL into a setting inspired by the Learning Factory approach, developing educational design aimed at a further education.

The results of the study indicate that the adoption of RPL in a Learning Factory setting improve the maturity level of a Learning Factory, hence strengthens the students' learning. Thus, RPL can be regarded as a tool to further operationalise the didactics of the Learning Factory concept. On the other side, a Learning Factory setting creates a good industry workplace example for practice-based reflection.

Keywords

Learning Factory, Further Education, and reflective practice-based learning

Introduction

The current digitalisation taking place in the industry, often referred to as Industry 4.0, alters the traditional job functions (Moldovan, 2018). To maintain their relevance, industrial employees need to update their skills and competence to fit the industry's future need. However, to fully exploit the new possibilities embedded in digitisation, the industrial employees require skills and competencies beyond the technical domain. These skills have been described as the 21st century skills and can be divided into core and contextual skills (van Laar, van Deursen, van Dijk, & de Haan, 2017). The core skills are the more traditionally technical skills, which have been in focus in earlier technical further education (Nilsson, 1982, 2000), whereas the contextual skills are broader and more general skills like, e.g., collaboration, communication, creativity, and critical thinking (Prensky, 2014). The contextual skills are more comprehensive than traditionally technical skills and competences (van Laar et al., 2017). Thus, the educational practice within the technical field needs to adapt to a more complex learning output (Prensky, 2014). To develop and increase the learning output, emphasising the contextual skills, both reflection and training outside of traditional technical teaching is required (Merrill, 2015).

In 2020, UCN and UCL started a joined research and development project called ‘Problem Based Development of Personal Competences Aim at Technology and Digitalisation (PKK). The PKK project aims to upskill industrial employees from small and medium sized enterprises (SMEs) through activities based on a learning factory-inspired approach. These activities focus on facilitating and strengthening the student's reflections and hence strengthening their contextual skills. The learning factory approach was chosen because it has been used to target SME companies with success, emulating the complex physical and digital processes within an actual factory in a comprehensible manner (Wank et al., 2016). However, the reflection required to obtain contextual skills are most effectively achieved in a mature learning factory. A mature learning factory is as a setting with a well-defined target group that uses reflection as an essential step towards development of competences (Enke, Glass, & Metternich, 2017). The maturity level of a Learning Factory is accessed on three dimensions, purpose, didactics, and operational model. Note that the term didactic in this context is understood under the continental European definition, as the learning factory concept origins from Germany (Abele, Metternich, & Tisch, 2019; Enke et al., 2017). The purpose is the case-specific target group (students) and their upskilling need. The operational model describes how well (the level of details) the learning factory is defined. The didactic dimension describes how and which reflection activities that are planned. Building on the concept of Learning Factory enables the learning activities to have a strong link to the industry workplace practice, creating a setting for practice-based reflection.

This corresponds well with the educational approach of RPL, where reflection is a part of the educational design. This is operationalised through six principles which promotes

reflection: (1) relying on prior knowledge, (2) appropriate disturbance, (3) teaching as exploration, (4) build on a good example, (5) work together on the learning process, and (6) create room for dialogue (Horn et al., 2020). By reflection, the students are enabled to make and take different perspectives. Making perspectives is to define from which perspective the learner sees a certain theory or practice, while taking perspectives is the ability to see the same theories and practices from others viewpoint (Akkerman & Bakker, 2011). These reflectional activities allow the students to transform knowledge to suit their own practice and hence start using it. In this way, the reflection can be seen as a way to create new ways to use obtained knowledge (Merrill, 2015).

In this study, it is investigated how RPL can be adopted in a Learning Factory setting with the aim of strengthen the didactical dimension, improving the maturity. The study builds on the assumption, that improving the maturity will strengthen the students' learning. The research question of the study is therefore: *How can the principles of RPL be used to improve the maturity of a Learning Factory setting?* The study is undertaken by adopting RPL in the development of two educational designs (pilots) taking a point of the departure in a Learning Factory approach. The two pilots, aimed at further education, are developed as part of the PKK-project.

In the following, first the methods and data are presented, followed by the results. Afterwards the two pilots are analysed and discussed through a comparison between the pilots and the RPL principles, the pilots, and the Learning Factory approach, and lastly, the synergy between RPL and the Learning factory approach.

Methods and Data

This study is methodologically and empirically based on a case study (two cases) and a supporting interview survey. The two cases in this paper consist of the development of two educational designs (Pilot 1 and 2) developed at respectively University College of Northern Denmark (UCN) and UCL University College (UCL). As a starting point for the development of the pilots, an existing training course for which the designs should be aimed were selected. The training courses were both part of an existing further educational programmes at EQF level 5 and, moreover, targeting the upskilling of industrial employees aimed at Industry 4.0.

To support the development of the research design and the development of the two pilots, five experienced managers having a direct responsibility for the upskilling of industrial employees, e.g., through further education, were interviewed. The managers were all from SMEs located at the Northern part of Denmark. The aim of the interviews was to explore the area further, creating a better understanding of the conditions developing educational designs for further educational activities in practice. Moreover, the interviews were used to scope the specific content of the training courses. The interview was

conducted as semi-structured interviews, e.g., asking them about the expected content of a training course, how tasks from the companies could be used as part of the course, and how the companies supported further educations within their organisations.

UCN and UCL, each developed a pilot following a common overall design process. In each case the development was driven by a facilitator and 3-4 teachers. The job of the facilitator was to adjust the process and facilitate appropriate methods and tools, while following the overall principles for the process. Overall, the process should be regarded as a design process with the pilots being the 'product'. In the process the key stakeholders (students, companies, and educators) should be involved as part of an iterative co-creative inspired process. Moreover, it was facilitated that the two teams of developers shared their insights during the process, in terms of feedback of the designs being developed. This was done to strengthen the quality of the designs. The output of the process was two pilot designs in the form of a detailed course curriculum. The course curriculums have formed the basis for the analysis.

Findings

The development process of the two pilots resulted in two detailed course curriculums. They were scoped by the outputs from the interviews, which stated that the companies wanted to upskill their workforce and was able to supply relevant cases from their daily operations. Furthermore, the interviews revealed that the companies needed employees with a broad overview of the production and value chain. In the following the content of these course curriculums are described in a dense form. The description follows the three categories (the purpose, the reflectional enhancing activities, and the learning factory operational model) of maturity within a Learning Factory (Enke et al., 2017). To increase the readers understanding of the educational context of the pilots, the scope of each pilot has also been added to the table (see Table 4).

Table 4 - Pilot design

	Pilot 1	**Pilot 2**
Scope The overall content and learning goals for the pilot (Studieordning For Akademiuddannelsen I Innovation, Produkt Og Produktion, 2020)	• Production optimisation • Optimisation management • Production planning •	• Value chain • Costumer needs • Digital technologies (within the value chain) •
Purpose Definition of target groups (students) of the learning factory (Enke et al., 2017)	• Enrollment criterium EQF 4 • Micro-enterprise employees (less than 15 employees) • Work experience from industry	• Enrollment criterium EQF 4 • SME employees • Work experience from industry • Upskilling need •

	• Upskilling need •	
Key reflection enhancing activities Planning of reflection in learning modules (Enke et al., 2017)	• Exploration through Podcasting • Collaboration within the learning process • Room for dialogue through co-design	• Exploration within own company • Application of demonstrated knowledge within daily practice • Reflection on practice based on the digital learning factory •
Learning factory operational model Planned learning factory elements (Enke et al., 2017)	• Physical value chain, configurable to show different learning topics • Collaboration between industrial and full-time students • Real-life products as manufactured at the industrial student's workplace	• Virtual value chain, configurable to show different learning topics • Collaboration between industrial students • Real-life products as manufactured at the industrial student's workplace

Discussion

In the following, the adoption of RPL in a Learning Factory setting with the aim of improving the maturity level of a Learning Factory is discussed. This is done in three steps: first by relating the key reflectional enhancing activities of the two pilots (see Table 4) to the six principles of RPL, secondly the pilots are related to the main elements of the Learning Factory operational model (see Table 4), and finally, the synergy between RPL and a Learning Factory setting is discussed and evaluated. An overview of the three elements and their relationship can be seen in Figure .

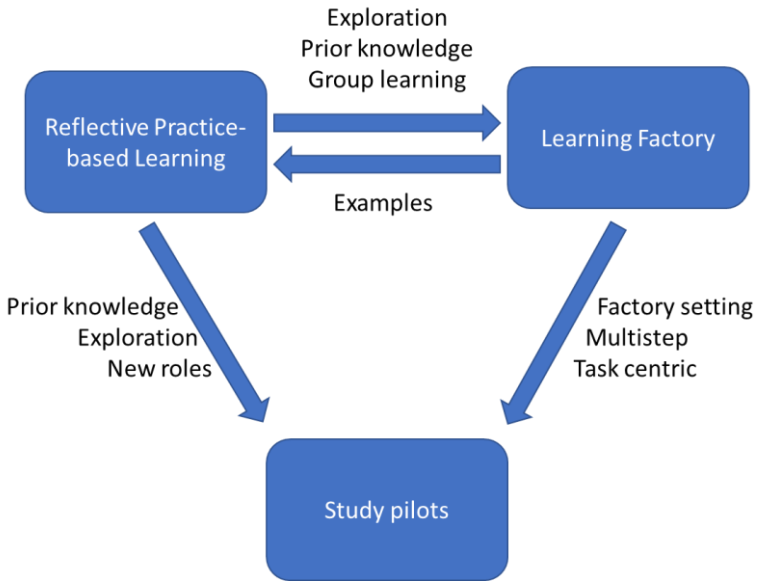

Figure 1 - The relationship between Reflective Practice-Based Learning, Learning Factories and the pilots described in this study.

