



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

Arnt Louw & Noemi Katznelson

The Centre for Youth Research, Aalborg University, Denmark
(avl@hum.aau.dk)

Abstract

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

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



Introduction

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

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

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

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

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

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

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

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

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

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

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

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

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

Theoretical perspectives

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

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

The development projects of the VET schools

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

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

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

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

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

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

The study

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

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

The analytic process

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

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

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

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

Findings: Connections around the students create connections within the students

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

The institutional level

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

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

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

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

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

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

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

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

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

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

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

Strengthened collaboration on an institutional level

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

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

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

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

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

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

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

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

The didactical level

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

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

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

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

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

Interviewer: What does that mean?

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

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

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

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

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

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

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

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

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

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

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

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

The value of reflections in VET

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

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

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

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

Conclusion

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

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

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

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

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

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

Endnotes

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

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

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

Notes on contributors

Arnt Louw is an associate professor at The Centre for Youth Research, Department of Culture and Learning at Aalborg University, Denmark. Arnt is particularly concerned with investigating and understanding young people's perspectives when they navigate the demands and expectations of the educational system. Arnt also focuses on the didactical dimension and the role of the teacher.

Noemi Katznelson is a professor and chief at The Centre for Youth Research, Department of Culture and Learning at Aalborg University, Denmark. Noemi's research focuses on young people and their relation to education, work and career counselling. Noemi is particularly interested in young people on the margin of society.

References

- Aarkrog, V. (2001). *Mellem skole og praktik: Fire teoretiske forståelsesrammer til belysning af sammenhængen mellem skole og praktik i erhvervsuddannelserne* [Between school and work: Four theoretical frameworks of understanding for elucidating the connections between school and work in VET]. (PhD dissertation.) København: Danmarks Pædagogiske Universitet.
- Aarkrog, V. (2007). *Hvis det skal gi' mening... Elevernes udbytte af praksisrelateret undervisning i erhvervsuddannelserne* [If that is to make sense... The students' benefit from practice-based teaching in VET]. Undervisningsministeriets temahæfteserie nr. 4. København: Danmarks Pædagogiske Universitetsskole.
- Aarkrog, V. (2011). A taxonomy for teaching transfer skills in the Danish VET system. *Nordic Journal of Vocational Education and Training*, 1(1), 1-13.
- Aarkrog, V. (2012). *Refleksion: I undervisning, oplæring og praktikvejledning* [Reflection: In teaching, training and internship guidance]. København: Munksgaard.
- Aarkrog, V. (2015). *Fra teori til praksis: Undervisning med fokus på transfer* [From theory to practice: Teaching with focus on transfer]. København: Munksgaard.
- Charmaz, K. (2011). Grounded theory methods in social justice research. In N.K. Denzin, & Y.S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (pp. 359-380). Los Angeles: Sage Publications.
- Christensen, L.B. (2012). Brobygning mellem teori og praksis [Bridging the gap between theory and practice]. *Sygeplejersken*, 2012(13), 68-71.
- Dalsgaard, A., Nielsen, G., Dau, S., & Grønkjær, M. (2004). Udfordringen i sygeplejerskeuddannelsen: Udvikling af fælles vision via sociale processer [The challenge in nursing education: Developing shared vision through social processes]. *Klinisk Sygepleje*, 18(4), 48-56.
- Dewey, J. (2004). *Democracy and education*. New Delhi: Cosmo Publication.
- The Danish Evaluation Institute (EVA). (2013). *Sammenhæng mellem skole og praktik: Evaluering af skolers og virksomheders arbejde med at understøtte sammenhæng i tekniske erhvervsuddannelsers hovedforløb* [Connection between school and internship: Evaluation of schools' and companies' work to support connections in the main course of technical VET programmes]. København: Professionshøjskolernes Videndatabase.
- Greinert, W.-D. (2005). *Mass vocational education and training in Europe: Classical models of the 19th century and training in England, France, and Germany during the first half of the 20th*. Cedefop Panorama series, 118. Luxembourg: Office for Official Publications of the European Communities.
- Guile, D., & Young, M. (1998). Apprenticeship as a conceptual basis for a social theory of learning. *Journal of Vocational Education and Training*, 50(2), 173-193.
- Hamilton, S.F. (1987). Apprenticeship as a transition to adulthood in West Germany. *American Journal of Education*, 95(2), 314-345.

- Hansen, M.P. (2010). Hvorfor vekseluddannelser? Belyst historisk, politisk og læringsmæssigt [Why the dual model? Illuminated historically, politically and educationally]. In T. Størner, & J.A. Hansen (Eds.), *Erhvervspædagogik: Mål, temaer og vilkår i eud's verden* (pp. 61-71). Odense: Erhvervsskolernes Forlag.
- Juul, I. (2004). Læringsmuligheder i skole og praktik [Learning opportunities in school and internship]. *Tidsskrift for ARBEJDSLIV*, 6(1), 49-63.
- Juul, I. (2005). *På sporet af erhvervspædagogikken: Om baggrunden for erhvervsuddannelsernes aktuelle udformning og smede- og industriteknikerelevernes møde med vekseluddannelsessystemet* [On the background of the current design of VET programmes and the forging and industrial technician students' meeting with the dual system]. (PhD dissertation.) København: Danmarks Pædagogiske Universitet.
- Juul, I., & Jørgensen, C.H. (2011). Challenges for the dual system and occupational self-governance in Denmark. *Journal of Vocational Education and Training*, 63(3), 289-303.
- Jørgensen, C.H., Christensen, S.S., & Hansen H.H. (2009). *Faglighed i fremtidens tekniske erhvervsuddannelser: En analyse af faglighedens rolle i unges karriereveje* [Professionalism in the technical VET programmes of the future: An analysis of the role of professionalism in young people's career paths]. København: Industriens Uddannelser.
- Jørgensen, C.H. (2010). *Fra vekseluddannelse til udvekslingsuddannelse: Evaluering af et projekt om skole-virksomheds-samspillet i 4 erhvervsuddannelser i Region Midtjylland 2008-2010* [From the dual model to transfer-education: Evaluation of a project on the school to work interaction in 4 VET programmes in 'Region Midtjylland' 2008-2010]. Roskilde: Roskilde Universitet.
- Jørgensen, C.H. (2014). *Same, but different: Emergence of VET in three Nordic countries*. Zürich: Universität Zürich.
- Louw, A. (2015). *Mod en tættere kobling mellem skole og praktik: Erfaringer fra 21 forsøgs- og udviklingsprojekter på 18 erhvervsskoler* [Towards a better connection between school and internship. Experiences from 21 development projects at 18 VET schools]. København: Center for Ungdomsforskning, Aalborg Universitet.
- Louw, A. (2018). *Det gode uddannelsesliv i praktikken: Vidensnotat om praktikken på social- og sundhedshjælperuddannelsen, social- og sundhedsassistentuddannelsen og sygeplejerskeuddannelsen* [The good educational life in the internship: Review about the internship in the social and health care education, the social and health care assistant education and the nursing education]. København: Center for Ungdomsforskning, Aalborg Universitet.
- Koudahl, P. (2007). *Den gode erhvervsuddannelse: Uddannelsesstænkning og eleverne* [The good VET programme: Educational thinking and the students]. (PhD dissertation.) Odense: Erhvervsskolernes Forlag.

- Linten, M., Prüstel, S., & Woll, C. (2014). *Vocational education and training in European countries*. Bonn: Federal Institute for Vocational Education and Training (BIBB).
- Michelsen, S., Olsen, I.J., & Høst, H. (2014). *Origins and development of VET 1850–2008: An investigation into the Norwegian case*. Bergen: University of Bergen.
- Nielsen, K. (2004). Reform 2000 og sammenhængen mellem skole og praktik [Reform 2000 and connection between school and internship]. In N. Warring, & M. Smistrup (Eds.), *Samfundsborger – Medarbejder: Debat om de erhvervsrelaterede uddannelser* (pp. 225–236). Odense: Erhvervsskolernes Forlag.
- Nielsen, K. (2009). A collaborative perspective on learning transfer. *Journal of Workplace Learning*, 21(1), 58–70.
- Schön, D.A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.
- Senneth, R. (2009). *The craftsman*. London: Penguin Books.
- Sigurjonsson, G. (2010). Rids af de danske erhvervsuddannelsers historie [Outline of the history of the Danish VET programmes]. In T. Størner, & J.A. Hansen (Eds.), *Erhvervspædagogik: Mål, temaer og vilkår* (pp. 85–97). Odense: Erhvervsskolernes Forlag.
- Simonsen, B. (2004). Dilemmaer i samspillet mellem lærlinge og virksomheder: Og nogle bemærkninger om praksislæring [Dilemmas in the interaction between apprentices and companies; and some remarks on practice-based learning]. In N. Warring, & M. Smistrup (Eds.), *Samfundsborger – Medarbejder: Debat om de erhvervsrelaterede uddannelser* (pp. 237–250). Odense: Erhvervsskolernes Forlag.
- Sjøberg, A.H., Ewald, K., Fjelstrup, T., Morgenstjerne, M., & Schick, B. (1999). *På godt og ondt: Et portræt af elever og deres forhold til mester og erhvervsskoler* [Good and bad: A portrait of students and their relationship with their master and VET schools]. København: Håndværkerrådet.
- Søndergaard, D.M. (1996). *Tegnet på Kroppen. Køn: Koder og konstruktioner blandt unge voksne i akademien* [The sign on the body. Gender: Codes and constructions among young adults in academia]. Århus: Museum Tusulanums Forlag.
- Tanggaard, L. (2004). *Læring og identitet i krydsfeltet mellem skole og praktik: Med udgangspunkt i moderne danske erhvervsuddannelse* [Learning and identity in the intersection between school and internship: Based on modern Danish VET programmes]. (PhD dissertation.) Aalborg: Aalborg Universitetsforlag.
- Tanggaard, L. (2006). *Læring og identitet* [Learning and identity]. Aalborg: Aalborg Universitetsforlag.
- Tanggaard, L. (2008). *Boundary crossing between school and work: Resources and barriers for learning and competence*. Abstract from Nationell Konferens för yrkesutbildning och vuxenutbildning, Stockholms Universitet, Sweden.

- Tanggaard, L. (2014). Elever, kreativiteten og innovationen [Students, creativity and innovation]. In T. Størner, & K.H. Sørensen (Eds.), *Elever i erhvervsuddannelserne* (pp. 39–51). København: Munksgaard.
- Tesfaye, M. (2013). *Kloge hænder: Et forsvar for håndværk og faglighed* [Clever hands: A defence of craftsmanship and professionalism]. København: Gyldendal.
- The Ministry of Education. (2014). *Aftale om bedre og mere attraktive erhvervsuddannelser* [Agreement on better and more attractive VET programmes]. København: Undervisningsministeriet.
- Wenger, E. (1998) *Communities of practice: Learning, meaning and identity*. New York: Cambridge University Press.
- Wilbrandt, J. (2002). *Vekseluddannelse i håndværkeruddannelser: Lærlinges oplæring, faglighed og identitet* [The dual model in craftsman educations: Teaching, professionalism and identity of apprentices]. Uddannelsesstyrelsen temahæfteserie 2002(14). København: Undervisningsministeriet.