

Simulation-based training in transitions from school to workplace learning

A study of a social and healthcare programme

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Abstract

The article concerns the impact of simulation-based training (SBT) on students' transition from school-based to workplace-based training in Danish social and healthcare programmes. Denmark has a dual system of vocational education and training, and these transitions are associated with significant dropout. To facilitate the students' transition, teachers and trainers developed a five-day SBT course conducted in workplaces (care homes). An affiliated research project studied the impact of SBT on how students experienced this transition.

The data included interviews with groups of 4–6 students at each of 12 care homes at the end of the SBT. Furthermore, two surveys were conducted: one at the end of SBT and one at the end of the entire period of workplace-based training (20 weeks). These surveys sought to compare perceptions of the transition and the workplace-based training between students who had participated in SBT and students who had not (control group). The analysis was based on 89 responses to the first survey and 52 responses to the second survey.

The interviews showed that the students were enthusiastic about SBT, highlighting that it had supported their transition by increasing their self-confidence, understanding of theoretical knowledge and of the relationship between theory and practice, reflection skills, and sense of belonging. However, the survey responses found no systematic impact of SBT on the students' perceptions of these factors. Four explanations are suggested for the divergence between the findings based on interview and survey data: 1. The duration of SBT is too short to have an impact; 2. At the time for answering the surveys the students were preoccupied with performing in the workplace-based training and SBT faded into the background; 3. The SBT students are disappointed with the social community in the ordinary training compared to SBT, and 4. The survey did not directly address SBT.

Keywords: Simulation-based training, transition, workplace-based training, social and healthcare education

Introduction

In this article, I argue that introducing simulation-based training (SBT) as a third learning environment in vocational education and training (VET) can have a positive impact on students' transition from school-based to workplace-based training. I base my argument on results from follow-up research affiliated with a project to develop and test SBT in the Danish social and healthcare programmes. The project was conducted in the period 2021–2023.

In the project, the concept of 'a third learning environment' was used to describe an environment located between school-based and workplace-based training. This third learning environment combines elements from both school- and workplace-based training and aims to bridge these two learning environments and ease the transition from school to workplace. A third learning environment can be located at the VET school, in the workplace, or in a third location.

Currently, Danish VET is organised as a dual training system and does not include a third learning environment. However, the concept of a third learning environment has been used within higher dual education, in a programme for medical laboratory technicians (Olsen et al., 2015)

Thus, the project presented in this article served to develop and test SBT as a way of incorporating a third learning environment.

SBT is a form of training that involves simulation of a real-world situation and reflection on the trainee's performance in this simulation. SBT can be either technology-based, using various forms of digital simulation, or 'non-technological', for example using role-play (Rooney et al., 2015). The SBT studied in this article is an example of the latter'

SBT includes three phases: *briefing*, where students prepare for the role-play's simulation of a real-world situation, including brushing up on relevant theoretical knowledge; *scenario*, where the role-play takes place; and *debriefing*, where the students reflect on their performance in the scenario, guided by a trainer or teacher.

High dropout in the transition

The project was motivated by the relatively high dropout rate within Danish VET. Previous studies have identified and documented several reasons for dropout within VET (Billett et al., 2020; Aarkrog & Wahlgren, 2022a). The context for the specific focus on introducing a third learning environment is Danish VET's structure as a dual system. VET begins with two school-based foundational courses, basic course 1 and basic course 2, each lasting six months. Basic course 2 is followed by a main course, in which students alternate between periods of school-based and workplace-based training. Thus, the students transfer from basic course 2 to the first period of workplace-based training.

While this dual system has several benefits, it also has vulnerabilities, with significant student dropout taking place at the point of the first transition from school-based to workplace-based training. An analysis from the organisation 'Danske Erhvervsskoler og -Gymnasier' (DEG) (Danish VET Schools and Upper Secondary Schools) found that 58% of student dropout in the entire VET programmes took place during basic course 2 and in the transition to the first period of workplace-based training (DEG, 2023). In 2021, the dropout rate in the social and healthcare

programmes linked to this transition was 27%: 21% who never began workplace-based training and 6% who dropped out during workplace-based training. One reason for this has been termed 'practice shock'; i.e., the reality of working in the social and healthcare sector does not match the students' expectations and ideas. This mismatch between expectations and reality includes the tasks that students are given in the workplace as well as problems working with colleagues and becoming part of the workplace's community of practice.