RPL in the pilots

In pilot 1, reflection is enabled though two key activities: the use of podcasts (in the form of interviews), and by supporting the collaboration between students and teachers. The podcast interviews, where the students, teachers or relevant representatives from companies interview each other, facilitates an explorative approach towards a topic, resonating well with the explorative aspects of RPL. Moreover, the podcasts act as a backdrop to activate prior knowledge (1st principle of RPL) and to demonstrate new knowledge (Nielsen, Andersen, & Dau, 2018). The podcasts are anchored within a workplace practice, touching up on topic related to industry, e.g., tools, methods, or technologies. Furthermore, pilot 1 supports the collaboration between the students and teachers through codesign of the Learning Factory setup. This collaboration enables a group learning (5th principle), where the student can use the teacher as a mirror for reflection. Moreover, a diverse learning environment is created, by supporting cooperation and co-design activities between full-time students (from another similar full-time educational programme) and the students of the pilot (industrial employees enrolled for upskilling). This diverse environment creates a room for dialogue, where the students of the course can discuss their knowledge and ideas with other students and teachers. This can be seen, as an implementation of the 6th principle of RPL.

Pilot 2 relies on activation and demonstration of the students' prior knowledge within a virtual learning factory, through a discussion of the topic demonstrated. After this demonstration, the students will identify the demonstrated phenomena within their existing

practice as an assignment. This activation of prior knowledge corresponds to the 1st principle of RPL. Moreover, the assignment embedded in the pilot requires the students to follow an explorative approach while identifying the demonstrated phenomena within their respective companies, building on the 3rd principle of RPL. This interaction between the virtual learning factory and reality enables the students to reflect upon their practice, building on their prior knowledge, when evaluating the assignment related to the learning factory setting. Moreover, the explorative approach enables the student to use the gained knowledge within their practice immediately. Lastly, the discussion based on these assignments with the fellow students and the teachers is a room for dialogue, as described in the 6th RPL principle.

These implementations of the RPL principles within the two pilots allow the students to gain planned opportunities for reflection and creates a foundation for enhancing their learning output directed towards workplace practice situations. Hence, the educational designs' adoption of the RPL principles, supports the transfer of knowledge from the educational situation into practice, as described by Merrill (Merrill, 2015). Hence, the students will have the opportunity to experience additional gains from the reflection-based pilots compared to traditional lecturing aimed at upskilling industrial employees. These gains will include gains within the contextual skills of the 21st century skills, such as communication, awareness of technology impact, and adapting to a (technologically) complex environment (van Laar et al., 2017).

Learning Factory model

Pilot 1 uses a physical learning factory setting, where the students of the pilot (industrial employees enrolled for upskilling) are collaborating with full-time student (from another similar full-time educational programme) to work on the learning factory. They will furthermore work together on real-life products and services from the industry, provided by the employers of the students. In the learning factory, they will work on a physical product. These two activities let the students explore a real value chain. Hence, this can be seen as a learning factory within the broader sense, as defined by Abele et al. (Abele et al., 2019)

Pilot 2 uses a digital learning factory setting, where the students explore and investigate a virtual value chain, focussing on following elements: Production flow, product configuration, technology impact and manufacturability. The digital setting allows the students to work with a complex case (a whole value chain) in a manageable manner. Afterwards, the students return to their respectively companies, identifying these elements related to the value chain in their companies. Thereby the students connect the theoretically obtained knowledge to situations in practice. Hence, this pilot can also be seen as a Learning Factory in the broader sense, as defined by Abele et al. (Abele et al., 2019)

The implantation of the Learning Factory approach enables a well-planed, industrial educational activity. This multistage, virtual or physical environments can both demonstrate the lifecycle of e.g. a product (from idea to end life), a factory (operation and development), a costumer order (from enquiry to disposal) or technology (from cutting edge to obsolescence) (Abele et al., 2019). Hence, these activities meets the requirements for the mature learning factory operational model (Enke et al., 2017). At the same time, the learning factory approach will grant the students domain-specific core skills, e.g., technical tools and methods, information management, and problem solving.

Interactions between RPL and Learning Factories

As seen above, the RPL and Learning Factory approaches can supplement each other when developing educational content: On one side, the learning factory setting acts as a good example of integrated technology (4th principle of RPL). On the other hand, RPL operationalises the didactic dimension, enhancing the maturity level of the Learning Factory.

A dominant quality of the Learning Factory approach is the power of example. The learning factory can include many dimensions, e.g., product, factory, order, and technology lifecycle (Abele et al., 2019). Hence, it lets the students reflect on the interconnection between these dimensions in the learning process. This fulfil the needs for an example as described in the RPL whitepaper, where the example should grant specific knowledge, which is easy to acquire, but at the same time can be generalised into the domain the education aims to support (Horn et al., 2020).

At the same time, RPL proves a useful tool to operationalise and concretise how the teacher can incorporate planned reflection within the Learning Factory. The pilot of the study combines the activation of prior knowledge (1st principle), exploration of technical solution space (3rd principle), group learning (5th principle), and new roles for the student and teachers (6th principle). By using these principles of RPL, a higher degree of planed reflection can be achieved, and hence the students strengthen their learning.

In combination, these two approaches can deliver an educational activity which both target the core and contextual 21st century skills, making students able to exploit skills beyond their own technical domain.

Concluding remarks

Reflective practice-based learning can further aid the development of mature Learning Factories by operationalising the didactic dimension of the Learning Factory. This relies on three different mechanisms:

1. Activation of prior knowledge
2. Exploration

3. Group learning

At the same time, the Learning Factory serves as an excellent, technical case. By using this connection, we have been able to design two learning activities based on the learning factory approach, with a high didactical maturity.

The educational design developed in this article can be offered as upskilling courses for industrial workers. A course like this is expected to target a broad audience within industry, with age-ranges between 20 and retirement age. This broad audience makes it important to target the reflectional activities towards the individual learner. The exact requirements for this adaption is still unknown, and hence will need further iterations. These iterations can first be made after the courses has been offered, and the enrolled students are known. Hence, this will be a topic for further work.

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Enacting Professional Practice: Role-play and playing roles

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Abstract

This short paper presents a design experiment, where students in the Bachelor´s Degree Programme at Danish Social Education (Pædagoguddannelsen) enacted scenarios composed from shared individual experiences in practice. Afterwards, students emphasized how acting out characters had provided them with new perspectives on their experience as well as future practice as professional pedagogues (pædagoger) in day care. Though the content was challenging, concerning problematic relations with children's parents in day care, students' written reflections reveal that they felt it was a "joyful" and "playful" learning experience.

The design experiment is part of a practice-based research, exploring a dramaturgical approach to didactics through experiments, framed by a design research program. The terms role-play and playing roles are students' expressions, and are of common use in an educational context. Drawing on concepts from a dramaturgical knowledge base, this research offers more nuanced language on the term role-play, suggesting the concept "an act of acting" as a redoubling of identities. This is concretized through examples of how to frame and encourage processes of identification and distance regarding a fictive character. It also reveals how this leads to a reflective exploration of practice in the classroom. The research is a work in progress, and one of the preliminary experiments in the PhD "The Play" in Playful learning.

Keywords

Role-play, Social Education, Research through design, Dramaturgy.

Introduction

Learning for an unknown future in higher education also concerns learning for an unknown present, and is more about learning to connect to the world and human qualities, than knowledge and skills (Barnett, 2004). According to Chemi, the problem in higher education is to find ways to design, prototype, and realize learning environments that foster the needed creativity for an uncertain and complex world (Chemi, 2018, p. 216). This has created a growing field of research and practice in artful approaches (Chemi, 2018) and playful approaches (Nørgård et al., 2017; Whitton & Moseley, 2019). Both fields are

emerging and share an interest in changing higher education in a more explorative, creative, and practice-based direction. In university colleges, the educational problem is concretized as “Graduates of university colleges, regardless of study programme, are expected to take part in complex professional practices where the tasks they face do not necessarily correspond to a specific solution” (Horn et al., 2020, p.8). Following this, there is a need to find ways to bring practice into on-campus teaching in ways that foster students’ ability to improvise, explore practice, interact creatively with curricular themes, and reflect on their future practice. So how can playful and artful approaches to teaching contribute to this? With a profession as both dramaturg and UC-educator, my contribution is guided by the question: How can dramaturgically approaches to playful learning be co-designed in ways that support students’ creative engagement with concrete curricular themes and their future professional practise?

The question combines two emerging fields, playful and artful dramaturgical approaches in higher education, both in need of more research. To accommodate this, I have chosen programmatic design research, as this is a methodology allowing for a study to find ways to understand issues and areas that are poorly understood (Redström, 2017, p.84). As so, the study is practice based, doing research through design experiments (Bang & Eriksen, 2019; Brandt et al., 2011; Redström, 2017). My preliminary research contains design experiments, carried out in the fall of 2020 among three classes and five social educators. This paper will have an explicit focus on the dramaturgical approach, exemplified in one experiment chosen due to its explicit foci on explorative and reflective learning, based on students acting out their own experienced practice.

A Dramaturgical approach to learning in higher education

Dramaturgy combines craft, art, and academia, and can be described as the art of how to tell a story, based on broad knowledge on diverse theatre traditions and corresponding methods and techniques (Østern, 2021c). In my research, I am concentrating on a transfer of the dramaturgical knowledgebase to planning, conducting, and evaluating learning processes. This relates my research to a small, emerging field in which dramaturgical approaches to learning and teaching in higher education are the objects of research (Chemi & Firing, 2020; Lindstøl, 2018). Lindstøl’s research is conducted in the education of teachers, with a focus on the interrelationship between staging of diverse types of fiction and learning outcomes (Lindstøl, 2018). Østern’s research combines traditional didactics and dramaturgical approaches (Østern, 2021a; Østern, 2021b; Østern, 2021c). Both concern remediation of the dramaturgical toolbox to educators as non-dramaturgs. Chemi and Firing address the practical conceptual role of performance in teaching (Chemi & Firing, 2020). My main contribution to this field will, as my research matures, be a cross-study on dramaturgical informed research through design, and playful learning in higher education. Another field, yet related, is the Danish field “Scenario-based teaching”

(Hanghøj et al., 2017b). Here, the concentration is on scenarios in a broad sense, from cognitive imaginations to games and role-play in physical fictive scenarios (Hanghøj et al., 2017a, p.13-14). According to Hanghøj and colleagues, the field relates to theoretical concepts from sociology, psychology, and learning (2017a, p.11). This short paper aims to contribute to the understanding of "role-play" and physical fictive scenarios in Scenario-based teaching, with a conceptual rooting in dramaturgy and research on a dramaturgical approach to teaching. This offers an understanding of "role-play" as an act of acting, and suggests potentials in remediation of theatre-based methods and techniques to learning designs. In the following section, I will use the term scenario, as a term for an outline and composition of a fictive narrative.

