

Assessment in Practice

An inspiration from apprenticeship

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Published in:
Scandinavian Journal of Educational Research

DOI (link to publication from Publisher):
[10.1080/00313830701786719](https://doi.org/10.1080/00313830701786719)

Publication date:
2008

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Pedersen, L. T., & Elmholdt, C. W. (2008). Assessment in Practice: An inspiration from apprenticeship. *Scandinavian Journal of Educational Research*, 52(1), 97–116. <https://doi.org/10.1080/00313830701786719>

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This article was downloaded by:[Tanggaard, Lene]
On: 18 January 2008
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Publisher: Routledge
Informa Ltd Registered in England and Wales Registered Number: 1072954
Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Scandinavian Journal of Educational Research

Publication details, including instructions for authors and subscription information:
<http://www.informaworld.com/smpp/title~content=t713445993>

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Online Publication Date: 01 February 2008

To cite this Article: Tanggaard, Lene and Elmholdt, Claus (2008) 'Assessment In Practice: An inspiration from apprenticeship', Scandinavian Journal of Educational Research, 52:1, 97 - 116

To link to this article: DOI: 10.1080/00313830701786719

URL: <http://dx.doi.org/10.1080/00313830701786719>

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Assessment In Practice: An inspiration from apprenticeship

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The paper investigates the relationship between assessment and learning through an empirical study of apprenticeship training. The paper suggests that well-established modes of learning, which facilitate meaningful assessment in apprenticeship training, present an “antidote” to a traditional emphasis on assessment as selection and control. In contrast to rejection of apprenticeship modes of assessment as being inappropriate and obsolete at the present time, the paper suggests that the concept of *apprenticeship* assessment can be seen as a highly attractive and effective alternative to current assessment practices in both schools and workplaces. Taking a situated and relational perspective on knowledge and learning, we argue that assessment practices should focus on contextually-anchored reviews of the core competencies of the person. This contextual assessment contrasts with an emphasis on assessment as essentially controlling and selecting students for further education and, on the other hand, with assessment as a process of self-monitoring and self-reflection.

Keywords: *Assessment; Testing; Situated learning; Apprenticeship*

Introduction

Recent studies indicate that how and what students learn is influenced very substantially by how they will be assessed and their expectations and perceptions of such assessment (Biggs, 2003, p. 140). Grades can become the true objective of students’ learning-oriented activities (Kvale, 1984; Ramsden, 1992). Kvale refers to the pervasive dominance of the student’s grade-point perspective in virtually every aspect of college life. Assessment practices are intricately related to motivation and to what is actually learned in the school system. The nature of assessment is central to everything that students “do” and it governs how they study and learn. We argue that learning proficiency in a particular subject, and learning professional competence in a trade or profession, are facilitated by an on-going assessment of participants’ progression and participation in practice. As elaborated in the following paper, this contrasts sharply with a focus on assessment as a technology for selecting students

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and motivating them to compete for grades, or with a focus on assessment as a technology for self-reflection.

Summative and Formative Assessment

What is meant by assessment? The literature on assessment typically refers to a distinction between *formative* and *summarising* assessment. Formative assessment is described as “proactive” while the summarising form is regarded as more “reactive” (Nevo, 1986). Within the school system, assessments communicate information to people at various levels, serve numerous accountability purposes and provide data for decision-making. In the process of juggling these various aims and objectives, teachers assume different roles. As *coach and facilitator*, the teacher uses formative assessment to support and enhance student learning. As *judge and jury*, the teacher evaluates a student’s achievements at a specific point in time for the purposes of placement, grading and informing parents and future teachers about student performance (Atkin, Black, & Coffey, 2005).

