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Students' experiences of workplace learning in Finnish VET

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Abstract

The Finnish vocational education and training system underwent remarkable transformations at the turn of the century. One of the biggest changes was the introducing of compulsory and guided on-the-job learning periods in all study programmes. In this article, students' experiences of on-the-job learning and in particular of integration of school-based and work-based learning and the guidance of students are examined. Data were gathered by an Internet questionnaire of final-year students at vocational institutes in the City of Helsinki (N=1282). The questionnaire was answered by 41% of the students. In general, students were satisfied with the connecting school-based and work-based learning and guidance in the vocational institutes and at workplaces. However, there were clear differences between fields of study. On-the-job learning seemed to function best in social and health care.

Introduction

In Finland[1], vocational education and training (VET) has until recently been strongly school-based, with only short, often unguided, practice periods. Compared to the European field of VET, the Finnish VET system is largely similar to the French system, which has been described as 'a bureaucratic, State-regulated model' (Greinert, 2004, p. 21). As in France, VET largely takes place at schools and the State has a significant role in organising and financing VET. However, in 2001 the Finnish VET system was reformed: curricula were revised; vocational study programmes were extended to three years in all fields and compulsory, systematically organised, guided and evaluated on-the-job learning periods (lasting at least six months) were introduced in all study programmes. In

[1] The Finnish educational system has three levels: (a) basic education, (b) upper secondary education and training (which is divided into (i) general education and (ii) vocational education and training), and (c) higher education (which consists of two complementary sectors: polytechnics and universities). The nine-year basic education is compulsory for every Finnish citizen. After comprehensive school (basic education), the whole age class (92 %) continue their studies in upper secondary education and training (two thirds in general education and one third in vocational education and training). Both forms generally provide eligibility for further studies at universities and polytechnics (Education and science in Finland, 2006).

addition, the present legislation of Finnish VET requires that the vocational institutes cooperate with workplaces. It is hoped that this way VET can respond better and quicker to the needs of working life.

According to the new VET curricula, some of the degree requirements have to be fulfilled at the workplace. These requirements are negotiated with the student, the teacher and workplace trainer before every on-the-job learning period. In the early stage of the studies, on-the-job learning periods are often short, while towards the end of the studies, when students have more skills and knowledge, on-the-job learning can be extended and become more specific. In other words, there are certain requirements for what students have to learn at the workplace during each on-the-job learning period. This is one of the areas where the new system differs from former workplace practices.

Another difference is systematic guidance of students at the workplace. Now there is someone at the workplace, a workplace trainer, who, besides their own work duties, supports students at the workplace, gives feedback to the students and - ideally - supervises students to reach their goals during the on-the-job learning period[2]. Teachers also coach students before and during on-the-job learning periods. According to the new VET curricula, teachers are responsible for preparing students for the on-the-job learning periods in the vocational institutes. Student's success in on-the-job learning is assessed in a three-way partnership of the student, the teacher and the workplace trainers.

Based on an evaluative study, we will examine in this article what kind of experiences students have with respect to guidance in on-the-job learning and how they assess the integration between school-based and work-based leaning.

Learning from work experience and support for learning

When different forms of on-the-job learning are developed for the VET system, there is a risk that theory and practice will slide away from each other. However, recent theories of vocational expertise have stressed that integrating theoretical and practical knowledge is core to developing high-level competences (Bereiter and Scardamalia, 1993; Leinhardt et al., 1995; Collin and Tynjälä, 2003; Tynjälä et al., 2003; Eraut, 2004; Tynjälä et al., 2006; Le Maistre and Paré, 2006). Further, it

[2] Workplace trainers' education and training started simultaneously with on-the-job learning system, and it is organised by VET provides as two-week courses. So far trainers' training has been mostly carried out as separate projects funded by the European Social Fund. Educating workplace trainers focused on supervising students, realisation of on-the-job learning, cooperation between vocational institutes and working life, and assessing students at the workplaces. Although tens of thousands of workplace trainers have taken the two-week training course, about half those who act as workplace trainers have not yet participated in trainers' training.

is emphasised that what Bereiter and Scardamalia (1993) called self-regulative knowledge refers to reflective and metacognitive skills. In other words, it involves the knowledge and control people have over their own activities such as working habits, and ways of thinking and learning. As acquiring expertise requires all types of knowledge - theoretical, practical and self-regulative - to be integrated into a whole (Le Maistre and Paré, 2006; Tynjälä et al., 2006), it is therefore important to develop such forms of learning where theory, practice, and self-regulation skills are combined. This kind of pedagogical approach has been called integrative pedagogy (Tynjälä, 2005; Wikström-Grotell and Noronen, 2005). Each student has a supervising teacher from school and a mentor from the workplace and these three partners meet one another and discuss regularly during workplace learning. Assessing workplace learning is similarly based on the tripartite principle. Easing student learning through guidance, dialogue and mentoring is an important element in integrative pedagogy as well (Tynjälä, 2005). In the following sections, we will describe first how theory and practice have been combined in European VET systems and then we will discuss the role of students' guidance in work-related learning.