Co-designing as a remediation of theatrical core concepts to learning designs

The design experiment outlined in this paper was co-designed by me, as dramaturg and researcher together with a social educator. It was conducted in her teaching on the curricular theme "co-operation with parents in daycare". The design process was guided by a question initiated by the educator, formulated as "how can we design for students' explorative investigation of their own practice, and how can we design for their active engagement from the perspectives of parents, colleagues, and children?" To answer this, I suggested practical inspiration from Boal (1931-2009), most known from The Theatre of the Oppressed, in particular Forum Theatre and Stanislawskij (1863-1938) known for his lifelong work and writings on the training and practice of the actor. This led to a course, which first included exploration of students' experiences by composing scenarios concerning oppression (Boal, 1991). Second, students were provided with an acting technique, where the character's inner motivation in a situation was a driver for the acting (Stanislavski, 2013). Third, the concept "Spectactors" was included. Spectactors are spectators involved in the play in different ways (Boal, 1991). In present experiment, the spectactors perceived a play and reflected on a play through a character. Finally, the overall understanding and supporting of the act of acting as a redoubling of identities (Chemi & Firing, 2020; Szatkowski, 1985) were included. In the following section, the methodology will be presented, followed by a presentation and analysis of situations from the experiment that provided understandings of how to stage students' active engagement in perspectives "as if they were…". Finally, the conclusion will contain suggestions for further research.

Experiments in a design research program

In a cross study between emerging fields, not fully understood, there is a need for an intervening research methodology, creating practice while investigating it, as accommodated in practice-based design research (Vaughan, 2017). Research through design

experiments needs further framing, with a design research program (Redström, 2017). Such a program is unique for each study; it is defined according to the research question and reflects the provisional knowledge regime, motivations, and intentions with the experiments and the research as such (Bang & Eriksen, 2019). The research process is iterative, experimental, and practice-based, but in contrast to prototyping, where the aim is an optimal solution, the design research program creates a frame where experiments in practice lead to new understandings, possibilities, questions, working hypotheses, and new designs by challenging the program (Redström, 2017).

My design research program is “To learn within, with, and from “As If”. In a short outline, it reflects the research questions focused on both dramaturgy and playful learning, and suggests a connection, in “As If”. The significance of the “Magic If” in acting and theatre in general is most extensively described by Stanislavskij (2013), but is considered to be the heart of theatre across traditions (Chemi, 2018). In playful learning the “If” is less explicit, though it occurs in “techniques fostering make-believe” (Whitton, 2018) and “spaces of imagination” (Nørgård et al., 2017). The “If” also implies the methodology, as “What If” and “As If” are considered to be important concerns in research through design, as the focus is creating for possible futures (Brandt et al., 2011).

The research program will gain in depth as new insights emerge through analysis and reflections on the dynamics and tension among research questions, the program, and the way the experiments challenge the program (Bang & Eriksen, 2019). The presented study includes a social educator and a class of 12 students. As we were co-teaching, the teaching was audio and video recorded. The students’ reflections and perceptions on learning and participation were collected in a dialogue in class and an individual writing exercise, supported by an open questionnaire. My work with the empirical material is abductive, as this is a way to identify “situations” and “instances” representing “breakdown, surprise, bewilderment, or wonder” (Brinkmann, 2014, p. 722). In the process of searching for understanding in these situations, the design research program sustains, and new design possibilities emerge. As the research matures, these understandings will grow in validity. In the present study, there is an exclusive focus on understandings of the students’ act of acting and how this can be supported. This will be presented in the following section, starting with an outline of the course.

Staging students’ active engagement in perspectives “as if they were…”

All experiments in the research had a starting point with a question concerning the students’ learning outcome, using methods and techniques from the dramaturgical toolbox to design a course as a possible response.

Table 1: Course program: Co-working with children’s parents in day care.

	time	Activity	Purpose	Theatrical Technique	Supporting material
1	8.30-08.45	Introduction and warm up game	Framing the day + physical, and social interacting	None (instructed game)	None
2	08.45-09.00	Exercise: Enacting inner motivation	Presenting, rehearsing, and reflecting on acting technique and improvisation	Improvised acting through a character's inner motivation	Role cards with build in motivated conflict
3	09.00-09.30	Identifying challenging practice	Sharing experiences and identification of material for a scenario	None (framed as storytelling)	None
4	(Break) 10.00-10.30	Composing performance and characters	Using shared experiences to compose a 3-minute, partly improvised performance.	Composition/ built in conflict Character's inner motivation.	Step-guide supporting composition
5	10.30-11.30	Performance and reflections	Investigating perspectives and possible solutions and futures	Improvised acting Spectactors	None
6	11.30-12.00	Wrap-up	Sharing experiences on learning within, with, and from "As If"	None (dialogue in class)	None

The table illustrates a highly structured time schedule of the course. There is a building up character in activities, as each activity provides a technique (2, in table) or material (3) or both (4) to the main activity (5) which constitutes a climax. To answer the first part of the guiding question: how can we design for the student's explorative investigation of their own practice? each step has an explorative core, relating to the practice of the pedagogue. The second part of the question: how can we design for their active engagement in perspectives of parents, colleagues, and children? is mainly reflected in performance and reflections as spectactors (5). The aim in the experiment was also to challenge play and playfulness, in "As If". As so, there was a strict focus on theatrical tools and techniques supporting reflection, exploration, and engagement in acting out characters. In the following section, I will present how this led to multiple perspectives on the students' own pedagogical practice and constituted "As If", as an approach fostering students' experiences of play and playfulness, despite the exclusive theatrical grounding of didactics.

Learning within, with and from "As If" – students' perspectives

"Role-playing is good for gaining new perspectives." This is a definite statement, but also a student's written expression of her experience in the course. In itself, "role-play" or acting out a character is neither good, nor bad. There is a potential in order to explore the "other person's" perspective, as expressed in the understanding of the act of acting, as an aesthetic redoubling (Szatkowski, 1985). According to this, the student felt how she experienced being herself, and the other person (the character) at the same time. She empathized with the character's emotions, thoughts, and actions, yet she was in this

situation aware of the otherness, and able to distance herself from the character and reflect on this, as a perspective of another person. In a situation where her fellow students also acted, the result was an emergence of multiple identities (Chemi & Firing, 2020). The experience of gaining new and somehow surprising insights on their experienced practice were, according to students, their main learning outcome in the course (6: in the table). As the course contained exploration on their own experiences of challenging practice, and the days were characterized by serious and concentrated work, it was not a surprise that perspectives on playfulness were absent. Afterwards, the students also reflected on their personal experiences regarding the teaching supported by a questionnaire relating to three themes: learning, creativity, and playfulness. They were invited to choose among questions and select those supporting them in their writings. They could also just write from the heart. This provided unexpected perspectives, as all chose to reflect on their playful experience. One student wrote: “When you work with improvisation, I think there is a lightness and humour about it, which makes time fly away while you learn. It is joyful”. Another wrote: “It was playful for me to play role-playing games. We used the whole body - body language - facial expressions - improvised the lines and moved in space.” A third wrote: “I think the practice with the plays was really good and it was a fun playful approach, both playing the play and wearing different glasses in relation to others' plays, worked really well”. This is interesting and contributed to sustain the initial connecting of acting “as if” and playful emotions. The following section contains a closer look into the classroom, where students “wear different glasses”, as spectactors (Boal, 1991).

Interviewing spectactors - students’ exploration of challenging practice

We are in the climax of the course (5. In the table). A group of students has performed a partly improvised play, inspired of their own experiences on co-operation with parents. The play contained a core problem, had an unsolved ending, and the main characters were the oppressor and the oppressed. The audience were spectactors, perceiving the play through a character. This is inspired from, but far from strictly Boal (Boal, 1991). Until now, I have guided the process; now the educator takes the lead. The actors are still on stage (in reality it is just a cleared area in the classroom). They listen to spectactors while their presence maintains the atmosphere of the play. The spectactors are divided in two groups, one closely related to the play as parents, pedagogues, leaders, and children. The other group is a reflective team of experienced pedagogues. The educator turns to the child, who was not the child on stage, but a student perceiving the play, as if she were the child.

> **Educator:** Let's hear - what's going on over here? What does the child say?
> **Student** (as the child): I just think it's annoying when my mom and dad come. It's like they are tired, I just do not want to go to Bilka, and all that we have to

> do. I would rather just be in kindergarten, sliding and being together with my friends. I do not like it.
> **Educator:** What do you think about the way mom and dad talk to the pedagogue?
> **Student:** It sounds like they are arguing or something - I do not know. I'm just hiding.
> **Educator:** How do you feel when they talk to each other that way?
> **Student:** I just want to run away.

It is unconventional to let grownups without theatrical training, act as children. The basic rule is to “play a head higher” in the tradition “Drama for learning” (Heathcote & Bolton, 1994). I told this to the students beforehand. I also told them that acting as a child easily becomes a caricature, and reminded them of the importance of acting led by one’s inner motivation, without trying to imitate. In line with this, the student acting out the child, uses an adult voice and semi-adult formulations. She does not try to show the image of a child by using a light voice or simplifying her language. The lack of trying to imitate makes the child surprisingly present, and the child´s perspective strong and almost tangible.