Formative assessment is conducted primarily to improve and develop an activity, whereas summarising assessment appraises mainly the results of a given effort. Nonetheless, summarising forms of assessment still contain formative aspects when influencing student behaviour and the motivation to compete for grades. The general point made in this paper is that assessment practices always influence student behaviour and attitudes. The fundamental question is: what kinds of attitude and behaviour result from and are influenced by the various different assessment practices? In this respect, apprenticeship forms of assessment tend to focus on guidance and feedback in relation to a subject’s proficiency. The apprentice is assessed against the background of his contributions to the community of practice, rather than on his ability to engage in self-reflection. For example, the value of creativity in work-processes or independent problem solving is not measured or evaluated by the apprentice himself, but in relation to the quality of his products and the professional standards of the workplace. This distinction between assessment by self and by others, or in relation to a community of practice, is elaborated on in the following sections.

Assessment as Self-Guidance

While the first assessment tools applied in schools were often based on a grade-point system, which differentiates between students and determines who will continue into further education, subsequent forms of assessment applied in schools have tended to focus on the student’s ability to access his or her own learning process. Assessment that is controlled by the teacher, as in the grade-point system, is now supplemented or replaced by self-assessment tools, as in portfolio assessment (Dysthe, 2002). In portfolio assessment, the student is required to keep a diary and reflect verbally on the learning process. The diary and the products of learning—pictures, drawings,

reports etc.—are then presented in a portfolio, which is assessed by the teacher. The intention behind the portfolio concept is, apart from the assessment of specific products or outputs, to assess student ability to reflect on their own learning process. This reflection may be necessary in the context of contemporary society, which requires continuous learning and constant flexibility in relation to competence and identity development. In workplace learning, portfolio assessment has also been introduced as “a comprehensive collection of information documenting one’s learning” (Romaniak & Smart, 2000). It is described as supporting both the determination of further learning needs and the setting of further learning goals. The general idea is that “reflecting holistically on all of one’s learning contributes to an integrated identity” (Romaniak & Smart, 2000, p. 4). Portfolios are tied to the idea of self-directed learning described in a workplace-learning context by, for instance, Robotham (1995) and Gerber et al. (1995) as a conceptual framework which accounts for the personalised nature of the learning process in the workplace.

We would argue that portfolios can be seen as part of a subjectivist trend in the field of learning and assessment (as well as in society at large). This trend is associated with the notion of learning as life-long self-development and self-realisation, requiring at least some independence from pressure applied by teachers and others. As was the case with humanistic psychology and Roger’s client-centred therapy, the locus of evaluation is placed within the person (Brinkmann, 2005). A self-actualising individual trusts his or herself, rather than the experience of others. With learning turned into life-long learning, and with self-actualisation as one of the basic assumptions of this new vision of learning, contemporary assessment tools accept and use the individual as the highest authority with respect to the evaluation of learning. The new assessment technology focuses on the individual reflection of the self as a “wheel of life-long learning” that is disconnected from any particular place. It is a flexible and mobile learning process, which takes place across the life-span through self-reflection. Nonetheless, the concept of assessment through self-reflection does not prevent portfolios from being appropriate control instruments that document the subject’s learning process in great detail.

In contrast to a focus on assessment as individual self-reflection or control, assessment in apprenticeship has the community of practice, its outcomes and the increased and intensified participation of apprentices, as its points of reference. Part of this process involves an increased self-government of the apprentice in the community of practice, but this independence is not seen as acquired through self-direction and self-reflection. Rather, it is facilitated through a continual assessment of the apprentice’s ability to gradually master the tools and knowledge of the community of practice. In contrast to new models of learning emphasising self-directed learning (Björk, 1999; Robotham, 1995), apprenticeship learning is not based on the premise that apprentices are autonomous beings who can set standards for themselves. Apprentices still need to be assessed in order to ensure that they master the subject and eventually contribute creatively to the community of practice. Assessment in apprenticeship situations is therefore a contextualised, rather than an

individualised, form of assessment. Contextual assessment can be regarded as conforming to a *declining* societal need for formal qualifications and an *increasing* focus on core competencies (Smith, 2005). A contextual assessment of core competencies refers to an assessment of the actual competence of a person in particular contexts. The case for contextual, rather than self-directed assessment practices, that is made in this paper is in accordance with a situated and relational perspective on learning. This perspective is motivated by apprenticeship studies on learning and emphasises knowledge and learning as tied to particular contexts. With this perspective, even abstract, formal-logical knowledge is conceptualised as situated. Learning and gaining familiarity with a subject require access to legitimate peripheral participation in and across communities of practice, in school and workplace contexts. Situated learning is conceptualised as a contrast to cognitive-functional theories which focus on learning as structural changes in abstract, mental representations and individual “selves” (Barab & Duffy, 2000; Elmholt, 2004; Lave & Wenger, 1991; Tanggaard, 2005b)

Problems Associated with the Formalisation of Assessment

The introduction of new methods of assessment in both schools and the workplace often focuses on formal and standardised methods of assessment. Formal instruments tend to assess competence at the expense of learning (Lantz & Friedrich, 2003). This formalisation of assessment may ignore important lessons to be learned from scientific studies on the consequences of grades on learning processes. An example can be drawn from the field-study that forms the empirical background to this present paper. The investigated company had developed what could be referred to as *semi-formalised assessment schemes*, which measure the apprentice’s performance by applying a scale from 1–5, with 5 as the highest score (see Table 1).

The scheme has six dimensions in relation to which the apprentices are assessed. It does not constitute an on-going assessment of the work process, but focuses more on detached personal competencies, such as the ability to cooperate, be committed and show initiative. The manager of each company department fills out the assessment form. The document is used as a scale for evaluating the apprentice’s salary. The

Table 1. Scheme 1—Assessment criteria

Factors	Points
Grades	10 points
Initiative/independence	5 points
Effort/commitment	5 points
Quality	5 points
Co-operation/flexibility	5 points
Skills	5 points
Maximum points	35 points

intention behind a semi-formalised assessment scheme and assessment-based payment is to identify and standardise competence goals and to motivate the apprentices. An unintended consequence is that the assessment practice becomes abstract and personalised, rather than focused on the apprentice's specific contributions in the work situation.

The promotion of standardised forms of assessment relates to a normative evaluative paradigm (Hundeide, 2004) where the aims are control and selection based on objective assessment (Kvale, 1984). The process mentioned above functions as a tool for management to document formally the apprentices' learning outcome. The intention is to create an objective basis for evaluating the apprentices' learning processes. In this tradition, formal assessment that is documented in grades, points or scales is treated as an objective diagnostic tool, indicating the present state of an apprentice's learning outcome. The grades or other outcomes from formal assessment are then thought to create an objective basis for self-reflection and "teacher-reflection" on the objectives and processes of learning.

The debate on the learning effects of grade points is not new. In a study on the consequences of extensive testing and grading in high school, Kvale (1980, 1984) found that measuring learning through grades as a basis for limited admission to further education, creates a culture of fierce grade-based competition. The research describes how tests and grades transcend from being mere neutral tools of assessment towards becoming the main goal of high school students' learning.

The major problems seem related to what kind of learning is intended, as opposed to what actually results from the different assessment practices. Formalised forms of assessment using scales or grades may result in an individualised kind of assessment, leading to a student focus on achieving high grades, a motivation that may interfere with a deeper, more meaningful form of learning and the development of professional proficiency. In the following analysis, we will therefore elaborate on the practical implications of apprenticeship assessment as an alternative to individualised, formalised or semi-formalised assessment.

What Should be Learned from Apprenticeship Assessment?

The purpose of this paper is to analyse practical examples of assessment in apprenticeship training and to discuss their relevance to assessment within the educational system. Assessment in apprenticeship situations is a means of ensuring both the appropriate work quality and the products of a community of practice. For example, a journeyman may point out an error in the apprentice's work and, in this way, guide the apprentice towards the required level of proficiency. The product may also "speak for itself". The apprentice often faces a clear-cut and wordless form of assessment—for example, the dough fails to rise in the first place or the customer does not buy the bread. These apparently effective and transparent forms of assessment in apprenticeship situations have been almost ignored in the debate on assessment within the educational system (Kvale, 2005; Tanggaard, 2004).

In particular, studies on assessment and workplace learning have inspired researchers to search for a context-sensitive assessment of the core competencies of individuals in practice. Børnevold (1999), for example, specifically points to the need to acknowledge workplace learning through more fully developed assessment tools. Kvale (2005) suggests that forms of assessment in apprenticeship that have functioned as an acknowledged form of learning for many years can inspire a more effective implementation of assessment practices in school. Nielsen (2005) describes the functional nature of assessment, when it serves to change conditions for action. Moreover, he points to assessment as supportive (in the sense of recognition), directed at improving the participation of the apprentice (factual evaluation) and as following local standards of assessment (as part of a culture of evaluation). Andersen and Petersson (1997) suggest that forms of assessment in the workplace need to be process-oriented in order to conform to the locally-defined and ever-changing character of competencies required in the workplace. However, a genuine learning facilitation has been shown to play a minor role in the current assessment practices of institutions of higher education (Boud, 2000). Yet, the notion of aligning teaching and assessment practices towards suitable learning goals is increasingly recognised as an important issue in educational innovation (Biggs, 2003). These new concepts go beyond the well-established distinction between a formative approach aiming at enhancing learning and a summarising approach aimed at the selection and control of learning outcomes. It is well known that formal assessment and grade point averages may become the students' key learning goal (Becker, 1972; Kvale, 1980). What is less familiar is that this knowledge is not used to reject the assessment functions of control and selection, but to argue in favour of an alignment of teaching and assessment activities with suitable learning goals (Biggs, 2003).

Methods

The empirical data was obtained from a field-study that was part of a recent PhD project at the Aalborg University, Denmark (Tanggaard, 2005b). The field-study involved 10 male electro-mechanical apprentices at a manufacturing company in a suburb of Aarhus, Jutland. Ten qualitative interviews were conducted, together with participant observations in the period between February 2001 and February 2002. The research dealt with the apprentices' everyday life, their experience of vocational training, learning resources and barriers to learning. In this context, the qualitative interviews with the apprentices illustrate a situated approach to the concept of assessment, as related to core competencies in practice.

Qualitative interviews. The 10 interviews conducted as part of the research project were semi-structured and based on an interview-guide. The guide dealt with the following research theme: "What resources and learning barriers characterise vocational education in the workplace?" Additional, underlying themes included learning across contexts, the relationship between school learning and workplace

learning, identity and learning, learning trajectories, conflicts, power and gender. In order to ensure some variation in training experience, participants were selected so that they represented different ages and levels of (completed) education. The criteria for participant selection included willingness to participate in a tape-recorded interview and availability and willingness to participate in a follow-up interview if necessary. Participants were volunteers and not paid for any part of their involvement in the research.

Research and interview questions. The 10 interviews lasted for about one hour and were conducted by the researcher (Lene Tanggaard) in person, transcribed verbatim by a secretary, and analysed. The initial statement made to the participants was as follows: "Please describe a recent experience in which you felt you really learned something". The participants were then invited to elaborate and the interviewer's role was to help facilitate descriptions of events associated with learning, especially in the workplace. Interview questions on learning resources and barriers related to the main themes in the interview guide. The interview questions did not use the actual words *resources* and *barriers*, but, for example, such sentences as: "Are you able to apply what you learned in school to the workplace?" and "Have you experienced anything that hinders your learning in the workplace?" Participants were continually asked to clarify and elaborate phrases and words that the researcher did not understand.

Analysis. The interviews and field notes from the observations were structured and coded according to phenomenological strategies of meaning condensation and categorisation (Giorgi, 1994). Characteristic patterns were identified, and selected passages subjected to expansive hermeneutic interpretations (Polkinghorne, 2000). The essence of this analysis is to break down transcribed interviews into units that can be analysed more easily. These are called *meaning units*. Each analysis entailed examining the descriptions until central learning experiences could be identified. After analysing each individual's experience, all experiences encountered by the individual persons were examined, until central themes across the interviews and relationships between interviews and observations could be identified.

Assessment in Apprenticeship

In the following section, conceptual distinctions in relation to everyday assessment in the workplace are extracted from empirical examples of the on-going training of electro-mechanical apprentices. The analysis focuses on everyday assessment in apprenticeship and not on the final assessment of the test piece of work that leads to the journeyman certificate. This is not to say that summarising judgements are not important or that the selection and control aspects of assessment should be removed from assessment practices in schools and workplaces. Rather, we believe that

summarising and formative aspects of assessment should be better balanced with one another and further integrated. Moreover, we believe that assessment practices in apprenticeship exemplify how such a balance and integration is possible. We want to shed light on the everyday assessment practices of apprenticeship, showing how assessment in apprenticeship transcends the well-established distinction between a formative approach, aiming at enhancing learning, and a summarising approach, aimed at selection and control of the learning outcome. Empirical themes in the following analysis are: assessment based on products (made by the apprentices), by customers, and tools and equipment; assessment through increased responsibility; consequential assessment; peer assessment; assessment as recognition; and instruction as assessment.

Assessment from Product, Customers, and Tools and Equipment

As an integrated part of everyday learning progressions for apprentices, assessment is necessary to ensure the quality of the products produced in the workplace, so that customers are satisfied and the reputation of the company is maintained and, better still, improved. For instance, the construction of a house demands certain standards and the clothes produced by a tailor must satisfy the customer. At stake here is a very explicit criterion for assessment: whether the products produced by the apprentice meet the prevailing quality standards. Expectations of customer feedback may influence the quality of apprentices' daily work in a formative and proactive way. In electro-mechanical work, a very direct form of assessment emerges through the electrical instruments applied in the trouble-shooting:

Morten: "Our work can be dangerous sometimes, so instead of hurrying, you have to think twice and do it right in the first place. If you don't, you risk a shock and you may have to go for an examination at the hospital".

I: "So, it is important for you to have a good understanding of your work processes and work carefully as well. Is that what you mean?"

Morten: "Yes, it's really important, because of the dangerous voltage in all our instruments. For the sake of our own safety, it's a question of having an overview of the situation, before going for quick solutions and putting our fingers the wrong places."

Morten explains how the feedback, often immediate, expected from the electronic equipment, ensures that he is a very patient and careful apprentice. The feedback directly from the tools and equipment, in particular, regulates the speed of his work. Although Morten might have read in books and instruction manuals about the dangerous voltage in the electronic equipment applied in trouble-shooting, it becomes very obvious when one is really working with the immediate danger. In the following section, Anders elaborates on this difference between theoretical

knowledge and learning how things work in practice through the immediate feedback from tools and equipment, and products:

Anders: “I think it’s an advantage to learn how things really work and not to stay in a theoretical world. To pretend to be doing something, like in school, is okay. I think you can learn a lot from that, but I also think you can learn just as much from trying out how things actually work. It’s a combination of both.”

Anders regards learning through theory as “pretending work”, but he still regards it as useful. He also describes how he acquires equally useful knowledge from finding out how things actually work in a more practical context. The immediate feedback from the products either confirms the quality of his work, or it may indicate that he should approach the material in another way. At the same time, this feedback has made him reflect on the difference between theoretical knowledge taught in school and knowing how to carry out his work as learned in the trade.

Assessment through Increased Responsibility

One important aspect of assessment practices in apprenticeship is that instruction, learning and assessments are intertwined. Assessment cannot simply be regarded as the terminal point of the learning process. Journeymen often instruct apprentices, so that the way the work is done is modified as part of an ongoing production process. A journeyman may give an apprentice an encouraging nod as part of the daily work or explain the correct procedure following a mistake made by an apprentice. In this way, assessment is an integrated part of daily practice and not extracted from it through formal procedures such as tests or assessment instruments. A barrier to this ideal combination of instruction, learning and assessment arises if the journeyman does not have the time (or inclination) to guide the apprentice. However, even in such cases, apprentices often consult each other, thereby creating a context of peer assessment, which is referred to later in the paper. A significant form of apprenticeship assessment may occur with minimal verbal comments on the tasks performed, namely by assigning apprentice tasks that demand greater responsibility. Wilbrandt (2003) depicts workplace assessment as “a ladder of tasks with increasing responsibility”. Recognition for a job well done is indicated by moving the apprentice to more difficult and significant parts of the work process. In particular, a request to take responsibility for other apprentices or to perform a repair job alone reinforce an identity as a craftsperson (see Table 2).

This form of assessment through increased responsibility is often a form of silent appraisal of apprentices’ efforts. The apprentice knows that he has been “accepted” when allowed to work on tasks requiring more independence. Of course, this form of assessment requires that the apprentice not be kept busy with simple “apprentice tasks” such as mopping the floor. In the following interview quotation, Anders explains what he regards as the ideal form of increased participation:

Table 2. Scheme 2—Assessment ladder

Responsibility for work and for other apprentices	7
Work alone on difficult tasks where solutions are unknown	6
Work alone on simple routine tasks where solutions are known	5
Guided participation—doing tasks where the journeymen explain along the way	4
Watching the journeymen do difficult tasks requiring excellent professional skills	3
Simple routine tasks not involving much professional knowledge, but still important work	2
'Apprentice tasks' (e.g. mopping the floor)	1

I: "How would you describe the ideal learning situation in the workplace? You may already have some experience with such a situation?"

Anders: "Good question! I really don't know...well, it's when you are assigned to tasks that are right for your level...like...you are at a level where there are some tasks you master and then the new tasks should be at a level just above this, so that you can still cope and understand, but also learn something new...a situation like that must be optimal."

We do not know if Anders has actually experienced such an optimal learning situation, but he describes it as one in which he is given new tasks that are just above his current competence level. This "principle" of learning, which commences from a level of relatively low mastery, and proceeds to a new and more demanding level with new tasks, is the essence of the ladder of increased participation described by Wilbrandt (2003).

Consequential Assessment

Some of the apprentices in this study complained that their working relationships, especially with other apprentices and unskilled employees in the workplace, contained an element of bullying or the use of harsh tones of voice. In this particular workplace, the unskilled workers rank higher than the apprentices in both the formal and informal hierarchy. The power relations in a workplace were generally described as a state of tension, which influences apprenticeship learning (Lave & Wenger, 1991). Studies on vocational education in Denmark confirm this harsh tone of voice in the workplace as a barrier to learning. The problem associated with this is that a harsh tone of voice is inappropriate for modern and self-confident young people, who legitimately expect concerned and respectful communication (Simonsen, 2004). However, the apprentices in this study do not express themselves clearly positively or negatively about the harsh tone between them and the blue-collar workers. They see it as an inevitable aspect of work assessment, an indicator of what is expected of them:

I: "You once said to me that some apprentices have been the target of bullying?"

Benjamin: "Yes, I know some of them personally. The blue-collar female workers are familiar with this as well. If you start working here directly from the 9th or 10th grade,

you are confronted with such women. They do not talk much about work, but mostly gossip. The tone between them is sometimes cheerful, but it can also be harsh. I'm not sure someone coming directly from the 10th grade is ready for this."

I: "What kind of situation is it—can you give me an example?"

Benjamin: "If you make a mistake, they might find it funny and make a big fuss about it. You may not be able to handle this. If I find out that they have been gossiping about me...I just can't believe they can be so nasty—but perhaps it's just the way they are."

The normal tone of voice among the blue-collar workers in this company can be both cheerful and harsh. The gossip may be seen as a way of testing the apprentices and getting them to accept their low hierarchical status in the workplace. Coming directly from school, the apprentices are not always able to cope with the ritual gossip about mistakes.

Other empirical studies highlight cultural distinctions between forms of assessment in the workplace and at school. An action-research study in which a master housepainter was invited as a role-model to a vocational school in Denmark showed how the students reacted to this experiment. It made them aware of the significant cultural differences between the forms of assessment and feedback used at school as compared to the workplace. The students pointed out that the feedback from their teachers was often gentle and polite, indicating the need for small changes, while the master housepainter regularly told them quite bluntly to start their painting again, because it was quite unacceptable (Tanggaard & Elmholt, 2003). The students were shocked by the master's harsh tone but, at the same time, the clear-cut feedback on the quality of their work also clarified what they needed to do to reach the level of painting proficiency that conformed to the master's standards.

The interviews with electro-mechanical apprentices provided further examples of the differences in voice and the manner of assessment and feedback when given by the master as compared to the journeymen. The apprentices explain how the feedback from their manager, "can be like thunder and lightning and your job is in danger as well". Conversely, the assessment from the journeymen is more polite: "we need to be able to work together" is the attitude prevailing between the apprentices. This is the key difference they explained to the interviewer.

The relationships between the apprentices, managers and blue-collar workers, which do not involve daily contact, can become unnecessarily harsh and authoritarian. These forms of assessment are distinct from those conducted by journeymen and teachers at vocational school. It is important to bear in mind that, despite the unnecessarily harsh tone and form, the consequential form of assessment is very efficient. These forms of assessment make it extremely clear to apprentices that they have to make an effort to become accepted members of the communities of practice in the workplace. Nonetheless, in any educational context, decisions on when to apply consequential assessment and which type of communication to accept and legitimise, remain fundamental ethical issues.

Peer Assessment

Through a process of comparison, self-assessment is a central form of evaluation in the workplace. The apprentice evaluates his own efforts and products of work in relation to those of others:

Bjarne: "If we are sitting at lunch, or if we collaborate on some job, we do discuss questions about electronics and make comparisons like: 'Well, the guy who has finished his third period at vocational school—it doesn't look like he's got the point'. Or, 'Get away, he knows a lot and he's got everything under control—we only learned that in the 4th school period—how the hell does he know?'"¹

Assessment through such comparisons seems to motivate the apprentices to learn more. There are probably both constructive and destructive forms of competitions involved and the apprentice might either find it motivating or difficult and restrictive to compare his own work effort with that of others:

I: "Has anyone meant something special to you during this training period? It may be in school, in the workplace or at home?"

Niels: "I don't know...well there are always people who are good at things you would like to master yourself. Then you hope to be good at these things yourself some day."

I: "Could it be people in the workplace?"

Niels: "Yes, you might hear about a person who got good grades at school. Then you think—sure, I would like to have grades like that as well. You think you will also give it a try."

Niels describes himself as motivated by trying to reach the standards achieved by others. For example, he tried to achieve the same good grades as his fellow apprentices when in vocational school. It is natural that the apprentices compare their own work with that of the journeymen or the master. As pointed out by Becker (1972), apprentices create their own learning curriculum and initiate continual assessment of their own effort until it (ideally) reaches the standards of the local community of practice. If apprentices are isolated in the trade practice, without daily contact and collaboration with other employees or apprentices, the possibility of self-initiated assessments through peers or models is lost. It requires that the apprentice be part of a working community of practice. The paper by Gerber et al. (1995) on self-directed learning, which was cited in the introduction to the present paper, also points out that a shared discourse among employees in the workplace accelerates learning more than trial-and-error learning or the reading of books. They argue that informal learning is a very personalised process. The data in this study also indicates that learning may be more or less idiosyncratic and highlights the apprentice's ability to create his own learning curriculum. Nonetheless, we would not conceptualise it as

self-directed learning, because the foundation of independence is situated within a context of close collaboration and support from others in the community of practice.

Assessment as Recognition

In the above section on assessment through increased participation, it was emphasised that assessment is characterised by an implicit professional appreciation of the daily work of apprentices, through allowing them to perform increasingly more difficult and challenging tasks (Wilbrandt, 2003). Forms of indirect appreciative assessment can be shown through simple gestures like a pat on the shoulder or a nod of the head. These subtle forms of assessment are highly valued by the apprentices:

Bjarne: “Willy (the manager) also comes by when we are working well and says: ‘I heard everything is going alright in your department: Keep up the good work!’ Then I feel—bloody hell—I better keep going. You know—it’s very nice to hear.”

There is instant satisfaction and a motivating aspect to such appreciative assessment. It is not a form of assessment focused on failure and mistakes, one that is integrated in everyday recognising, accepting and respecting the progression of tasks performed by the apprentices. A more elaborate consideration of the relationship between learning and recognition in apprenticeship has been formulated by Musaeus (2005).

Assessment as Part of Instruction

Everyday assessment is frequently related to failure and problems, which is typically followed up by short sequences of informal instruction. In the following interview quote, the interviewer talks with an apprentice, Morten, about the journeymen (Hans and Ib) sitting next to him in his department:

I: “Can you tell me what it is that people like Hans and Ib are able to do?”

Morten: “They have a very solid, basic knowledge and are good at tasks when they instruct me what to do. The instruction is done in an amusing and cheerful way. They joke with people. I personally like them, and they are my kind of people. The important thing is that they master the instruction part, and have a lot of experience to draw on.”

I: “Can you give me an example of a situation where you learned something from them?”

Morten: “It may be the most basic things, such as when you make a mistake in a troubleshooting situation. Hans is very good at pointing out my mistakes in a humorous and light-hearted way. When I have problems understanding the diagrams, he is great at explaining the workings of the different components. You could say it’s like a personal kind of teaching, a bit like a school class.”

The quote describes a situation in which the journeymen apply humour in assessing the apprentice's mistakes and engage in a kind of personal teaching based on slowly progressing the level of professional explanations. The importance of the personal relationship is often highlighted as a special aspect of learning in the workplace (Tanggaard, 2005a). It is important for the apprentice to create a relationship with the experienced journeymen in the workplace. For the apprentice, this personal relationship enables access to the trade. It is also evident from the above interview sequence that the professional attitude and competence of the journeymen is interpreted by the apprentice as a criterion of acceptance of the assessment done by the journeymen.

The professional and assessment-based instruction in this particular workplace is enabled through allowing the journeymen the time to assess the contributions of the apprentices in the community of practice. These journeymen can take off time for instruction when necessary, and therefore have a fairly clear educational function in the workplace. Instruction, assessment and learning are, as such, organised as a possibility for the apprentice to seek out in the workplace.

Everyday assessments in apprenticeship are not well-defined activities in themselves, but more fluidly organised as activities that take place in relation to normal workplace activities. This also implies that assessment is not disconnected from learning—it is not (only) the formalised endpoint of an educational action. Rather, it is integrated as a formative aspect of the learning process itself. However, the selection and control functions are also integrated aspects of everyday assessment practices in apprenticeship. There is continual control of the quality of the apprentices' work and informal "ceremony" functions to select apprentices with the right attitude through practical jokes and endurance tests (Elmholt & Winsløv, 1999; Haas, 1974).

Practical Implications for Assessment Practices in Education

What can we learn from the empirical studies on assessment practices in apprenticeship that may have broader implications for assessment in education?

Assessment through Products, Tools and Equipment, and Customers

Assessment by means of products, tools & equipment, and customers plays a major role in apprenticeship. One relevant and inevitable question is whether these forms of assessment are also possible in a more *formal* educational context? