

Thematic quality assessment of learning at work within Higher Vocational Education

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Abstract

Higher Vocational Education (HVE) was introduced in 2009, and so is a relatively new element of the Swedish adult and higher education system. Compared to other forms of adult and higher education it is less institutionalized. One reason for this is that HVE is designed to be a flexible form of post-secondary vocational education to address the needs of a highly skilled work force.

This thematic quality assessment has two main purposes: (a) to analyse the quality of one main course in HVE, namely Learning in Working Life (LIA), and (b) to develop instruments and indicators to explore the quality of the student learning in working life as part of HVE.

The design of research instruments was based on by hypotheses to uncover the background, the learning process and effect parameters. In all, 12 HVEs participated during the autumn of 2013, within four educational areas (health care, computer science, technology, and business and administration). In total, 42 students and 36 supervisors were interviewed.

An important finding is the lack of definitions and criteria for quality, and the risk of substantial quality differences between educational providers. Another significant problem identified in the study is the unclear division of responsibilities between the educational provider and the partner from the world of work. Most of the supervisors, who were skilled workers or professionals, had a fragmentary understanding of HVE. They gave instructions, but did not stimulate their students to reflect theoretically on what they learned during LIA. Integration between school-based learning and experience of work life was limited. There was a shortage of instruments for assessing the quality of what was taught in the workplace. A large proportion (75 %) of the students was employed soon after graduation. For those who did not, their skills run the risk of rapidly becoming obsolete.

Keywords: vocational education, higher vocational education, learning in work life, post-secondary education and quality assessment.

Introduction

In Sweden, as in many other countries, post-secondary education has grown dramatically during the last few decades. This is one consequence of an expanding educational system, the development of industrial and service-sector productivity, globalization and policy decisions made by Parliaments and Governments. The gap between school-based education and work is too great in modern society, and causes transfer problems. The new economy and “the new work order” (Gee, Hull & Lankshear, 1996) put more emphasis on conceptualized knowledge and understanding. Skills and competencies that had long-term use a few decades ago might need frequent upgrading nowadays. Simultaneously, it is necessary to maintain much knowledge that is as old as humanity. Judging from policy debate, “new work order” demands a competent, flexible and committed workforce, more stimulating working conditions, and at the same time an increase of productivity. Workers are expected to be highly skilled, able to solve problems and create ways of improving their performance in flexible, adaptive, innovative self-directed and self-motivated ways. Today’s workers are expected to take responsibility for their decisions and actions (OECD 2008).

The new work order influences higher education (HE) as well as HVE to move in the direction of

work-integrated learning (Thång, 2004), combining science-based knowledge with proven vocational and professional experiences. A significant difference between HE and HVE is that the former should be based on scientific knowledge and proven experiences, while HVE is closely linked to work life and should primarily be based on expert knowledge and proven knowledge.

In order to become an expert the student must develop his/her ability to transform and implement school-based theoretical knowledge into domain-specific work life fields. It has become increasingly necessary to be able to implement science-based knowledge in real-world contexts, and to bring work experiences to the world of science. An expert should have the ability to effectively apply knowledge to novel problems, and to consider new problems as learning opportunities.

The thematic quality assessment of learning at work is the main focus of this study. However, we are also greatly interested in the quality of integration of school-based education and authentic learning at work. Integration and co-operation between school and work life is an important aspect of quality assessment in HVE. The main task for this study is to shed light on the role of LIA as part of HVE.

Higher Vocational Education in Sweden

HVE is a unique form of education in that it involves collaboration between an educational provider and a private, public or non-profit work organisation. The period of training is one-two years.

HVE is meant to be a flexible post-secondary vocational education. It aims to address the needs of a highly skilled workforce and meet the requirements of modern work life that is partly a result of globalization, as well as the demand for skilled labor that this creates.

The main criteria for the decision to grant public funding to establish an HVE are distinct market orientation, identified skills needs within the labour market and close collaboration between an educational provider and work life. At least one fourth of a two-year HVE should be placed within a workplace. This curriculum-based course is called Learning in Working Life (Swedish: LIA – Lärande I Arbetslivet). The permission to establish an HVE applies for two periods, i.e. a two-year HVE education could be implemented twice. The National Agency for Higher Education revises all grant decisions regularly.

Authentic learning in real work-life settings is an HVE cornerstone, and constitutes a single course governed by its own syllabus. Therefore, the demands on every HVE workplace must be very high concerning work content, mentorship etc. Work-based learning is an important part of HVE. The organizations providing LIA should play an active role in education and training, and ideally have staff recruitment needs.

HVE providers are expected to have a management board with labor market membership majority. Providers choose their own teachers, and there is no teaching education or training obligation. The primary demand on teachers is for qualified and relevant work experience and expert knowledge. The degree of freedom to organize and design the curriculum is extensive. For this reason, a quality system is necessary. Assessing the quality of work-based learning and the integration of school-based and work-based learning is crucial to all professional and vocational educations.

12 educational providers representing four educational areas were recruited for this thematic quality assessment of HVE.

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Table 1.

Education	Students				Supervisors
	Mean age		Male	Female	Total
Health	41	2	8	10	18
Computer science	27	7	3	10	13
Technology	25	7	4	11	15
Business and administration	32	5	6	11	17
Interviews in total					42
					36

Work-based and work-integrated learning

International interest in authentic learning at work is on the rise (Luff, Hindmarsh & Heath, 2000). Among researchers there is a debate concerning a “third space” to integrate formal school-based learning and non-formal learning at work. Work-integrated learning should develop and promote expert knowledge and skills (Theili-ander et al., 2004).

Integration between school-based learning and learning at work is also meant to enable expansive learning (Engeström, 1987). Other concepts illustrating these phenomena are boundary crossing and boundary zone (Akkerman & Bakker, 2011). The growing interest in the ways students acquire cognitive skills by shifting from one context to another reflects a fresh view on vocational knowledge and skills, and what competencies the ever-changing work life demands (Jarvis, Hartford & Griffin, 1998; Raelin, 2008). One argument put forward is that certain skills cannot be learned in a formal school context, but only in an authentic work context.

In formal school-based education where learning at work is essential, the work process is rarely challenged by the school-based learning. This could be the case in HE (Gustafsson & Thång, 2014, work in progress), as well as upper secondary school. The Swedish Schools Inspectorate pointed out these characteristics in their evaluation of Swedish apprenticeship training (Report K-2013:01).

Students often experience their studies as two separate parts with unclear confluence, but need to cross the borders from one educational practice to the other if they are to achieve expansive learning and develop new knowledge and skills (Toumi-Gröhn & Engeström, 2008).

One conclusion from Gustafsson & Thång (Works in progress, 2014) is that the HE process will dominate the learning process, as long as the individual is an HE student. This does not necessarily imply that the HE has a significant impact on the student’s learning, but that the workplace does not function well enough for him/her to acquire new knowledge and skills. The examination process is a factor that strongly influences the study process and learning. As long as the individual is an HE student, the educational process will dominate. When the students leave HE, the interaction between the ‘theoretical’ school-based learning and the ‘practical’ work-based learning disappears.

Learning in school and learning at work are two processes characterized by different structures (Billet, 2005; 2011). The knowledge is organized differently, and it is self-evident that different learning processes and learning outcomes can be expected. Learning at work can be problematic at times, because the knowledge is an integrated part of routines and technologies and so not always visible. Brodie & Irving (2007) argue that learning at work has its own curriculum, quite separate from the educational system.

So far, we have no functioning theory on the integration of school-based learning and authentic learning at work. A contemporary pedagogical challenge is how learning at work can become valid and proven (Thång, 2006). One conclusion might be that the educational system, or the school, must clarify more visibly the aims for learning at work. There is a need for meta-cognitive instructions in learning at work (Munby et al., 2007).

Integration between school-based and work-based learning is often neglected at an organizational level. Whether integration between the two contexts of learning will take place is often dependent on the

individual student's capacity. As a consequence for the thematic quality assessment of learning within HVE, the attention must be aimed at what the members of the school and work-place do to support the integration of students' learning. Many workplaces underperform in their support of learning and skills development.

Transition from school-based education to work is often inefficient. In research literature, this phenomenon is commonly referred to as the transfer problem (Achtenhagen & Thang, 2002; Wahlgren & Aarkrog 2012). The strength of the institutional relation between the educational system and work life is the key factor for progressive transition from education to work (Raffe, 2008). When this relation is strong and intensive, the education and learning will follow the logic of work, whereas the learning process follows the logic of education when the relation is weak.

Methodology

When designing instruments for gathering data, the ambition and intention was to uncover three dimensions: firstly, the personal background of students and supervisors, secondly, the educational as well as the work process, and thirdly the effects of learning at work (LIA). Each dimension was based on a number of items, some of which could be linked to more than one of the three dimensions. Motivation, for example, could be seen both as a process variable and an effect of the learning process. Motivation could explain why someone applies for an HVE, but could also provide an explanation for the experiences and learning progress. The items in the questionnaire were chosen from previous experiences from analogous studies and from research literature.

Interviews with students and supervisors were carried out after the students had completed their education, which could have implications. Those employed might be unreservedly positive, and those who failed to find employment might be overly and explicitly negative to HVE. However, we were unable to find evidence to suggest that the interviews provided unambiguous interpretation in the foreseen direction.

Students and supervisors were interviewed over the phone. Three colleagues from HVE carried out the interviews, all of whom were experienced officers from the National Agency for Higher Vocational Education and familiar with different types of vocational and professional education. The time allocated per interview by the National Agency for Higher Vocational Education was 15-20 minutes but would turn out to exceed that time frame. Therefore, adjusting the interviews to the time frames given by HVE was a considerable difficulty. Two questionnaires were designed (one for students and another for supervisors). The students constituted the starting point and main focus for the construction of the questionnaire. The time schedule allowed for designing the instruments, gathering and analysing data, and writing the final report was less than six months, and there was no time to sufficiently try out the questionnaire during the data gathering process.

The student questionnaire¹ was divided into 12 parameters with different numbers of items aimed at "measuring" each of those parameters:

- Background (7)² .
- Conception of quality (1).
- Learning process at school and at work (15).
- Incentives and motivation (7).
- Feedback and formative evaluation (10).
- Assessment and examination (5).
- Relations and co-operation: student-student and student-supervisor (6).
- Learning strategies (Lander 1996) (3).

¹ The supervisor questionnaire had an equivalent design and mainly the same or analogous items.

² Number of items for each parameter.

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- Self-efficacy (Bandura, 1997) at work (4).
- Questions aimed at summarizing the education as a unit (8).
- Closing questions (5).

A Likert scale was created for each item, in order to facilitate answers from students and supervisors, followed by oral questions and an opportunity for giving comments. These comments were crucial since they gave substantial information. The items constituting each of the concepts were elaborated in cooperation with the interviewers from the National Agency for Vocational Higher Education. Two circumstances influenced the decision behind the final version: (a) the frame factors and (b) the assessment of the contribution of information from each item. Interviews started and ended with a question about the student's and the supervisor's conception of quality in learning at work.

Table 2. An example of a parameter and items from the student questionnaire.

Parameter/concept: Learning process	Agree completely			Don't agree at all	
1. I had very good use for the theoretical studies while at LIA. Theory and practice were well matched.	()	()	()	()	()
2. It had been difficult to manage the data on LIA, without teaching in HVT	()	()	()	()	()
3. LIA supplemented really theoretical instruction.	()	()	()	()	()

Analysis of data

The analysis was initiated by a return to the initial concepts and questionnaire design, and the items were re-grouped under new headings: Background; Quality in LIA; Motivation; Cooperation/collaboration; Supervisor; School-based learning and its integration with LIA; Quality processes and strategies; Quality assurance; Student's role in quality assurance. One conclusion from the interviews was that some item content was quite similar.

Likert-scale answers, including comments, were compiled for each item and for each educational provider as an indicator of each parameter.

Concerning the parameter Cooperation we made an important distinction between autonomous cooperation and critical cooperation (Lander, 1996; 2002). Autonomous cooperation implies a context where people work together in overall agreement and feel comfortable in their work relations, but without challenging each other when it comes to job content. Typical of critical cooperation is reflection in work as well as on work (Schön, 1983; Wahlgren et al. 2002). People challenge each other to do a better job, get a deeper understanding, be more creative etc. The underlying hypothesis is that cooperation, with an open, unbroken dialogue about content and work conditions is a central dimension of quality in LIA learning.

Relation refers to the psychological and social interaction between student and supervisor and their degree of readiness to give each other rich and valid information. We had to catch the students' experience of the relation between and integration of the school-based education and the learning at work. LIA is primarily education, not work.

Assessment and feedback are fundamental requisites for developing and consolidating knowledge. In LIA there are no knowledge tests or formal examinations. The primary role of the supervisor is to give feedback to promote student reflection on knowledge and skills formation during every day work. A further role is to give information about student learning outcomes for the final grade to the Program Director, who is also

responsible for day-to-day governance and guidance. Assessment, feedback and examination have some content similarities. However, there is both a formal and a non-formal aspect of the concepts. During the past decade in Swedish educational research, there has been growing interest in assessment, feedback and formative evaluation (Forsberg & Lindberg, 2010).

Results

Although the quality review has been conducted on a limited number of courses and with tight deadlines, it is our opinion that we have captured essential aspects and dimensions of quality within LIA. We do not, however, believe that this medium-scale study allows for expressing opinions on the picture of HVE as a whole.

Significant differences exist between individual courses in a number of respects, which is to be expected. Results of the survey are reported on the nine audit areas: background variables, the quality of the LIA, motives and motivation, cooperation and collaboration, the LIA supervisors, the provider's teaching quality, quality assurance strategy and processes, quality measurement and the role of students in quality work.

A total of 11 students were unemployed at the time of the interviews. The largest percentage was found in the computer/IT field, where half of the group was unemployed. In contrast, all health care students had adequate and relevant work. Among students in the technical area the corresponding proportion was 7 out of 10, and among economists 8 of 11. More than one quarter of the students lacked employment at the time of the survey.

Quite a great number, if not all, of those employed got their jobs during their LIA placement. Most of these had a permanent appointment, but some had temporary positions or employments.

The correspondence is high between students' and supervisors' conceptions of LIA-quality. The combination and alternation of school-based teaching and the LIA provides the quality. The majority of students and supervisors emphasize the importance of school-based education and workplace-based learning, and that the school-based part must be integrated with practical work. All parties involved need to be familiar with the expectations on LIA.

Students argue that education providers should be more active in recruiting and selecting high-quality workplaces for LIA. A well-functioning LIA is characterized by adequate learning content, an open work climate between colleagues, accuracy and dedication, frequent supervisor feedback, and regular communication between the Program Director and the supervisors.

LIA should offer qualified work content providing knowledge of breadth and depth. Knowledge gained from school-based training should be challenged and must achieve curriculum goals.

Students and supervisors agree on the importance of the student's responsibility for developing vocational knowledge and skills, as well as being able to cooperate with staff and customers, all the while taking an independent position.

It is noteworthy that the majority of supervisors do not emphasize their own efforts as particularly important for the quality of LIA. A few supervisors draw attention to the workplace, and stress that good quality in LIA requires preparation, planning, and transparent learning outcomes. Every workplace involved in LIA must be able to challenge and stimulate the students to develop professional attitudes and responsiveness and also to reflect on their vocational learning. From the provider's point of view, quality means recruiting students with the right sets of skills for the job market.

Questions about cooperation and collaboration indicate the absence of regular communication between education providers and supervisors. There is, to some extent, feedback between training providers and supervisors, but apparently little or no regular contact. In the workplace, the student has regular contact with their supervisor, but other staff may also be involved in the tutorial.

One aspect of interaction and communication refers to students' experiences of school-based teaching and its integration with workplace learning, and perceived benefits of LIA. This constitutes the core issue of

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how work-integrated learning should be portrayed.

The students' alternation between different pedagogical environments is not solely a property of HVE, but more or less prevalent in all professional and vocational education. One reliable conclusion is that "theory and practice" go reasonably well together, but also that there are flaws that need to be addressed and improvements to be made. Clearly, there is interaction between LIA tasks and the content of school-based courses, but one implication of the limited communication and exchange between education providers and supervisors is that the work-integrated model for education and training is not put to optimal use. The ideal situation occurs when the supervisor is a member of the management board by (of?) the educational provider. In that ideal case, the supervisor will be intensively informed about higher vocational education, curriculum and learning outcomes. When this comes to pass, the Program Director and the supervisor develop a strong commitment. However, there is great potential in further developing collaboration between the partners involved in higher vocational education.

Motif and motivation are strong indicators for predicting success in studies. The students who participated in this thematic quality assessment were highly motivated. They had made a personal decision to go back to school after a period in the labour market, aiming for a more highly qualified education and training, and looked forward to getting an interesting job within a vocational field of personal interest. Most of them were satisfied with HVE in general, and with LIA in particular. A major point of criticism from some students was that the subject content of the school-based education and learning was not advanced enough. Those students expected more in-depth studies. Teachers' qualifications varied a great deal.

One effect of the students' motivation was their demand for challenging work tasks. Students were highly motivated for advanced and demanding knowledge content in the work tasks they were given. This is important because they could not choose their work tasks. Almost without exception, the learning content was determined by the ordinary duties and tasks at the workplace. Most students saw their work tasks as relevant for their vocational education and training. However, few of them experienced enough progression in the work tasks performed during LIA. The variation between different educations and different students is great. While some students, for example in technology and computer science, were challenged by advanced intellectual problems that needed solving, others, for example in business and administration, were mainly given routine tasks.

A widespread notion of the Swedish Government is that economic rewards have a motivational impact. The students who contributed to this survey disproved this notion. The supervisor, on the other hand, had a strong impact on motivation.

The information from the education provider before LIA was perceived to be of good quality and supervisors felt confident in their role. Management supported them for the mission. There is disagreement among supervisors whether or not formal training is necessary to be a supervisor. Only a small number of these had a more comprehensive education or training. The role of the supervisor is not always clear to students but they perceive their supervisor to be a knowledgeable professional, although not always a true expert. The supervisor's interpretation of their role is crucial to quality within LIA, but this interpretation differs a lot. Most of the supervisors lack deeper insights into vocational education as an entity. The entire education and training content is rarely known. During LIA, mainly job-specific skills are assessed but assessment criteria are not reported. Experienced supervisors may have their own criteria, although little articulated.

Generally there are a number of quality instruments to measure and document teaching and learning process and outcomes, but these are little known, and linked to individuals. Education providers use various evaluation questionnaires, but overall these tend to be surveys, without detailed evaluation of the teaching process or the students' learning. Supervisors assess student performance on a regular basis, and the assessment templates received from the education provider are quite clear to them. The majority also have access to an assessment template. The quality measurement that takes place at work is generally not

systematic. It relies on the individual supervisor's personal observations and experiences. The supervisors do not have enough knowledge of how to measure the quality of learning at work.

Supervisors are consistently very supportive to students. Students' work tasks are controlled almost exclusively in relation to what should be done in daily work and in various customer-oriented projects. The students have, in this context, very limited freedom. Visits from the education provider during LIA is seen as very positive, and there is a significant need for instruments for measurement, examples of teaching and supervising processes, documentation, protocols etc. to be used for the purpose of quality improvement.

Conclusions

Higher vocational education (HVE) is a new form (2009) of post-secondary education in Sweden. The demand for and interest in HVE is growing quickly. In 2010 there were 851 applications to start a higher vocation education. Three years later the number of applications was 1,078 and only 29 percent of these were accepted by The National Agency for Higher Education.

Market orientation and cooperation between an education provider and the labor market are core values of HVE. This is the first thematic quality assessment within HVE, and one conclusion is that quality differs greatly, depending on the motivation and commitment of all the parties involved: the education provider, the workplace, the supervisor – and of course every single student. Motivation is one of the most significant factors when predicting success. Most formal and state-regulated education is bureaucratic and institutionalized. HVE is an exception to this rule. If higher vocational education is to be flexible in the future, and capable of responding to new demands from the labor market, it needs to be guided by a set of quality criteria, rather than a set of more or less fixed rules.

Authentic learning at work is an essential part of higher vocational education, but must be integrated with school-based education and training. The integration of knowledge in HVE could be much deeper, and the cooperation between school (the Program Director) and workplace, (the supervisor) could be more intense and close when compared to the situation today.

For those students who immediately get jobs after the HVE examination, the (transfer to the labor market is uncomplicated. However, for those who were unable to find adequate and relevant work, for one reason or another, the job situation might rapidly become problematic if they do not succeed within a certain period after the examination. The Program Director plays a crucial role in recruiting competent and qualified workplaces, and in matching students and work places.

With HVE as a new form of vocational education, there are extensive possibilities to establish qualified and up-to-date vocational education at post-secondary level for an ever-changing labor market. But there are traps to be avoided. HVE needs a content-oriented quality assessment system based on research and proven experience. Cooperation between school and work needs to be genuinely integrated. The content knowledge and skills acquired in school and at work ought to be integrated to a great extent. However, in this study, LIA curriculum was not a main focus

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