The educator supports the student’s acting, by addressing her, as if she were the child. A change in perspective emerges. The immediate impression of the play is distant and busy parents, picking up their child and a pedagogue, who tries to talk to them about their child’s avoidance of wearing a needed diaper. The child was silent. All the attention has now turned towards the child who was overlooked by all the adults, including the pedagogue. The educator now turns to another spectator. It is the leader, who was not in the play, but we all imagined that it would be plausible that a leader overheard the situation.

> **Educator:** Who was the leader here? What does the leader think about the whole situation?
> **Student** (as the leader): I think this space, this will not be created... (indistinct)
> **Educator:** And how do you think you can work with that?
> **Student:** I do not know.
> **Educator**: (pause) No? (pause – turning to the class) We will reflect on that later…

With the “No?” the educator express surprise to a leader, not contributing. Afterwards, she addresses the class, and points forward to a later activity where students reflect on the fiction. In this case, it will be on how to support each other as colleagues, when leaders distance themselves from everyday issues. The student is aware that she as student also is invited to talk with fellow students about the leader, as this is now a known structure in the process. The student might be insecure, or less talkative, but as a leader she provides a perspective for later reflection. This exemplifies the aesthetic redoubling (Szatkowski, 1985), and suggests how it creates a safe space for students. Now the educator turns to the reflective team, who were instructed to observe and reflect as if they were theoretically knowledgeable pedagogues.

> **Student 1** (as a pedagogue): I think you have to create space for dialogue, but sometimes they (parents) are busy; they need to achieve something, and it´s not the best situation to bring up problems.
> **Student 2** (as another pedagogue): The pedagogue is responsible. Her job is to invite a better relationship. Maybe you can bring it (the problem) up, and then suggest a conversation another day. It could also be that pedagogues need to downsize their ambitions about wanting a whole lot done right away. It can get too pushy.

A new critical understanding emerges. The group that performed the play had chosen that the pedagogue were the oppressed, but the fictive pedagogues now criticize their fictive colleague, in a way they might not dare to if it was directly addressed to fellow students. The play was rooted in real experiences, but it is also condensed to put a problem in the forefront, which creates a protective layer of fiction. The situation and the characters are thereby distanced from reality and objects of exploration, and the critique is at the same time addressing the fictive pedagogue, and a reflection on how to act in a future profession.

Conclusion

The overall approach in the research is highly intervening. This provides a natural way of being a participant in the field, but I am also aware of the limitations and bias it creates. First of all, this needs a careful description of my position and role in each situation. Second, I will in further research explore understandings of situations together with social educators and students, to gain more perspectives and deeper understandings, and invite them to identify situations causing their breakdown in understanding, surprise, or wonder.

To sum up the contributions in this study, the first suggestion is, that a support of the distance between student and character creates a safe space, both protecting students who might be insecure, and fostering critical exploration. Second, it seems that students provided with a technique for acting and instructions supporting this, feel confident in acting. In this study, the technique is empathizing with the character's inner motivation. This coexisting balance between nearness and distance to the character might seem contradictory. Yet it is a core in the act of acting and for now it is suggested to incorporate this understanding as a didactic consideration in teaching based on, or including, enacting characters. Third, the course was designed to explore the outlined problem concerning educational answers to an unpredictable, professional practice and the students were therefore invited to enact and reflect on the world of parents, children, and colleagues. So far, the answer to the question on how a dramaturgical approach to playful learning can support students' creative engagement with concrete curricular themes and their future professional practice, contributes with a somehow problematic final suggestion. The

preliminary answer is that it relies on carefully selected, and remediated theatrical tools and techniques reflecting both aims of the curricular theme and identified professional challenges. This conclusion raises at least one new problem, as it requires a fundamental knowledge of theatre traditions, tools, and techniques. Though it seems a reasonable didactic concern in need for attention. The contribution to practice from further research might be limited by this as social educators in general, including the educator in this study have no dramaturgical, nor theatrical background. Yet it might just be a new challenge, as the practice in this study inspired the social educator to take the lead. This leads to a guiding question for further experiments concerned with how a dramaturgical approach can be implemented in social education. This will be the next overall challenge of the program: “to learn within, with, and from ‘As If’”.

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Types of Proximity in Collaboration Between Nursing Schools and Hospitals on Clinical Training

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Abstract

Background: Nursing students' learning opportunities in clinical training have received increased attention. The attention might be attributed to an increased demand for trained nurses and a high drop-out rate for nursing students mainly due to difficulties identifying themselves within a nursing professional identity. Pointing to a need for a stronger coherence between theoretical and clinical training, and a close collaboration between Nursing Schools (NS) and University Hospitals (UH). In 2019, an academic-practice partnership intervention project in three parts was initiated to improve collaboration on clinical training. In part 1, interviews were conducted focusing on the partners' experiences of the collaboration. In part 2, findings were used in subsequent interventions inspired by theory of relational coordination. Finally, the interventions were evaluated using program theory. This paper presents findings from part 1 exploring dimensions of proximity in the collaboration between NS and UH on clinical training. **Methods**: Qualitative semi-structured interviews were conducted with nursing students (5), clinical preceptors (11), and faculty members (8) to gain insight into the collaborators' experiences and attitudes. A qualitative directed content analysis was chosen to capture dimensions of proximity in the collaboration. **Findings:** Different dimensions of proximity in the cross-sectoral collaboration on clinical training were identified. *Relational proximity* facilitated relationship building, shared knowledge, and timely communication, at times power dynamics challenged the relationship. Lack of *Structural proximity* challenged and widened the gap between theoretical and clinical training. Finally, g*eographical proximity* influenced collaborators' knowledge of one another. In **conclusion**, collaboration was characterized by various dimensions of proximity, which in different ways point to areas for bridging the gap between theoretical and clinical training.

Keywords

Clinical training, Nurse education, Collaboration, Proximity, Relational Coordination, Interview study

Introduction

This paper addresses the relationship and collaboration on clinical training in the nursing education between nursing schools and hospitals in a region of Denmark. Nursing students' learning opportunities in clinical training have received increased attention (Frandsen,

2015: Holen & Lehn-Christiansen, 2017; Finansministeriet, 2020). The attention might be attributed to an increased demand for trained nurses (Jensen, 2018; DSR, 2019; Finansministeriet, 2020), and a high drop-out rate for nursing students mainly due to difficulties identifying themselves within a nursing professional identity (Jensen et al., 2006; Malthar, 2011; Finansministeriet, 2020). Development of a nursing professional identity is found to be more difficult if students encounter too wide a gap between the theoretical and practical learning (Kjær et. al., 2016). Pointing to a need for a stronger coherence in theoretical education and clinical training, and a close collaboration between Nursing Schools and University Hospitals.

Cross-sectoral collaboration between educational institutions and hospitals has shown to be necessary to conduct high-quality education, where newly qualified nurses possess the competencies needed (Yi, 2020). Furthermore, a close collaboration between the educational institution and the hospital has increased the educational capacity, has promoted the development of the education, and has strengthened the nursing student's transition from being a student to being a professional nurse (Sadeghnezhad, 2018). Planning nursing education in a collaboration between nursing schools and university hospitals, based on a shared approach to learning and teaching such as *reflective practice-based learning* (RPL), may be a way to create greater coherence between theory and practice. The RPL approach is defined as reflection *on*, *in*, and *with* practice with theoretical analyses and practical syntheses (Horn et al., 2020). The success of this learning approach depends on students having opportunities to include experiences, thinking, and action in their learning processes in collaboration with teachers and clinical preceptors - in theoretical as well as clinical training. But collaborating on clinical training is often troubled, as planning, time constraint, and conflicting priorities may put the collaboration under pressure (Granger, 2012; Dobalian et al., 2014; Mogensen, 2019). Moreover, studies on collaboration in health care have shown that interdependence, time pressure, and high variability have challenged both communication and relationships between collaborators (Gittell et al. 2000; Gittell, 2011). Relational coordination is an expression of the quality of collaboration and defined as a mutually reinforcing process of communicating and relating for the purpose of task integration (Gittell, 2002). Since, this concept is based on relationship dimensions as shared goals, shared knowledge, mutual respect, and accurate, timely, frequent, and problem-solving communication, it might be an important and relevant conceptual frame to use when exploring the cross-sectoral collaboration on clinical training. Primarily because, this kind of relationship is particularly important for coordination as it is found to build a sense of “we”, which facilitate coordination in unforeseen situations (Gittell, 2006). Secondary because, these communication and relationship dimensions have shown to be essential for the implementation of successful work processes. This has been demonstrated by higher quality, increased efficiency, increased ability to learn, and greater job satisfaction (Bolton, Logan & Gittell, 2021). Finally, evidence exist about the positive association between relational

coordination and reciprocal learning, and about relational coordination and the ability to learn from failure (Bolton, Logan & Gittell, 2021).

Particularly, cross-sectoral collaboration and coordination can be challenging. This may possibly be attributed to geographical distances, as large distances may complicate the communication and the possibilities to gain insight into each other's working conditions and opportunities (Boschma, 2005). According to Boschma (2005), other dimensions of proximity such as organizational, social, and institutional proximity might provide alternative solutions to the challenges of coordination, reduce uncertainty, and facilitate learning and innovation - by their own, or in combination. Conversely, geographical proximity has been found to facilitate face-to face interactions and knowledge transfer between collaborators and thereby also to increase mutual trust (Knoben & Oerlemans, 2006). In a literature review on proximity and inter-organizational collaboration, Knoben and Oerlemans (2006) have identified different dimensions of proximity affecting inter-organizational collaboration: geographical proximity, technological proximity, and organizational proximity. In the cross-sectoral collaboration on clinical training in nursing education, geographical distance is an immutable condition. This indicates a need to understand whether other dimensions of proximity may provide solutions to coordination and collaboration challenges in this context. To improve collaboration between nursing schools and hospitals, this study explores which dimensions of proximity exist in the collaboration on clinical training in the nursing education, with a view to subsequently closing the gap - and thereby strengthen the collaboration and coherence between theoretical and practical training. In 2019, an academic-practice partnership intervention project in three parts was initiated to improve collaboration on clinical training. This paper describes the findings from the first part of the project.