In previous research into dropout, it has been conceptualised as a process (Tinto, 2006) in which students' decision-making can easily be affected by even small incidents (Aarkrog et al., 2018), vacillating between whether to stay or drop out (Lessard et al., 2008). Thus, it can be assumed that the transition from something familiar to the unknown can be critical for students who are already considering dropping out. A third learning environment can provide an opportunity to slow down, giving students time to reflect on their concerns and address them by simulating situations that cause anxiety and training relevant skills. Thus, the assumption was that SBT could serve as a tool for easing the students' transition from school-based education and training to workplace-based training.

In the project, workplaces (i.e., care homes) cooperated with the social and healthcare schools to develop and test the SBT course, which took place in the care homes and lasted for five days. The affiliated follow-up research project studied student outcomes of simulation-based training, including how it affected the transition to workplace-based training. SBT was chosen as the activity in the third learning environment as SBT combines tasks that students encounter in the workplace with theory-based reflection, which students are familiar with from school.

The relevant research-based literature includes research on students' transitions in VET and research on SBT and transitions.

Research on students' transitions in VET

Transition has been depicted as a process that involves shifting from one identity to another, conceptualised as 'becoming somebody' (Ecclestone et al., 2010, p. 7). A research project studying students' transitions from upper secondary to higher education illustrated this process by arguing that the students negotiated identity in the space between their expectations of and experiences with higher education. The students continuously constructed a narrative connecting their previous identity with a new identity developed in the higher education programme (Holmegaard et al., 2014). Another study argued that transition conceptualised as boundary crossing includes identity formation in a process where the student disengages from previous practices to participate in a new practice (Pedersen, 2007).

Studies typically highlight two kinds of transitions related to VET: transitions into VET and transitions out of VET. The former includes studies of how young people choose an educational path (Billett et al., 2022a). Meanwhile, studies of transitions out of VET are concerned with the transition from obtaining a VET qualification to higher education or work, for example arguing that a dual VET system has a positive impact on a successful transition to work, compared to a purely school-based VET system (Solga et al., 2014; Jørgensen et al., 2019). A study focusing on the concept of societal belonging in relation to transitions from VET to the labour market demonstrated how the personal dimension of belonging is constructed by young people and is

related to the way that society acknowledges the individual's right to belong (Ågren, 2021, p. 71). Ågren also stresses that belonging is a 'constantly changing process' (Ågren, 2021, p. 71).

Concerning dual VET systems, a third transition is relevant, namely the transition from school-based to workplace-based training, also called apprenticeship, especially when referring to the first period of workplace-based training. In some ways, this transition shares features with the transition from VET to the labour market as it is for many students their first encounter with the world of work. In both cases, the transition entails the students' expectations regarding the tasks they will perform, their cooperation with colleagues, and the community of practice at the workplace in question. However, there is an important difference between these two transitions in that, unlike the transition to the labour market following completion of a VET qualification, the transition to workplace-based training entails a risk of dropout.

Research exploring the transition from school-based to workplace-based training mainly focuses on factors underpinning students' perceptions of coherence between school-based and workplace-based learning (Aarkrog & Wahlgren, 2022b,) or their perceptions of the two learning environments (Epinion & DPU, 2020). This research has shown that it has a positive impact on students' motivation to continue with a VET programme when tasks are perceived as authentic, reflecting tasks they will encounter in the workplace (Larsen, 2016; Downing, 2017). A Swedish study argued that school-based training should be a simulacrum of working life but without productivity demands, thereby establishing a calm learning environment where mistakes are allowed (Berner, 2010). This approach to school-based training shares a number of features with SBT and the idea of a third learning environment.

A number of factors have been found to enhance students' perception of coherence between school-based and workplace-based training. These include cooperation between teachers and trainers (Louw & Katznelson, 2019); teachers' familiarity with workplace tasks and practices, and trainers' awareness of what the students have learned at school (EVA, 2013); teachers and trainers working together to formulate goals for the workplace-based training (Mikkonen et al., 2017); and trainers translating the theory that students have encountered during school-based training into practical applications in the workplace (Kilbrink et al., 2018).

Focusing on the transition from school-based to workplace-based training, a study concluded that a combination of professional, psychological and social factors influences the students' decisions about staying or dropping out. Thus, the students' relations to significant persons (teachers, trainers, and fellow students) and a sense of belonging are important factors in the transition (Schoop et al., 2023).

The same results have been found in studies of learning environments in VET highlighting the importance of a sense of social belonging – of making and having friends at school – for students' motivation (Niittyalahti et al., 2019). Likewise, a study of VET students' perceptions of meaningfulness in education found that performing authentic tasks and belonging to social and professional communities were the most important factors in determining whether the students' experienced VET as meaningful (Aarkrog & Kamstrup, 2023).