Models of work experience

Guile and Griffiths (2001) analysed the forms of organising VET in Europe and especially, how students' work experience has been used in VET systems. They have identified five models of work experience, which are briefly described below:

- *The traditional model:* students are just launched into the workplace, and they have to adjust to the requirements of the workplace. In this model it is assumed that learning takes place automatically, so there is no need for any special guidance or help. Instead, workplace experience is managed through traditional supervision. There is only minimal cooperation between vocational institutes and the workplace, and there is a sharp division between theory and practice.
- *The experiential model:* in this model, and according to the experiential learning theories (Kolb, 1984), reflection of the work experience has an important role in the learning process. The social development of the students is also emphasised. Therefore, it is necessary to develop pedagogical practices that support reflection and conceptualisation. Consequently, cooperation between vocational institutes and the workplace is essential.

- *The generic model:* work experience is seen as an opportunity for developing generic skills needed in working life. Students collect material for their personal portfolios to show their development in acquiring key skills. They also take part in assessing their skills. The teachers' role is to ease this process. The relationship between theory and practice remains unclear.
- *The work process model:* students should develop a holistic understanding of the work process. The intention is that students learn skills that can help them work in different work environments. The model requires integration of theory and practice, and hence collaboration between vocational institutes and the workplace is important.
- *The connective model* is presented as an ideal way to organise workplace learning for students. The core if this model is the 'reflexive' connection between formal and informal learning, and between conceptual development and developing capacity to work in different contexts. The idea is to resituate learning in a way that requires integration of conceptual learning and work experience. The aim is to develop polycontextual skills which help students towards 'boundary crossing', that is, the ability to work in changing and new contexts. The requires close cooperation between vocational schools and workplace, and therefore the central role of the education and training provider is to develop partnerships with workplaces to create environments for learning. One difference between the work process model and the connective model is that in the former it is assumed that work experience itself promotes work process knowledge, whereas the connective model emphasises that it needs to be mediated. This can be done, for example, by introducing concepts and subject knowledge which can take place at the workplace.

According to Guile and Griffiths, all these models, except for the ideal connective model, can be recognised in European VET systems in one way or another. For example, the generic model is represented in the British national vocational qualifications system. The German dual system of VET (in which education takes place both in vocational institutes and at workplaces) aims at the work process model, although the principles of the model may not be implemented in practice. The ideal connective model of organising workplace learning for students emphasises connecting formal education and workplace practice. This means that workplace learning is a central part of the curriculum and it is connected with vocational and core subjects, such as languages and mathematics. It can be done by arranging students' learning tasks so they need to integrate theoretical, conceptual knowledge with practice. The connective model also emphasises the connection between people; collaborative work is favoured. Implementing the model requires that schools and workplaces together create learning environments where all parties can learn.

For the holistic development of vocational competence, work experience itself is not enough. Student learning at work without a theoretical basis and guidance from experts remains often unsystematic and incidental. It is also worth noting that learning may also lead to unintended and undesirable learning results, such as bad practices (see e.g. Tynjälä and Virtanen, 2005). Therefore, in Finland much attention is paid to developing student guidance in on-the-job learning. According to the new VET curricula, students should be coached for the workplace at vocational institutes, and the workplace trainers should pay special attention to supervising, guidance, assessing, and giving feedback to students at workplaces (On-the-job learning…, 2006).

In the present study, we use guidance as a general term to describe the support that teachers and members of the work community give to students during on-the-job learning periods. Guidance is essential for the developing vocational expertise: through guidance theory, practice and self-regulation skills can be integrated (Tynjälä, 2005; Tynjälä, Välimaa, and Sarja, 2003; Räkköläinen, 2001). As described in the connective model, this integration requires close cooperation between vocational teachers and workplace trainers. Integration can be promoted by different tools of guidance, such as various assignments, projects, learning diaries, portfolios, and discussions (Tynjälä, 2005; Uusitalo, 2001; Mäntylä, 2001).