Methods

The intervention project, with the overall aim to improve the cross-sectoral collaboration on clinical training in nursing education, was designed as a mixed methods study (Fetters et al., 2013). In the first explorative part, qualitative interviews were conducted, which provided insight into the collaborators' experiences and attitudes to strengths and challenges in the cross-sectoral collaboration. In the following part, findings were used to inform and inspire an improvement project using relational coordination theory and methods (Gittell, 2016). Finally, the interventions were evaluated using program theory. In the final evaluation process qualitative and quantitative data and findings were interwoven in a mixed method integrated analysis and interpretation (Fetters et al., 2013).

The qualitative semi-structured interviews were analyzed using content analyses with the purpose to explore how students, clinical preceptors, and faculty members experienced the cross-sectoral collaboration on clinical training in the nursing education. To help understanding the challenges in the collaboration, a thematical content analysis guided by

questions in the interview guide was conducted (Coffrey & Atkinson, 2006; Hsieh, 2015). Findings from this thematical content analysis are described in a previous publication (Tørring & Jensen, 2021). To allow a deeper insight into the collaboration a directed content analysis was adopted (Hsieh, 2015). This paper presents the findings from this analysis.

Informant

A total of 24 semi-structured interviews (Kvale & Brinkmann, 2015) were conducted with students (5), faculty members (8), and clinical preceptors (11). All informants were invited by email. Students were invited to participate through a request to the Student Council. Five students accepted the invitation. All faculty members at the Nursing School units with obligations for clinical training were invited to participate (39), of whom eight accepted. Finally, a minor group of clinical preceptors in somatic wards at different professional specialties and hospitals were invited. 11 clinical preceptors accepted the invitation.

Data Collection

The semi-structured interviews were conducted based on differentiated interview guides prepared for each of the informant groups. The guides were based on literature and the first authors' experiences with clinical training and training of clinical preceptors. Questions were asked about the informants' experiences with and attitudes towards the cross-sectoral collaboration. Open-ended questions were asked, followed by more in-depth questions. The interviews were conducted during a period of 2 months in 2019 by the first author. They took place in two units at a Nursing School and in nine wards at two hospitals, a university hospital and a regional hospital. The interviews had a duration of approximately 1 hour. The audio recordings were transcribed in their entirety by the authors jointly.

Analysis

First, the materials were organized in NVivo [Version 12], the transcripts were read, and a simple structural coding was carried out (Coffrey & Atkinson, 1996). Next, analysis and interpretation were conducted using thematical content analysis (Hsieh, 2015). Findings from this analysis are presented in the previously mentioned publication (Tørring & Jensen, 2021). Subsequently, a directed content analysis was conducted, and categories and themes were identified (Hsieh, 2015). Different perspectives emerged on proximity such as relational proximity, structural proximity, and geographical proximity. The analyses were conducted in close collaboration, as the materials were read by both authors, the simple structural coding based on categories was completed by the first author, and themes were extracted, described, and analyzed by both authors separately and in joint discussions.

Ethical considerations

The study followed the ethical guidelines for nursing research in the Nordic countries (SNN, 2003). Prior to conducting the qualitative interviews, clinical preceptors, students, and faculty members were informed about the study. They signed a consent form in which they were guaranteed anonymity and informed of the right to withdraw their consent at any time.

Findings

Three categories representing different dimensions of proximity were found in the cross-sectoral collaboration on clinical training in the nursing education: *Relational proximity*, *structural proximity, and geographical proximity.* In the following, these categories with related themes are described.

Relational Proximity

Being Unfamiliar or Familiar to One Another

Often faculty members and clinical preceptors were unfamiliar to one another. Building relationship was difficult as the continuity of collaboration was interrupted. There were no formal or informal visits to each other. The distant relationship led to ambiguity about roles and responsibilities in the joint task management which affected the students. Students experienced the distant relationship between faculty members and clinical preceptors as a sign of a fragmented education, making them insecure. However, some experienced faculty members and clinical preceptors had established a close relationship with one another. A relationship built previously where the terms and conditions for joint meetings, physical presence at study activities, and participation in each other's practice were broader and more flexible. Being familiar with one another facilitated strong collaboration ties and made it easier to reach out for each other when needed. The students got a sense of coherence between theorical and clinical training when they experienced a strong collaboration between faculty members and clinical preceptors. This had a positive influence on their learning possibilities. Likewise, students and faculty members were often unfamiliar with each other. In contrast, most students had a close relationship with their clinical preceptor, visible for the faculty members when they meet students and clinical preceptors for exam. However, some faculty members expressed concerns about whether the relationship between students and clinical preceptors were too close and friendly. This might complicate the learning process and the assessment of the students. The clinical preceptors strived to be familiar with the students and to support their learning process the best way possible. Furthermore, they strived to build a sense of security for the students by being calm, patient,

and trustworthy. They intended to appreciate the students and to give them space to work as a student and not to work as a workforce.

> "It feels good to watch another human grow. The fact, that I am helping to push a student to succeed, makes me very energetic. To watch them thrive. It's a bit like kids, so to speak. You want to take care of them and set them out to explore the world". (CP11)

For students, it was important to be part of the community of nurses in the ward, and not just to be considered as a student. However, no students mentioned that they had a close relationship with other nurses at the ward during clinical training, as these were both less involved and less responsible for the clinical training. Therefore, it was important for the students to have a close relationship with their clinical preceptor, who introduced them to the profession and to the professional community. A close relationship also made it easier to small-talk and thereby establish relationships and become part of the community of nurses in the ward.

Being Curious About or Distancing Themselves From Each Other

Sometimes faculty members doubted whether they should know more about the structure in the clinical practice and the clinical preceptors' opportunities to establish a well-functioning learning environment for the nursing students. After many years at university college, several faculty members felt distant to practice. It was less important whether faculty members had knowledge of the clinical specialty, but if insight into work processes and organizational structures were absent, the study activities might be planned inappropriately. Likewise, clinical preceptors sometimes doubted whether they should know more about the nursing concepts embedded in the theoretical part of the education. The clinical preceptors strived to rehearse the theoretical parts when preparing for the students' exam, but they described an unmet need for theoretical update, and often they felt inadequate if students needed help with literature search. Several students considered the faculty members and the clinical preceptors to be separate and distanced from each other's world and context.

> "Those at school, they teach us. And those in practice, they show us how to perform. On the one hand is the theoretical part, and on the other hand is the practical part. And as a student you are right in the middle of it". (NS4)

However, both clinical preceptors and faculty members were interested and curious to increase the knowledge and insight into each other's context. Some faculty members asked for days in practice, as observers and several clinical preceptors wanted a deeper insight into the theoretical curriculum, but they never came by each other's locations, as time for that was downgraded.

Power Dynamics

Power was articulated as a dynamic in the relationship between faculty members and clinical preceptors, sometimes experienced as a hierarchical relationship. Some clinical preceptors mentioned power in the relationship as they felt evaluated and judged by the faculty members. Others described how they doubted their own competencies when collaborating with a faculty member who made high demands on the students.

> "I feel comfortable with her as a person and her professional competences. But she gets tough with the students, and that I find hard. It has been my experience that other faculty members do not make that high demands on the students. It can't be true, that my students fail the exam, just because this faculty member imposes very high demands on the students". (CP11)

Sometimes the faculty members were elevated to judge status, since some clinical preceptors interpreted the assessment of students as an assessment of their qualifications as a preceptor. Sometimes, the faculty members' assessment was perceived as an assessment of the quality of care provided in practice. *" At school students are taught, how nursing should be, and in practice students learn how to perform nursing in real life".* (CP3). If the clinical preceptor was inexperienced in the role of preceptorship, some faculty members felt they were more controlling. However, some clinical preceptors and faculty members also felt that the relationship was equal.

Being in Flow Together - Learning from Experiences

During clinical training, students reflected on their experiences and actions supported by the clinical preceptors and relevant theoretical perspectives. The reflection activities strengthened the students' argumentation and action skills. During theoretical education at the university college, students were introduced to simulation exercises supported by the faculty members. The cases were written by the faculty members, and sometimes they arose from the students' experiences. The simulation-based teaching would in the future be used more, as there was an untapped learning potential in using this method in the nursing education. According to the faculty members, students need the opportunity to "unload experiences from practice" before starting a new theoretical semester. A need justified in the faculty members observations of students dealing with unprocessed experiences from clinical training that had not been taken care of during the internship. This might influence the students' development of a professional identity.

> "It is important to listen to the students' experiences. And I thank the students for bringing these out in the open. I have a feeling these experiences affect them. I believe students drop out occasionally because practice leaves an immense impression, and the students are affected emotionally. I guess this impacts the way they develop into the nursing profession". (FM6)

In summary, it can be emphasized that the **relational proximity** embracing the cross-sectoral collaboration on clinical training included close as well as distant relationships. The close relationships between clinical preceptors and students supported the learning processes, and the distant relationships between faculty members and clinical preceptors seemed to make the students feel insecure, as they got a sense of non-coherence between theoretical and clinical training. Although the conditions for building close relationships were limited, the collaborators wanted to be more familiar to each other and pointed to a need for strengthening the mutual knowledge.

Structural Proximity

Placement of Faculty Members to Internships

All faculty members had experienced replacement of the internships to which they were affiliated. It was unclear to the faculty members who scheduled the placement and what criteria were used.

> "I am unsure how the placement is handled. But I presume they make considerable effort to provide consistency. Now I have cooperated with the very same wards for a year, I guess. But previously I was relocated to fill in the vacancy. Probably because I worked as a substitute". (FM1)

The faculty members had limited influence on how the placement was conducted, and they were unsure what priority the placement of internships had in their task composition compared to teaching, research, and other work assignments. Some faculty members raised concerns that their tasks related to internship were downgraded, and some clinical preceptors found that the placement was very random.

Diversity in Learning Environment

According to the clinical preceptors, some faculty members had increased demands to the students in clinical training. This was also expressed by the faculty members, who experienced having very different approaches to the students, which sometimes gave rise to discussions in the group. Several clinical preceptors doubted whether they and the faculty members worked towards shared goals. They experienced working in parallel with each other, missing mutual feedback, and having different perceptions of shared goals.

> "We need to discuss it, because a major part of students, whom we train, are supposed to work as a nurse. Am I right? We must make them proud of that. They are becoming nurses in the real world and in my opinion that is the main issue". (FM3)

Furthermore, the clinical preceptors had very different conditions to fulfill their function as supervisor. However, all clinical preceptors strived to create a successful learning

environment, and cherished days for reflection and guidance with their students. Several clinical preceptors expressed being self-taught in their supervisor function. For example, how learning outcomes could be transferred into their specific practice, how expectations and prerequisite interviews could be held, and how students' individual study plans could be targeted. Some clinical preceptors worked in a very structured way, while others let the occurring situations govern the learning process. The clinical preceptors guided the students their own way, meaning that they deviated from rules given by the University College if the rules did not make sense to them. *"Certainly, I feel something is just foisted over our heads as clinical preceptors, and we are not prepared for it."* (CP10). Some clinical preceptors advised each other, while others were very much alone in the function. The students felt that the clinical preceptors took on the role of preceptorship in very different ways. They experienced the first introductory interviews were conducted very differently, and that the clinical preceptor gave them very different degrees of responsibility. This had a great influence on the learning environment and the students' learning processes.

Diversity in Level of Education, Roles, and Function

The clinical preceptors and the faculty members had different educational backgrounds, possessed different competencies, and performed different functions in the collaboration on clinical training. However, the division of tasks and responsibilities was not described. In reality, the clinical preceptor handled the daily training and reflection on practice with the student, and the faculty members participated exclusively in planned mid-term exercises and exams. Thereby, the clinical preceptor was the students' closest partner through the clinical training, and the faculty member became the primarily examiner to the final exam. An external examiner who was expected to have a general and overall overview of the examination process. Faculty members as well as clinical preceptors pointed out that it would improve the clinical training if their different competencies were included to a greater extent. According to some clinical preceptors, the scholastic virtues and training of the students' academic competencies were given too much priority in clinical training, visible in the predefined learning goals. They felt their function and task of training the students' clinical competencies was downgraded.

> "That is why I tell them: "Now you are working in practice, and now you are supposed to study reality. You are not supposed to study the world of academics. Sometimes I feel the nursing school is trying to maintain the academic world view in practice". (CP1)

Especially in the second semester, assessment of the students 'academic competencies took up too much time for both students and clinical preceptors. As a result, the students had less focus on basic nursing and relationship building with the patients. Inadvertently, the students prioritized theoretical activities at the expense of the meeting with the patient.

> "It is frustrating when the students give priority to the literature at the expense of time spent with the patients. They must be able to pay attention to the patients, listen to the patients and cope with the patients, both when they are sad and when they are pleased. They need to be conscious of how to improve nursing". (CP4)

Applying Digital Communication Channels

A digital learning platform was available for clinical preceptors, students, and faculty members, making it possible to share and demonstrate learning goals, reflections, and assessments throughout the process. For the clinical preceptors and the students, the platform was a very useful communication tool between each other, as it made it possible to gather education schemes, agreements, individual study plans and literature. However, the clinical preceptors used the platform very differently, as both introduction to the tool and application procedures were missing. In addition, some students found that the platform was primarily used as a learning tool by the students themselves and described large variations in the digital communication - from no involvement to a close collaboration.

> "We are now supposed to communicate with the nursing school and the internship using the platform. I do not have the impression, that the faculty members and the clinical preceptors communicate through the platform. They communicate by e-mail. Every week I upload documents and at the end of the internship, it is the intension, that the faculty member, who attend at my exam, reads the documents – my study plan and my reference list of literature used. The faculty member has access to all the documents, that I upload. But I do not think, they communicate with each other without me being present". (NS3)

Rarely, the faculty members used the digital communication platform, and when they did, it was only used for sharing information and agreements on study activities. Neither the faculty members were introduced to the platform application. They expected to be able to find information about the specific clinical ward and contact information on the clinical preceptors in the platform, but these were absent. Several clinical preceptors intended to have a better collaboration with the faculty members by using the digital communication platform more frequently. Faculty members also wanted to communicate digitally to a greater extent, as they experienced a lack of updating of information related to the students' internships.

In summary, the lack of **structural proximity** challenged the continuity of collaboration by frequent changes in the placement of faculty members to the specific internships. The procedures for organizing the faculty members' placement to the specific internships were apparently opaque or even missing, and there was disorientation about the criteria for the placement. In addition, the clinical preceptors' terms and conditions for conducting supervision challenged the students' learning, as time for reflection and other training activities sometimes were limited due to the clinical preceptors' responsibility for other urgent patient-

related tasks. However, the digital communication platform seemed to be a valuable structural communication tool used in the close collaboration between students and clinical preceptors when defining and assessing learning goals in the process.

Geographical Proximity

Missing Face-to-Face Meetings

Previously, clinical preceptors and faculty member were visiting each other's contexts, as clinical preceptors participated in the teaching and simulation training at the University College, and faculty members were physically present for study activities with students in clinical training. Today, face-to-face meetings were rare, since communication between faculty members and clinical preceptors primarily took place virtually. The geographical distances made it too time-consuming and cost-heavy to meet physically. They knew each other better before, when there were several formal physical meetings, and the time to talk together and gain insight into each other's function related to the students´ clinical training were prioritized. Face-to-face meetings were requested, as the virtual conversations provided less opportunity for establishing a strong relationship. Faculty members as well as clinical preceptors expressed having lost something valuable.

> “Previously, the faculty member was present in the ward, but now we use Skype. I have a hard time with the virtual meetings. You can say that they are functional, but honestly the dialog is better when you see each other face-to-face. It makes the dialog more dynamic; I would say”. (CP10)

The limitation of the faculty members' opportunities to gain insight into clinical practice impacted their knowledge about what the internship could offer the students in their efforts to achieve learning goals for the period.

Non-existent of Informal Meetings

Informal meetings between the clinical preceptors and the faculty members were non-existent. They never meet before or after study activities, they rarely meet in other contexts, and they were only together when the students were present. Either did the faculty members show up at the ward to say hello, as time was not set aside for this type of informal meeting. They were insecure of showing up in the ward, as they were concerned about whether the clinical preceptors expected more from them than they could offer. The geographical wide distances and the time for transportation limited the collaborators' encouragement to visit each other informally.

In summary, it can be emphasized that the lack of **geographical proximity** challenged collaboration as the distance had an impact on the occurrence of both informal and formal

face-to-face meetings. This impaired the opportunities to get to know each other as professionals and limited the faculty members opportunities to gain insight into clinical practice.

Discussion

The findings showed that different dimensions of proximity existed in the collaboration on clinical training between the Nursing School and clinical practice at the hospitals. These different dimensions of proximity seemed to affect the experiences of collaboration and coherence in both positive and negative directions.

On the one hand, we found a close **relational proximity** when collaborators had mutual understanding of the responsibility of one another in reference to the overall education task, and the students got a sense of coherence between the theoretical and the clinical training. Relational proximity seemed to accentuate the same aspects as the relational dimension *shared knowledge* included in the concept of relational coordination (Gittell, 2006). A recently published systematic review focusing on predictors and outcomes of relational coordination highlighted how relational coordination drives the ability to learn and thereby increases learning (Bolton et al., 2021). Furthermore, appropriate interactions among collaborators measured by relational coordination and the learning that emerged were found to be mutually reinforcing and had a positive impact on the overall performance (Noël et al., 2013). In our study, joint reflection with the possibility of linking theory to practice, as described in the theme: *Being in Flow Together – Learning from Experiences*, were found to facilitate learning. Strengthening the relational proximity in the collaboration on clinical training might be a way to improve mutual knowledge and the students' ability to reflect and thereby increase the learning outcome. Furthermore, the close relationship with the clinical preceptors encouraged the students' development of professional identity. This is in line with the reflexive practice-based learning (RPL) approach, which is based on the idea that learning occurs in the mutual encounter between actual practical experiences and abstract concepts of theory (Horn et al., 2020). In the RPL approach, emphasis is placed on the fact that experiences are important for reflection and learning processes. Reflection takes place in relation to a given action, where the student is given the opportunity to experiment and test the implications of a given action. Reflection processes occur when students reflect on actions and are given the opportunity to experiment and test the implications of a given action. The student's actions must be related to both the outside world and the student herself/himself through reflective thinking (ibid.). On the other hand, we found a **distant relational proximity** in the relationship between faculty members and clinical preceptors which led to insecurity among the students and gave them a sense of non-coherence between theoretical and clinical training. Moreover, when the relational proximity was distant, a doubt arose about shared goals. This is of great importance in a collaboration, as shared goals are essential if the joint task management is to be solved with high quality (Gittell, 2006). At times power dynamics were found to challenge the relationship between faculty

members and clinical preceptors, which highlighted the occurrence of nonreciprocal collaboration ties. Recognizing and highlighting the existence of nonreciprocal ties between workgroups may pave the way for a mutual understanding of each other's experiences (Gittell 2016). Furthermore, a distant relational proximity might inhibit building trust and mutual knowledge between the actors in the collaboration on clinical training. These findings seem to be consistent with those of Knobel & Oerlemans (2006), who refer to social proximity and the fact that social relations facilitate coordination of interaction and enable the exchange of knowledge because of mutual trust and shared experiences.

Our study also showed challenges in the **structural dimension of proximity**, as the workflows were described inadequately, unclear roles, and disorientation about the criteria for the faculty members' placement to internships. In addition, we identified a lack of application procedures for the use of the digital communication platform, but despite this, the platform was a valuable tool for students and clinical preceptors when defining and assessing learning goals in the process. Clinical preceptors and faculty members experienced a lack of knowledge of each other's working conditions. This became visible when they made effort to match up to each other's expectations during the joint study activities with the students involved, and evident when activities were planned, and roles were defined. Theory was included when clinical preceptors and students reflected together on practice and the students' self-experienced challenging tasks. Despite this, the picture of how different approaches to the profession inspired each other was unclear, and the scholastic world view seemed to have too dominant a position in clinical practice, described as a kind of structural proximity in the theme *Diversity in Level of Education, Roles, and Function.* According to Højbjerg et al. (2017), academic and biomedical knowledge was of high priority in clinical education at the expense of provision of care and practical knowledge. Presumably because this knowledge had been valued in the hospital setting historically. Lack of mutual knowledge was also found among faculty members, as they had different attitudes towards how the theoretical contribution to the clinical training should be applied. Whereas clinical preceptors had different views to the time spent on the task, to the interpretation of learning objectives, and to the use of the digital communication platform. According to Knoben and Oerlemans (2006) organizational proximity can be distinguished at two different levels – the structural and the dyadic. Organizational proximity is about having a common understanding of routines and having a sense of "community of practice" and therefore have the ability to communicate efficiently despite large geographical distance. Likewise, the nursing school and the hospital seemed to be two different worlds. At school students learn how it should be, and at the hospital setting students realize how nursing is provided in reality. The clinical preceptors and the faculty members seek time for creating shared understandings and shared procedures on both theoretical and clinical training, which might create the experience of an equal community of practice on educating nurses in the future. This limited the students' ability to reflect *on, in,* and *with* practice.

We found that **the dimensions of geographical proximity** challenged the collaboration, as the distances had an impact on the occurrence of both informal and formal face-to-face meetings. The geographical proximity became more distant as the number of joint meetings and joint activities with students were reduced, and the remaining joint activities were converted to online meetings. Likewise, the knowledge of each other and the faculty members opportunities to gain insight into clinical practice were negatively influenced by the geographical distance, which subsequently affected the possibility of exchanging expectations and mutual supervision. These findings are in line with the previous work on proximity in cross-sectoral collaboration (Cramton, 2001; Knoben & Oerlemans, 2006). In a literature review, Knoben and Oerlemans (2006) explored which dimensions of proximity were relevant in inter-organizational collaboration, and three dimensions of proximity relevant in inter-organizational collaboration were distinguished. One of these dimensions was geographical proximity. Team members who collaborated without meeting face-to-face had trouble building mutual knowledge and understanding each other's perspectives, which affected the coordination of the common task. (Cramton, 2001). These challenges were recognized in our study, and consistent with those of Madsen and Burau (2021), who found that structural challenges such as technological, geographical, and institutional proximity largely hindered relational coordination between hospital-based and community-based health care providers.

The challenges we found in relational, structural, and geographical proximity seemed to influence the ability to create shared goals, shared knowledge, mutual respect, and obstruct the communication in being precise, timely, frequent, and problem-solving. Reducing the perceived geographical distance through a strengthening of relational and structural proximity might strengthen the knowledge of each other and be a starting point for shared goals, shared knowledge, and mutual respect, and thereby a way to create coherence between theoretical and clinical training in the nursing education.

Conclusion & Implication

It can be concluded that the cross-sectoral collaboration on clinical training was characterized by various dimensions of proximity, which in different ways point to areas for bridging the gap between theoretical and clinical training. The geographical distance was an immutable condition, but the communication and coordination challenges might be addressed by strengthening relational and structural proximity by using relational coordination theory and methods. In addition, the study showed that relational dimension of proximity might be strengthen by using the reflective practice-based learning concepts - experience, thinking, and acting - and *being in flow together*. These findings were valuable knowledge inspiring the following intervention project aiming to improve collaboration on and coherence between theoretical and clinical training in the nursing education, that was conducted afterwards.

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Impact of reflective practice on student engagement and confidence in a top-up bachelor programme

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Abstract

Positioned in the context of professionally oriented higher education, we study the use of reflective practice-based learning (RPL) principles in pedagogical intervention in a Design and Business programme at a Danish university college. The context for this two-year professional bachelor programme, catering for graduates of several AP degrees, is defined by ongoing transformation as the industry and its business models undergo continual changes. Education needs to keep up with this transformation to foster graduate employability. Researchers detected a need to facilitate better transfer between students' existing knowledge, teaching, and the needs of potential employers. To overcome this perceived gap between education and specific needs of the work place we examined the impact of reflective practise-based pedagogical interventions on student confidence in their professional abilities, with an aim to foster greater co-participation at the workplace and development of professional agency.

The employed method is a case-study, collecting qualitative data including interviews, participatory observation, student video accounts, and feedback from industry professionals. The population of the research consists of a group of 16 students and four industry professionals. Using qualitative content analysis, we aim to advance knowledge of the impact of guidance and pedagogical interventions on students' perceived lack of professional confidence.

The study provided instructors with a framework for reflective practice in a heterogenous group of students, with the scope of further enabling development of the intended curricula in a bachelor programme studied here, by articulating personal, social, and transferable competences in learning and teaching in collaboration with business professionals.

Keywords

Professional confidence, student engagement, pedagogical interventions, student experiences, teaching practices, higher education, reflective practices, identity formation, personal and social competences

Introduction

In higher education (HE), development of professional self-efficacy or confidence has been widely studied (e.g., Ball 2002, Albiol et al. 2020) and high levels of confidence have been linked to positive career choices. However, most scholarly contributions focus on teaching or nursing (e.g., Du, 2021, Ranta et al, 2020) whereas more research is needed in the field of business studies. In this paper, with the expectation of similar results, we examine students' professional confidence in defining their career in a professional bachelor program in Business Academy SouthWest, In the Danish context of HE, these are often referred to as top-up bachelor programs and students enrolling this program have a variety of prior qualifications from a HE level.

In this research the addressed challenge can be viewed as three-fold; 1) The student body is heterogeneous in nature, the program being a top-up bachelor, currently with intake from a range of AP degrees. This diversity in students' educational background necessitates a transformation in their own perceived and expressed professional identity. In preliminary data gathering students expressed a confusion between previous and current professional goals. 2) The industry for which the program is tailored, is equally complex, undergoing constant transformation in terms of business models, advances in technology etc., requiring employees with an extensive set of soft skills (here defined as personal and social competences). The field for which graduates can apply is wide, as the combination of business and design thinking answers the need for complex problem-solving skills. 3) Both above points call for a transformation of the education to facilitate the before mentioned personal and social competences, identity formation, and professional confidence, at this stage identifiable as students' ability to identify and articulate their own strengths convincingly. Consequently, researchers identified a need for pedagogical intervention to facilitate learning transfer between prior learning, education, and the needs of the labour market.

In this context of vocational HE, reflective practice-based learning (RPL) is central in connecting theory with practice. Here we adopt the notions of reflection on, reflection in, and reflection with practice as argued by Dewey (1933), Schön (1990), Boud (1987), and Argyris and Schön (1991). Since these seminal works, research has advanced in the topic of reflection and learner engagement (e.g., Wahlgren et. al. 2002, Ashwin & McWitty, 2015, Billett, 2019). However, there is lack of research on the impact of reflective practice on student engagement and learning transfer in top-up bachelor programs. Thus, we seek answers to the following research question:

What is the impact of pedagogical interventions on student engagement and development of professional confidence in the top-up bachelor program?

In the study, we explore the impact of reflective practice on the development of agency, co-participation, and engagement in learning affordances in what Schön terms "a

Reflective Practicum", i.e., a pedagogical space where students meet the workplace through internships or other physical interactions, case-based assignments, and other simulations. This is attempted by implementing methods of RPL in teaching settings. In the intended curricula, theory is associated with practice in several ways. These include actions that incorporate students' own experiences into teaching and learning activities known to foster individual meaning, especially relevant in a mixed group such as the top-up bachelor program. These actions intertwine theory and action in the form of inductive processes, in which "students build on previously acquired experience, information and data" thus also providing the students with relevant context. (Horn et al. 2020, 17). We draw conclusions from qualitative data with a mixed methods approach to deepen understanding of the role of student engagement and participation in improving learning transfer from education to the workplace.

Theoretical Framework

Action research is defined by Argyris and Schön (1991) as a technique of intervention that operates on problems or questions perceived by practitioners within a context. Participatory action research involves practitioners as subjects for research as well as co-researchers. (Argyris and Schön, 1991, 86).

Schön views reflection in- and on action / practice as a vital element in an approach for educating professionals in artistry and preparing them to handle complex and unpredictable problems of actual practice with confidence. This reflection bridges the gap between theory and practise, is instrumental in accessing embedded knowledge, and applying learnings to various contexts. (Schön, 1990)

Wahlgren further suggests that reflection provides meaning to individual students in the learning process. He states: "Experiences are a specific and complex relationship between the individual and the wider world, in which [the two] "do something to each other"" (Wahlgren et al., 2002, 129). Furthermore, Dewey emphasises reflection in connection with experiences that produce difficulties or dilemmas, which he refers to as a "felt difficulty" (1933). Hence, reflection can be viewed as "a conscious activity in which we engage to explore our experiences and develop new understandings and conceptualisations" as argued by Boud (1987).

In vocational HE, students may experience confusion and frustration while engaging with the learning affordances in education and at a workplace. According to Dewey (1933), these appropriate disturbances are a natural part of the learning process and can even be conducive to professional confidence. (Dewey, 1933). Reflective practice is rooted in a social context and qualifies learning and actions. Billett adds to this his emphasis that to make the most of learning from experience, instructors need to augment the experiences to facilitate student learning (Billett, 2019). Through such pedagogical interventions, students gain access to a larger-than-their-own repertoire of knowledge-in-action through classroom

activities such as instructor guidance, peer-reviews, crits, and other classroom dialogue with reference to practice (Schön, 1990).

Research has advocated for students' active participation in learning and teaching, referring to this as student engagement. In their 2015 study, Ashwin and McWitty defined a nested hierarchy of the objects of student engagement, divided into three degrees: engagement to form individual understanding, engagement to form curricula, and engagement to form communities, where students respectively engage to improve learning outcomes, help form HE courses, and help shape the institutions and societies of which they are part. (Ashwin & McWitty, 2015.) In this study, we touch upon this hierarchy to advance understanding of the students' role in learning transfer.

The combination of design and business in an educational program calls for the artistry of which Schön speaks, namely the ability to solve wicked problems rather than merely perform repetitive, specialised tasks. The industry itself is under constant transformation, and education leaders experience that representatives from the industry themselves are unsure of what they are looking for in graduates. Hence, the field of study lends itself to an approach that deals with a level of abstraction and complexity and aids the students in not only learning artistry, but also in defining, articulating, and pitching their own competences to a potential employer.

Practitioners in vocational HE need to design instructional scaffolding to enable reflection in action and out of action, and to facilitate transfer from classroom teaching to the job market and from industry professionals to classroom teaching (Argyris and Schön, 1991). Based on this theoretical framework, we seek to advance understanding of the impact of different pedagogical interventions to learning transfer in the mentioned educational program.

Methods

The context for experimentation was a Bachelors' programme in Design and Business studies, at a university college in Denmark. Data was collected from a group of 16 students, 4 male and 12 females, over a course of five months. Students ranged in age from 22 to 27 years. Nearly half (5 students) held a multimedia degree, while the remainder represented the educational backgrounds of marketing management, fashion design technology, industrial design, and service design. In addition, four business professionals representing the local business ecosystem were appointed. In data collection, an action-based approach to the research design was adopted.

Altrichter et al, (2007) and Baskerville (1999) refer to action-based research as a form of social inquiry rather than social science and thus uses an interventionalists viewpoint where researchers observe and participate in the studied phenomena, thus being both agent and source of change. The case in this study was a course taught in an active learning classroom. Inspired by the action-based research approach, the data collection process evolved

over five steps: Diagnosing, Action Planning, Action Taking, Evaluating, and Specifying Learning (ibid).

Action-based research being interpretive rather than explanatory, the focus here is on interpretation of students' development of agency and self-understanding using their authentic, personal accounts of their development, and comparing them with the feedback from industry professionals. Thus, the aim of this small, single-site sample of practitioner inquiry was not to generalize findings, but to gain insight into learner experiences in order to define a research base for further study of the meaning of personal epistemologies for the development of agency.

Two of the authors were instructors on the programme, whereas one author was an outside observer of the practitioner inquiry. This allowed the instructors to engage in reflective practice, achieving a form of researcher immersion, facilitating the ability of researchers to register developing circumstances and patterns vital to contextual understanding. The third researcher offered scrutiny to the method and data applied. Student inquiry was focused on discovering tacit knowledge developed by experience, and to bring it to the classroom to examine what is meaningful and salient for professional development. (Titchen et al., 2013, p 109.)

To ensure the validity and reliability of the study, triangulation was applied in the data collection; Researchers performed semi-structured interviews with students, students were invited to interview industry professionals and produce accounts of their own competence profiles and competence needs, and students participated in learning assignments designed to facilitate the development of agency, co-participation, and engagement in learning. Data resulting from this, was collected through participatory observation in activities intended to form a shared repertoire of required competences. The use of such ethnographic techniques facilitated situated researcher understanding of individual cases and informed the development of individual student profiles in the form of student videos. These were integral to the analysis of the particular circumstances.

The data collection consisted of the following cycles:

Table 1: Instructional scaffolding used in the study

Action cycle	**Description**	**Evaluated by**
Diagnosing stage to identify the gap between education and work.	Interviews with internship supervisors, student questionnaires about educational backgrounds and expectations to the Ba program, and notes	Researchers

	from annual student interviews. The above were transcribed, coded, and analysed.	
1. Pre-survey Video	Mainly qualitative questions as well as 3 quantitative questions using a Likert Scale of a scale 1-7. A short Video reflecting on previous learning experiences.	Researchers Researchers
Action planning & -taking	Pedagogical interventions and guidance, facilitating reflection.	
2. Interview with Professionals	Interviews with company representatives in marketing positions, by groups of students. Student self-reported findings were presented in class and discussed in a collaborative learning process with instructors / researchers. Notes and student presentations were recorded by instructors during the session.	Students & Researchers
3. Business Model You (Clark, et al., 2012) Video CV's Feedback from Professionals	Assignment made by the students based on several self-reflecting exercises: • Two-minute student video CVs by students. • Written accounts by industry professionals, providing formalised feedback to students on their CVs and display of confidence.	Researchers Professionals Researchers
Evaluation stage	Evaluation of the pedagogical interventions	
4. Interviews	Interviews with students in pairs carried out by researchers with the purpose of detecting the learning outcome of interventions.	Student
5. Specifying Learning	Evaluation of the pedagogical interventions using the "double -loop learning " approach by Argyris and Schön (1978).	Researchers

Findings

In the diagnosing stage, students self-evaluated their work-readiness on a scale of one to seven, one being not ready and seven being completely ready. In order to voice their experiences, they were also asked to create a video presentation of their professional profile. The rating was to mark a starting point for the individual journey. At this point, an average of 4.6 score was given, with no students marking their work-readiness below three. However, only three students displayed some level of professional confidence in the self-recorded videos.

> *"The internship gave self-assurance to what I can do. Made me believe in what I can do."*

In the level of student experience, student accounts of learning transfer were found to be related to previously held jobs, internship experiences, and personal interests or talents. Students expressing growth of professional confidence associated this to prior experiences, allowing for the envisioning of an opportunity for learning transfer to a new professional context. Most of the students produced accounts describing professional identity development. However, the source of this was their prior, not current educational programme.

> *" One example where things just worked out, was in my internship during my fashion design course. Things went well professionally and my grade was good. I learned so much and had many successes, which gave me confidence and motivation. And I was confirmed in my choice of career."*

Students' professional identity and confidence was closely tied to their educational backgrounds. When reflecting on desirable future employment and their fit to the study programme, their answers were generally vaguer, although some connection between social, personal, and professional competences and a complex professional cross-field could be seen, pointing to some reflection.

In action stages designed for reflection, students interviewed business professionals and shared findings. This helped form a shared repertoire of competence needs in the industry. They also produced a BMC You, and video CV's. Industry professionals were commissioned to give feedback on these student accounts.

> *"It is obvious that she acquired a wide range of skills from her work- and life experience."*

> *"The main message is to tell that he can bring creative solutions to our company - but what does that entail?" (Feedback from industry professionals)*

Taking into consideration the business professionals' feedback on the learning transfer from education to working life, student accounts were found to lack connectivity to the company needs for professional outlook. Most students were able to reflect on action. However, verbalising it in the context of transfer to professional competences came with more difficulty. Regarding the development of professional confidence, some students were not capable of bringing their message across while others showed great confidence. Regarding identity formation, the accounts were still strongly associated with prior professions - being a fashion designer, marketing specialist, multimedia designer etc.

In the evaluation stage, closing interviews were carried out with pairs of students by the researchers. Intentional collective learning was found actuated especially from the meetings with industry professionals, and the resulting shared exchange of findings in the classroom. Furthermore, the use of BMC You tool prompted many students to re-evaluate their professional identity and wishes for their professional futures.

> *"It was good to hear from her, that as long as you are a good person etc, then -all those tasks- they are something you will learn along the way and gain experience from your mistakes. It can be learned over time if you have the personal competences. It gave me reassurance somehow."*

> *"It made me think of the experiences I do have in a more positive light than I had previously done."*

Based on the personal reflections and conversations with industry professionals, several students stated in the interviews that they felt more confident in approaching business professionals. The pedagogical interventions started to produce a shared repertoire of the need for competence development, and the class conversations became more articulate about the students' own personal and social competences.
Student interviews with industry professionals were found to be particularly effective. Students reported an increase in confidence with the realisation that their personal and social competences weighed heavier than professional experience and thus they had more relevant experience than first anticipated. The BMC You, was found to have fostered an increased ability to articulate said competences.

> *"We don't really have any professional experiences to pitch yet. So, it gave a lot of confidence for me to realise that I could use my personal experiences and my soft skills to describe me and what I can add."*

When comparing the results of the actions in the student's learning and the focus of the teaching with those of previous years as expressed in the preliminary data (consisting of internship reports and biannual student interviews) we found that a shift had occurred in the instructors' focus. This from a purely content focused teaching approach to that of complimenting the knowledge component with a component of personal and social competences. This in turn produced greater awareness in the students of their individual skill set and its relevance to the industry along with individually developed, clearly defined learning objectives, i.e., greater learner agency. Upon reflection, the instructors also found a correlation between this increase in learner focused teaching with a greater mutual respect and trust, resulting in an improved learning environment.

Conclusion

Our study was motivated by reflective practice and needed to address students' lack of confidence in workplace situations. We conducted pedagogical interventions to facilitate student engagement and transfer between their prior learning, the education, and the needs of potential employers. The pedagogical interventions allowed students to exercise agency in their own learning. Our research contributed to the first degree of the hierarchy of objects of student engagement (Ashwin and McWitty, 2015); The pedagogical interventions enabled students to understand the meaning of prior learning to their existing personal learning trajectories, thus identifying goals, levels of progression, and the activities needed to engage with to align their competences with needs of potential future employers. As Ashwin and McWitty argue (348), the focus of student engagement was on how knowledge transforms students as they engage with it, and the ways students transform knowledge as they make sense of it. Further study is needed to examine how student engagement can help transform curricula and how graduates contribute to the transformation of future workplaces.

The study examined student accounts of the experienced curricula. Due to the interventions, we gained valuable information to develop teaching strategies, and use of instructional materials with student groups from differing backgrounds. Co-participation in learning and inquiry with business professionals helped students voice the meaning of personal and social competences for their employability. These findings can further enable development of the intended curricula in a top-up bachelor programme like Design and Business studies, by articulating more clearly personal, social, and transferable competences in learning and teaching.

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