Other key factors identified within the research include the importance of systematic discussion of students' expectations for the workplace-based training, setting concrete learning goals for the training, establishing a common terminology across school and workplace, and encouraging students to reflect on their learning, using tools such as logbooks or portfolios

(Louw, 2015, 2017). This last point is supported by a Dutch study, which found that training students to reflect on the relationship between school-based and workplace-based training enhanced student learning (Baartmann et al., 2018). A study of VET students' thoughts, expectations, and worries about the upcoming workplace-based training showed that the students are concerned about how to interact with the colleagues in the workplace (Kamstrup & Aarkrog, 2024). Finally, it has been argued that establishing hybrid learning environments that combine action and reflection can support learning (Schaap et al., 2012). In this article, SBT can be understood as an example of such a hybrid learning environment.

Summing up, the factors that previous studies have shown are important for students' perceptions of coherence between school-based and workplace-based training and a supportive learning environment include the performance of authentic tasks, engagement in social relations, the space to make mistakes, reflection on the coherence between school- and workplace-based training, and cooperation between teachers and trainers. 1

SBT and transitions

Previous research has examined the use of SBT in VET (Nyström & Ahn, 2024), including its use in social and healthcare programmes (Aarkrog & Puge, 2019). European Centre for the Development of Vocational Training, CEDEFOP has advocated using SBT as a tool for easing the transition from school to employment, develop performance acquired by the workplaces, and motivate student learning (CEDEFOP, 2023). However, while research has explored the use of simulation-based training as a means of easing the transition from school-based to workplace-based training within the health sector, these studies have typically focused on doctors and nurses rather than VET students, including social- and healthcare students. In the following, some key findings of this research are outlined that may be relevant in supporting transitions within VET.

Based on four case studies, one article focused on simulation as a tool for facilitating social integration, collaboration, and group cohesion among doctors, pharmacists, and medical students. The article concluded that simulations and in particular debriefings establishing psychological safety are well-suited for exploring and supporting social integration (Smith & Tallentire, 2023).

A study of efforts to build nursing students' professional self-confidence through SBT found that SBT had a positive short-term impact on the students' professional self-confidence. Meanwhile, over time, other kinds of training – most notably, intensive clinical training – crowded out the impact of SBT (Fuglsang et al., 2022). Another study on high fidelity simulation-based training of new nurses found positive effects of this training on the nurses' self-confidence, both immediately after the training and five months later. However, this increased self-confidence had no impact on the nurses' ability to respond to patients with clinical deterioration (Lambert et al., 2023). Likewise, a study exposed nursing students to SBT at three times. The study showed that SBT had a positive impact on nursing students' perceived competence, self-efficacy, and learning satisfaction, however particularly after the first simulation. Consequently, the authors recommend instructors to apply multiple strategies for instruction besides simulation to enhance the students' learning outcome (Hung et al., 2021).

Summing up, studies of simulation-based training as a means of supporting the transition from training to work show that SBT is a useful tool for supporting social integration and

strengthening professional self-confidence. However, there is uncertainty concerning the long-lasting effects. Furthermore, research on the impact of SBT on transition does not concern VET. Thus, knowledge is needed about the impact of SBT on transitions in VET-programmes.

Based on the results from previous research, this article addresses the following question: What are the students' perceptions of the impact of SBT in facilitating their transition from school-based training to workplace-based training? To operationalise this question, the article studies how SBT affects students' confidence in their ability to successfully perform various tasks in care homes, i.e. their self-efficacy (Bandura, 1977), their ability for reflection being perceived as a central tool in understanding differences between learning in school and learning in the workplace (Riis, 2023), their understanding of the interrelation between theory and practice, which has been shown to be important for students in transition (Kamstrup & Aarkrog, 2024), their relationship and social belonging (Schoop et al., 2023; Kamstrup & Aarkrog, 2024), their perception of the transition, and their motivation for completing the educational programme.