Guidance can be seen not only as a process taking place between individuals but also as an organisational phenomenon. In fact, in the connective model, Guile and Griffiths (2001) paid attention to learning at the level of organisation. More specifically, they saw the workplace as an environment in which students can learn and develop in interaction with experienced employees. In the same way, Fuller and Unwin (2004) have emphasised the significance of the work community as a source of learning opportunities. They have presented a continuum of expansive-restrictive work communities, which describes how the work community fosters its members learning (including students). An expansive work community offers opportunities to take part in many different communities of practice, whereas a restrictive work community limits the opportunities for participation. An example of an expansive work community is a workplace where students can familiarise themselves with different tasks, different phases of the work process, and the persons working in different tasks. In this type of community students also have an opportunity to take part in the developing work and the work community.

Aim and method of the study

The purpose of the study was to examine the newly reformed on-the-job learning system of Finnish VET from students' point of view. More specifically, research focused on the following topics: a) integrating school-based and work-based learning (the connective model of work experience), and b) students' guidance and easing learning at the workplace.

The subjects of the study were all final-year students at three vocational institutes in the City of Helsinki (N=1282). The vocational colleges represented technical education, social and health care and service sectors (catering, fashion and beauty). Data were collected with an Internet questionnaire. The questionnaire consisted of questions pertaining both to the process of students' on-the-job learning (how learning took place, with whom, and how guidance and mentoring was organised) and the products of learning (conceptual, practical and self-regulative knowledge). This article focuses on the process variables. The reliability and validity of the questionnaire was assured by careful testing. The questionnaire was also used in other studies (Tynjälä and Virtanen, 2005; Virtanen and Tynjälä, 2006) in which variables and scales proved to function similarly to the present study. In total, 531 students (41%) answered the questionnaire.

Results

Connectivity – Integrating school-based and work-based learning

We described earlier the integrative pedagogy, in which theory, practice, and developing self-regulation skills are connected with one another. The connective model of work experience by Guile and Griffiths (2001) is ideal for integrating these elements of vocational expertise. In our study, implementation of connective pedagogy was examined in 13 statements about the connections of school-based and work-based learning. The statements related to integration between school-based and work-based learning were subjected to the factor analysis. Table 1 presents the aggregate scales formed based on results of the factor analysis.

INSERT TABLE 1 HERE

The aggregate scale of *connectivity* consisted of statements such as "*During on-the-job learning periods I was required to apply theoretical knowledge learned at school*", "*On-the-job learning and school-based learning are very well integrated with each other*" and "*Classroom instruction covered topics that were very useful during the on-the-job learning periods*". The aggregate scale of *unconnectivity* describes the opposite situation with statements such as "*The people at school do not seem to be very clear about what goes on in work-based learning*" and "*There was little relation*

between classroom instruction and on-the-job learning". The third aggregate scale, *diverse task and boundary crossing*, was formed by variables measuring students' possibility to engage in diverse tasks in their on-the-job learning and judgement that students have learned to work in different work contexts. The mean values and standard deviations of the variables in different fields of study are presented in Table 2.

INSERT TABLE 2 HERE

According to the results, vocational institutes are trying to connect school-based and work-based learning (Table 2). The aggregate mean value for *connectivity*, describing integration of school-based and work-based learning was moderate (2.71, max = 4). The corresponding mean value for *unconnectivity* was somewhat lower (2.22). As mentioned earlier, this aggregate scale describes the failure in integration between school-based and work-based learning. The aggregate mean for *diverse tasks and boundary crossing* was the highest (3.29) of these three indicators.

There were statistically significant differences between vocational fields. School-based and work-based learning were most closely linked with each other in social and health care, with the mean value of *connectivity* over three (3.17). The lowest mean value for *connectivity* was found in technical education. Correspondingly, the mean value for *unconnectivity* was highest in technical education. Also the mean for *diverse tasks and boundary crossing* was highest (3.54) in social and health care.

Guidance for students

The variables measuring the different forms of guidance of learning were subjected to factor analysis which produced three aggregate scales: a) *discussion together with the teacher and the workplace trainers*, b) *discussion with employees (workmates)*, and c) *self-assessment and reflection*. In addition, a single variable of *assignments from school* was used. Table 3 presents the aggregate scales formed based on the results of the factor analysis.

INSERT TABLE 3 HERE

The results indicate that the most widely used form of guidance during the on-the-job learning periods was *discussion with the employees*. The mean value for this aggregate scale was 2.25 (max=3). This indicator measured how often students were advised by their workmates at the

workplace, including their own workplace trainer. Also, guidance related to *self-assessment and reflection* was usual, as indicated by the mean value of 2.12 (Table 4).

There were significant differences between different vocational fields in terms of specific types of guidance and all forms of guidance. There was a logical trend: all forms of guidance were mostly used in social and health care, second came services, while any form of guidance was most rarely used in technical education (Table 4).

INSERT TABLE 4 HERE

Table 5 describes how students assessed the role of workplace trainers during their on-the-job learning. It can be seen that 88 % of students agreed with the statement "*The collaboration with the workplace trainer worked*" (Table 5). Almost as many students (82%) agreed with the statement "*The workplace trainer was available whenever I needed them*". For these statements there were no differences between vocational fields.

INSERT TABLE 5 HERE

Table 6 shows students' general satisfaction with their guidance experiences during on-the-job learning. The figures show that students were mainly satisfied with the guidance. However, one fifth of the students would have liked to get more guidance. In other words, they felt that the guidance was not good enough or adequate during their on-the-job learning period. There were differences between the fields as well: 13 % of technical education students, 25 % of services students and 35 % of social and health care students felt they needed more advice, help or other sort of support during their on-the-job learning period. The difference between the fields is quite interesting considering students of social and health care received more guidance than students in the other fields, and yet they wished for more guidance.

INSERT TABLE 6 HERE

Conclusions

Integrating theory, practice, and self-regulation is essential in the process in which vocational competence and expertise is developed (Tynjälä et al., 2003; Wikström-Grotell and Noronen, 2005; Le Maistre and Paré, 2006). Guile and Griffiths (2001) took the integrating theory and practice

furthest in their connective model of work experience, which aims at integrating informal and formal learning. Connectivity was examined in this study through students' experiences. Results showed that the idea of connectivity was realised best in social and health care while the students in technology rated the features of connectivity lowest among the three vocational institutes studied. Correspondingly, the highest values in assessments of unconnectivity were given in technical education, whereas in social and health care assessments of unconnectivity were the lowest. The results show that students of social and health care experienced, more often than students in the other fields that school-based and work-based learning were integrated into each other. In another study (Virtanen and Tynjälä, 2006) we obtained similar results from teachers: social and health care teachers considered workplace learning as a connective practice, while the values of connectivity were lowest in technical education. Thus, these findings support the results presented here. One explanation for high connectivity in social and health care is the a long tradition in organising workplace practice for students, so transition from the former practice system to the new on-the-job learning system has not been s radical change. Further, it is typical of this field that reflective practice - a central component of the connective model - has been considered a central element of vocational competence for a long time. Thus, the foundations for implementing the connective model have perhaps been stronger than in other fields.

One prerequisite for successful on-the-job learning is student guidance involving adequate help with the learning process. Students' experiences of guidance in this study were interesting. Students in social and health care reported that they had got all forms of guidance, more than the students in the other fields. However, social and health care students also reported that they would have liked to get more guidance at the workplace compared to students in the other fields. One possible reason for this is in social and health care, there is a clear majority of female students who appreciate social interaction while young men in technical education felt they did not even need guidance. (Gender differences in experiences of guidance were statistically significant.) On the other hand, critical reflection was more emphasised in social and health care, indicating perhaps that students in this field have grown to be more critical than the students in the other fields. It also possible that teachers and workplace trainers in social and health care may have had more pedagogical training than teachers and workplace trainers in technical education. In another study we found 91 % of social and health care teachers had taken pedagogical examinations, while the corresponding figure in technical education was 83 %. Of workplace trainers, 51 % in social and health care had taken the two-week training course for trainers, whereas 46 % of technical education teachers had taken the course (Tynjälä et al., 2005).

In sum, introducing compulsory, guided and assessed on-the-job learning periods to the Finnish VET system has succeeded well. From the students' point of view, there seems to be a quite close relationship between school-based and work-based learning. Also, students' experiences of guidance at the workplace were mostly positive. However, there were significant differences between different vocational fields. Social and health care seems to have succeeded better than others in developing pedagogical practices for workplace learning with respect to connective and integrative pedagogy in particular. Also students' self-assessed learning outcomes were the best in social and health care (Tynjälä and Virtanen, 2005), which suggests that the connective model of work experience is – indeed – a successful approach to developing vocational competence.

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Table 1. Results of the factor analysis: the aggregate scales describing the connectivity.