Method

The article is based on results from an empirical study of SBT employed in the transition from school- to workplace-based training as part of a Danish social and healthcare programme. Each SBT module included 12 simulations that were conducted over one working week (i.e., five days). These simulations took place in 12 care homes during the second week of the 20-week period of workplace-based training. At each of these 12 care homes, 4–6 students, 1–2 trainers, and 1 teacher from the school, at which the students had completed school-based training, participated in the SBT. The simulations included briefing (20–60 minutes), scenario (5–7 minutes), and debriefing (20–30 minutes). During the phase of briefing, the students would prepare themselves for the scenario, including studying relevant theory and practical matters, e.g. deciding who should play the roles. In the scenario, the students, teacher, and trainer would play situations from real life, e.g. a situation in the lunchroom at the care home. One student would play the role as social and healthcare assistant, the teacher and the trainer would play roles as the old people. The students took turns to play roles or observe the scenario. Some of the scenarios included training skills on a mannequin, e.g., accomplishing personal hygiene. The trainer would conduct the debriefing, supplemented by the teacher. In this phase the trainers and teacher would guide the students to reflect on the performance in the scenario.

While Danish social and healthcare schools have some experience with SBT (Aarkrog & Puge, 2019), the workplaces included in the project had little or no such experience. Consequently, the schools took the lead in developing the simulations. The development of the SBT included creating 12 storyboards depicting 12 scenarios rooted in four learning outcome objectives for the first period of workplace-based training. An example of one of these objectives is that: 'The student is able to perform and reflect on clinical nursing procedures, including independently applying the nursing process to collect data, identify, analyse, plan, perform, and evaluate nursing care, meeting the basic needs of citizens/patients'.² Each storyboard included a depiction of the learning outcome objectives, a procedure for how the students should prepare themselves for the scenario, a description of the scenario, tools and materials that can be used in the scenario, and questions to be discussed in the subsequent debriefing session. Furthermore, the

trainers providing workplace-based training took part in a course, equipping them with the necessary competencies to conduct SBT with students.

The follow-up research had two purposes: first, to obtain knowledge about the students', teachers', and trainers' experiences with SBT; second, to study the impact of SBT on the students' transitions from school- to workplace-based training. This article focuses on the students' experiences and perceptions, exploring the research question outlined above: What are the students' perceptions of the impact of SBT in facilitating their transition from school-based training to workplace-based training?

Two types of student data were collected. The first sought to find out what the students thought about the influence of SBT on their transition. This data included observations of SBT in the 12 care homes followed by focus group interviews. The study did not focus on the individual students, rather on what the group discussed and mutually constructed (Halkier, 2010; Morgan, 2010).

The interviews were semi-structured focusing on the themes inferred from the operationalisation above. The interviews each lasted 45–60 minutes and were recorded and summarised, with central passages transcribed in full. Interviewees were assured anonymity and informed in advance about the purpose of the interviews and their right to withdraw from the study, at any point, both during and after the data collection. None of the informants chose to exercise this right.

The interviews were coded according to the operationalisation aiming at illustrating the students' perceptions of the significance of SBT for 1. confidence in their ability to perform tasks (self-efficacy), 2. ability to reflect, 3. understanding of the interrelation of theory and practice, 4. relationship with trainer, teacher, and fellow students, 5. the transition from school-based to workplace-based training, and 6. their motivation for completing the programme. The analysis focused on similarities and differences between the students' statements and perceptions.

The second type of data sought to compare students who had participated in SBT with peers who had participated in traditional workplace-based training (control group). For this purpose, a quasi-experimental design was employed. Two surveys were conducted, one taking place at the end of the SBT (i.e., at the end of the second week) and the other at the end of the 20-week period of workplace-based training, meaning that there were approximately 18 weeks between the two surveys. The questions in the first and second surveys were identical. In both surveys, the SBT students and the students in the control group were asked to indicate the degree to which they agreed with the same 18 statements on a scale from one to five: 'totally agree', 'partly agree', 'neither agree nor disagree', 'totally disagree', and 'do not know'. Based on the operationalisation of the research question, these statements concerned topics including the students' perception of self-efficacy, e.g., "I believe that I can manage the tasks that I have been given", ability for reflection, e.g., "I am good at reflecting", understanding of the interrelation between school-based and workplace-based training, and ability to apply theory-based reflection to real-world situations e.g., "I can use what I have learnt at school during workplace-based training", their relationship and social belonging, e.g., "I have a good relationship with my trainer", their transition from school- to workplace-based training, e.g., "The transition from school to workplace-based training has gone well", and motivation to continue with the programme, e.g., "I am motivated to complete the programme". In order to address both the SBT and control

groups, none of the statements referred to the concept of SBT or simulation. The 18 statements are listed appendix 1.

During analysis of the survey data, the focus was on comparing the responses from the two groups of students (SBT and control) for each of the questions to identify any systematic differences.

Informants

In the social and healthcare programmes, workplace-based training is organised by the local authorities, with each of the 12 care homes in the study under the jurisdiction of a different local authority. Each of the 12 local authorities was asked to select 4–6 students for the SBT group and 4–6 students for the control group. The students in the two groups should be as similar as possible, with the most important criterion being that they had not worked with social and healthcare before enrolling in the programme. The reason for this criterium was that students with this experience do not need to participate in simulation-based training that focuses on introducing to basic skills and daily situations and routines in the care homes. A further aim was to have a similar age and gender distribution in the two groups.

During the last 5-10 years, simulation-based training has been developed in the school-based parts of the Danish social and healthcare programmes. Thus, the majority of the students had participated in SBT at school, however generally only to a lesser extent. However, the students' experiences with SBT were not perceived as relevant for the focus in the study and were consequently not included in the analysis.

In total, 61 students were invited to participate in the SBT group and 58 students in the control group. Both groups of students should participate in the two surveys. The 61 students in the SBT group should also participate in the group interviews mentioned above. Due to illness or dropout, 54 students participated in the group interviews.

Results

The presentation of the results is divided into two sections. The first section presents findings from the interviews with students concerning their perceptions of SBT, while the second section presents findings from comparison between the SBT group (test group) and the control group regarding their perceptions of themes mentioned above relating to the transition from school-based to workplace-based training.

The students' perceptions of SBT

In the analysis of the interviews, it turned out that generally the students had the same perceptions of the interview themes, not only in the individual group interviews, but also across the 12 care homes.

All students who had participated in SBT talked about it in positive and enthusiastic terms. Some stated that they had initially been a little sceptical and nervous at the prospect of SBT, in particular the role-play during the scenario phase. However, the students recollected that after the first day they were convinced of the benefits of the training.

SBT eases the transition from school to work

The student interviews indicated that the students' enthusiasm about SBT should be seen in light of their worries about the transition from school to work. One student expressed her initial anxieties as follows:

I had imagined that I would prefer school because I like lessons and things like that – and what about the practical training? Would I be able to manage that? What if I was thrown into something I did not know anything about? And whether I would fail? However, now, being here (ed.: in the SBT), I like it a lot, just as much as school. (Student 1)

This excerpt shows that the student was reassured because SBT includes elements from school-based training. She enjoyed SBT because it did not plunge her into something entirely unfamiliar that she would have had to cope with on her own.

SBT eases worries about practical tasks

According to the students, one of the benefits of SBT is that it offers the opportunity to solve practical tasks and relate them to theory. This opportunity is seen as a significant difference between SBT and school-based training. As such, unlike the student above, another student emphasised work-related elements in SBT:

At first, we thought that we were just supposed to sit around being bombarded with loads of theory, a lot of slides and talking. However, we discovered that this [SBT] was something quite different: a lot of practical tasks to solve related to a lot of theory. (Student 2)

According to the students, another benefit of SBT was that it allowed them to practise tasks that they had been worried about. One such task involved the intimate personal hygiene of the old people at the care home. The students were relieved to find that training this task using a mannequin was a central part of the SBT. One student stated: *'It is a bit intimidating, the personal hygiene, in particular intimate hygiene; we have been nervous about that.'* (Student 3)

Another student said: *'When training intimate personal hygiene, the best way is certainly to use a mannequin.'* (Student 4) This was supported by a third student:

I discovered that it was not as terrible as I had imagined dealing with the intimate personal hygiene of old men and women. I had really thought that I would have a problem with that, and I just haven't. (Student 5)

The students had worried about tasks involving personal hygiene. However, training the task using a mannequin gave them self-confidence and eased their concerns.

SBT strengthens the links between theory and practice, making theory relatable

A third benefit emphasised by the students is that SBT strengthens the links between theory and practice by combining practical tasks with theory-based reflection during debriefings. According

to the students, SBT gave them a far better understanding of the theory than school-based education.

We have been taught the nursing process at school on numerous occasions; I did not understand anything! Then, yesterday we talked about it again and (she clicks her fingers) I understood it right away. (Student 6)

The SBT established close links between school-like activities such as studying and the scenario in the simulation – links that were strengthened by the participation of both trainers and teachers: *'I had read all about catheters and included them in the scenario. And afterwards, the teacher and the trainer showed us all about ostomies.'* (Student 7)

Not only did the students better understand theory; they also realised that theory can be useful:

I was struggling to persuade one resident to take a bath. I tried so hard to get her into the bath and I thought: what can I do? However, one of the trainers told us that we can use the concepts of extrinsic and intrinsic motivation, arguing that it is okay if a resident does not have a bath at the designated time; it is more important that we establish a good relationship with that resident. (Student 8)

However, the students were also aware that it is difficult to maintain a focus on theory and its interrelation with practice in everyday work at a care home:

(...) you do not do that (ed.: link theory to practice) in daily life; you do not talk about theory. Among the residents, I wouldn't say: 'so, this is the analytical phase in the nursing process', would I? (Student 9)

The quotation shows the student's awareness of the difference between SBT, which serves as a practice track between school and workplace, and daily life in the workplace.

SBT trains reflection and learning from mistakes

According to the students, one important benefit of SBT is that there is time to reflect and that such reflection is closely tied to the performance of practical tasks.

At school we receive a lot of information and in the workplace-based training you experience a lot. However, simulation gives time for reflection. Reflection is a thorough way of processing practice. (Student 10)

One goal of this emphasis on reflection is to convince the students that it is okay to make mistakes – indeed, such mistakes can be an important source of learning. The primary reason for students' nervousness about participating in SBT was a fear of making mistakes. According to the students, one of the lessons from SBT is that you learn from your mistakes. One student explained the freedom that SBT offered:

That you can do no wrong; that there is not only one way of doing things; that you can explain why you did what you did based on reflection; that you are not afraid of making mistakes. At school, I can get exam nerves, but not here. (Student 11)

Because reflection is a central activity in SBT, the students felt that they developed their reflection skills. However, they were sometimes unsure whether they would be able to reflect in the same way in their future job, as seen in the excerpt below where the student expresses this doubt by repeatedly stating 'I think':

I also think that simulation has resulted in (...) that I will reflect more on my way of performing (ed.: nursing tasks). If I leave a resident with the feeling that things did not go very well, then I will – I think – reflect a little on what I could have done better and what I should have done differently. I think something has been set in motion, like in a good way, of mulling things over a bit. (Student 12)

SBT strengthens students' relationships with trainers and their fellow students

The interviews with the students showed that they felt that they had a relatively close relationship with their trainer and with the other students participating in the SBT.

The explanation for the satisfying relationship with the trainers is that SBT was conducted as an intensive one-week programme during which students and trainers spent all their time together, which provided more time for supervision than during normal workplace-based training. The five days of SBT can be perceived as a kind of refuge within the busy workplace:

... during the SBT, I have really felt that she had more time to train us and that she had the energy to do so. She did not have a lot of other things she needed to take care of at the same time: a new resident arriving, an emergency call etc., so there was much more focus on me learning something. (Student 13)

The students also enjoyed being with other students, seeing it as a continuation of the school community, but in a different form. One student stressed the importance of gaining practical experience in an environment with other students, unlike traditional training where each student is often the only novice at the workplace:

We are classmates, but in another way. You know, I am not sure that we would have talked so much if we had not participated in this practical training together. I think it is really cool that we can also be together in this way. (Student 14).

Summing up, the students' responses when asked about their experiences with SBT showed that it eased their concerns about the transition from school to workplace because the training shared features with both school-based and workplace-based learning. They gained self-confidence from training tasks that they were worried about and from the realisation that they could apply the theoretical knowledge they had learnt at school to practical tasks in the workplace. They learnt to reflect on their experiences and the important role of such reflection.

Finally, they reported that the SBT strengthened their relationships with trainers and fellow students. The results also showed that the students were aware that SBT differs from everyday work and workplace-based training.

Comparison between the SBT and control groups

As described in the 'method' section, 61 students in the SBT group and 58 students in the control group were asked to participate in two surveys. Of these 119 students, 89 students participated in survey 1 (57 in the SBT group and 32 in the control group) and 52 in survey 2 (35 in the SBT group and 17 in the control group). Among the possible reasons for a reduced number of students in survey 1 and particularly in survey 2 is students having dropped out of the programme, students who were not present on the day they were asked to complete the survey, and students who did not want to participate in the survey.

As is apparent, more students completed each survey from the SBT group than the control group. The 12 local authorities registered dropout from the programme, showing that 28% of the students in the control group had dropped out at the time of the second survey, while the dropout rate in the SBT group was 13%. Thus, SBT seems to have had a positive impact on the students' retention in the programme.

The students in the SBT and control groups were similar in terms of their level of practical experience (the majority of students in both groups had no prior experience) and gender (SBT group: 89% women for survey 1 and 94% women for survey 2; control group: 88% women for survey 1 and 100% women for survey 2). Students enrolled in the Danish social and healthcare programmes have a relatively high average age, with many adult students. This is reflected in the mean age of the respondents: in the SBT group, 34.0 years (survey 1) and 31.5 years (survey 2); and in the control group 30.2 years (survey 1) and 31.0 years (survey 2).

The analysis focuses on comparing the responses of the students in the SBT and the control groups to the same 18 statements in the two surveys. (Appendix 1)

Analysis of the students' responses in both survey 1 and survey 2 does not find any systematic differences between the students in the SBT group and the students in the control group across the two surveys

However, the findings indicate one difference between the two groups concerning the statements about the links between school-based and workplace-based learning (statement 13) and about knowledge transfer (statements 14 and 16). Table 1 shows the percentage of students who have answered 'totally agree' to the three statements. As shown in the table, the analysis showed a difference of at least 10 percentage points in the share of students responding 'totally agree' to these statements in survey 1, favouring students from the SBT group. However, as the table shows, this pattern was reversed in survey 2, where a higher percentage of the students in the control group responded 'totally agree' for these three statements. Thus, no systematic differences are found in the students' responses to the three statements across the two surveys.

Table 1: Students in SBT and control groups who responded 'totally agree' to three statements, survey 1 N=89 and survey 2 N=52.

	Survey 1		Survey 2	
	SBT	Control	SBT	Control
13. There are clear links between what I learn at work and what I have learnt at school	33%	21%	21%	43%
14. I can use what I have learnt at school during workplace-based training	58%	45%	33%	57%
16. I can use the theory I was taught during the school-based training to solve tasks in the workplace	46%	36%	42%	64%

A possible explanation is that, in the first survey, students in the SBT group might have been influenced by their experiences in the SBT, with its focus on the interrelation between school-based and workplace-based training and on knowledge transfer. Similarly, one interpretation of the figures in survey 2 is that the students in the SBT group did not experience the same intense focus on these issues during workplace-based training as they had done during the SBT. However, it is important to stress that these preliminary findings require further testing for statistical significance in a larger population.

Discussion

The results presented above point in two directions.

On the one hand, the students in the SBT group had high praise for the SBT, confirming previous findings regarding what is important for students' transition from school-based to workplace-based training. This includes enhancing the students' self-confidence, as also shown in previous studies of SBT (Fuglsang et al., 2022; Lambert et al., 2023), and offering the opportunity to perform authentic tasks, which allows students to learn from their mistakes (Berner, 2010). Furthermore, the findings show that the students saw SBT as providing stronger links between theory and practice, with the participation of both teachers and trainers promoting a combination of theoretical knowledge and hands-on experience. This supports previous research that has highlighted the importance of teachers and trainers working together (Luw & Katznelson, 2019) and the results from a study of hybrid learning environments (Schaap et al, 2012). Finally, the students enjoyed the close relationships with their trainers, teachers and fellow students within SBT, in line with previous studies that have highlighted the importance of social belonging (Niittylahti et al, 2019; Smith & Tallentire, 2023).

On the other hand, no systematic differences were found between responses from the students in the SBT group and the students in the control group. The students' responses to three statements about the interrelation of theory and practice and knowledge transfer from school to workplace indicated possible differences in favour of SBT, but only in the first survey. Thus, the idea of SBT as a third learning environment does not seem to have an impact on the factors influencing retention in VET, such as a smooth transition, understanding the links between school-based and workplace-based training and belonging to a social community.

What might explain this apparent lack of congruence, with students in the SBT group enthusiastically endorsing SBT while at the same time giving more or less the same responses

to the 18 statements as the students in the control group, even in the first survey, which took place immediately after the SBT? While it is difficult to provide a conclusive answer, I propose four tentative explanations.

The first explanation is that the SBT was just a small part of the social and healthcare programme, of insufficient length to have a significant impact on the students' perceptions of the programme. This is supported by previous research showing that, over time, students' experiences in SBT are overshadowed by other kinds of learning (Fuglsang et al., 2022) or should be supplemented by other forms of training to prompt an effect (Hung et al., 2021). The SBT lasted for five days in a VET programme that comprises three years and ten months combining school-based and workplace-based training. This might explain the differences in responses to the first survey concerning three statements about the interrelation of theory and practice and about knowledge transfer, which were central aspects of the SBT.

The second explanation is that the students were preoccupied with the issues they faced at the time of the surveys, such as how they would cope with various tasks and how they would be seen and treated by colleagues during workplace-based training. A process-oriented approach to students' learning and motivation might be useful in highlighting the students' gradual development of a new identity (Ecclestone et al., 2010) during the transition from SBT to everyday tasks and training in the workplace. To this end, research shows that students construct a narrative connecting their previous identity to a future identity (Holmegaard et al., 2014). If this is the case, one would expect the students' responses to be influenced by their experiences from the SBT, which might be the case, at least for the three statements mentioned above. However, research also shows that such transitions involve disassociating oneself from earlier practices, in this case from the SBT (Pedersen, 2007). As such, SBT may have a positive short-term impact on students' wellbeing, but any such impact is quickly overshadowed by new challenges.

A third explanation is that the important advantage of the SBT is that it meets the students' need for establishing relationships and belonging in a community. Previous research has shown that relationships and a sense of belonging are important factors in the transition (Schoop et al., 2023; Kamstrup & Aarkrog, 2024). Thus, the SBT students, having experienced intense relations in SBT may be disappointed with the social community in the ordinary training.

These first three explanations concern the design and role of a third learning environment, raising the question: How much exposure to SBT as a third learning environment is necessary, and of what quality, for SBT to have an impact on how students perceive the transition to workplace-based training?

The fourth possible explanation that I will present focuses on methodological issues and concerns the survey's focus. To address students in both the simulation and control groups, the statements in the survey were not directly concerned with SBT, and the concept of simulation was not mentioned at all. Thus, the students were not explicitly asked to focus on the SBT. Future research might seek to develop a method for collecting data that enables comparison while also more directly examining students' experiences with SBT.

One final result needs to be addressed: SBT seems to have had a positive impact on the dropout rate (28% dropout in the control group compared to 13% in the SBT group). While the small sample means that this cannot be definitively attributed to participation in SBT, the difference in dropout rates may also indicate that the statements in the survey did not sufficiently capture the impact of the SBT. The differences in dropout might also be a result of the greater

attention that the SBT students received through their participation in the research project. This attention may have heightened their sense of obligation to complete the programme, as well as perhaps explaining the higher participation rate in both surveys among students in the SBT group.

Conclusion

Based on a study of SBT used as a third learning environment in the transition from school-based education and training to workplace-based training, my aim has been to argue that SBT as a third learning environment in VET can have a positive impact on students' transition from school-based to workplace-based training. The argumentation is based on a study that explored the following research question: What are the students' perceptions of the impact of SBT in facilitating their transition from school-based training to workplace-based training?

Interviews directly addressing students' experiences with SBT showed that they perceived SBT as supporting this transition through a focus on increasing students' self-confidence and ability to apply the theoretical knowledge they had learnt in school to solve practical tasks, as well as improving their reflection skills and strengthening their relationships with trainers and fellow students.

However, the results of two surveys administered to students who had participated in SBT and to a control group of students who had not participated in SBT did not find any systematic differences in responses between the two groups. This poses the question of how much SBT is needed, and of what quality, for SBT (or other forms of a third learning environment) to have an impact.

Despite such questions pertaining to the design of SBT, as well as more general questions about the function and possible applications of third learning environments within VET, the positive attitudes that participating students expressed towards SBT in interviews demonstrate the potential of SBT to support and facilitate learning. Furthermore, by bridging the gap between school-based and workplace-based training – which is a point of vulnerability in dual VET systems such as in Denmark – SBT can potentially help reduce dropout. There is therefore a need for further research addressing these questions and exploring the potential of SBT as a third learning environment.

Authors' biography

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Endnotes

- 1 The concept of supervisor is also used in VET. In the article, trainer is used to refer to the person who trains and supervises the students during workplace-based training, while teacher refers to the person providing school-based training.
- 2 Oplæringsmål for SOSU-uddannelserne | Uddannelse København (Targets for training in Social and health care programmes). Copenhagen.

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Appendix 1

18 statements in two surveys to the students

1. I know what the workplace expects of me as a student
2. I have a good relationship with my trainer
3. I have a good relationship with my colleagues
4. I ask questions related to the profession
5. I actively participate in the training
6. I like to solve new tasks
7. I concentrate on solving the current task
8. I believe that I can manage the tasks that I have been given
9. I am motivated to complete the programme
10. I am motivated to complete the tasks I am given
11. I have the necessary personal skills to complete workplace-based training
12. The transition from school-based to workplace-based training has gone well
13. There are clear links between what I learn at work and what I have learnt at school
14. I can use what I have learnt at school during workplace-based training
15. My trainer has focused on the transition from school-based to workplace-based training
16. I can use the theory I was taught during the school-based training to solve tasks in the workplace
17. I have coped with the demands and expectations that I have encountered during workplace-based training
18. I am good at reflecting