Sum scale	**Cronbach's alpha**	**Items**	**Correlation of the item with the aggregate scale**
Connectivity	0.79	- During on-the-job learning periods I was required to apply theoretical knowledge learned at school.	0.62
		- Situations that arise during on-the-job learning periods have been discussed during lessons in vocational subjects.	0.60
		- On-the-job learning and school-based learning are very well integrated with each other.	0.59
		- Classroom instruction covered topics that were very useful during the on-the-job learning.	0.55
		- Situations that arise during on-the-job learning periods have been discussed during lessons in common subjects (e.g. mathematics, languages, etc.)	0.46
Unconnectivity	0.52	- On-the-job learning periods included assignments from school.	0.44
		- The people at schools do not seem to be very clear about what goes on in work-based learning.	0.42
		- There were little relation between classroom instruction and work-based learning.	0.36
		- After work-related learning I see school learning in critical perspective.	0.23
Diverse tasks and boundary crossing	0.57	- I noticed during my work-based learning periods that I need both manual and thinking skills.	0.40
		- I could perform the same tasks at another workplace.	0.40

Table 2. Mean values of aggregate scales describing the connection between school-based and work-based learning (minimum 1, maximum 4) in different fields.

The connection between school-based and work-based learning	**All students** **n = 501** **Mean Value**	**SD**	**Technical education** **n = 221** **Mean Value**	**Services** **n = 160** **Mean Value**	**Social and health care** **n = 117** **Mean Value**	**Sig. (between the fields)**
Connectivity	2.71	.62	2.46	2.72	3.17	***
Unconnectivity	2.22	.62	2.37	2.13	2.05	***
Diverse tasks and boundary crossing	3.29	.64	3.17	3.30	3.54	***

* p<.05
** p<.01
*** p<.001

Table 3. Results of the factor analysis: the aggregate scales and a single variable describing the forms of guidance.

Sum scale	**Cronbach's alpha**	**Items**	**Correlation of the item with the aggregate scale**
Discussion with the teacher and the workplace trainer	0.69	- Talking with the teacher and the workplace trainer together - Talking with the teacher at the vocational institute	0.53 0.53
Discussion with employees (including workplace trainer)	0.48	- Talking about work with permanent employees - Talking with the workplace trainer	0.31 0.31
Self-assessment and reflection	0.34	-Self-assessment of my own work - Keeping a learning diary	0.21 0.21
Assignments from school			

Table 4. Mean values of aggregate scales and a single variable describing the forms of guidance (minimum 1, maximum 3) in different fields.

Forms of guidance	**All students n = 507** **Mean Value**	**SD**	**Technical education n = 224** **Mean Value**	**Services** **n = 160** **Mean Value**	**Social and health care n = 118** **Mean Value**	**Sig. (between the fields)**
Discussion together with the teacher and the workplace trainer	1.84	.51	1.81	1.91	2.05	***
Discussion with employees (including workplace trainer)	2.25	.50	2.19	2.23	2.41	***
Self-assessment and reflection	2.12	.54	2.02	2.19	2.22	***
Assignments from school	1.98	.72	1.64	2.15	2.40	***

* p<.05
** p<.01
*** p<.001

Table 5. Collaboration with the workplace trainer and availability of the workplace trainer.

Statement in the questionnaire	**All students** **n = 508** **%**	**Technical education** **n = 225** **%**	**Services** **n = 160** **%**	**Social and health care** **n = 119** **%**	**Sig. (between the fields)**
Collaboration with the workplace trainer worked.					
Disagree	12	12	9	14	
Agree	88	88	91	86	ns
Total	100	100	100	100	
Statement in the questionnaire	**n = 502**	**n = 223**	**n = 156**	**n = 118**	**Sig.**
The workplace trainer was available whenever I needed.					
Disagree	18	18	16	19	
Agree	82	82	84	81	ns
Total	100	100	100	100	

* p<.05
** p<.01
*** p<.001
ns = non-significant

Table 6. The need for additional guidance during on-the-job learning period.

Statement in the questionnaire	**All students** **n = 516** **%**	**Technical education** **n = 234** **%**	**Services** **n = 159** **%**	**Social and health care** **n = 119** **%**	**Sig. (between the fields)**
Would you have liked more guidance during your on-the-job learning period in some area?					
No, I would not.	78	87	75	65	***
Yes, I would.	22	13	25	35	
Total	100	100	100	100	

* p<.05
** p<.01
*** p<.001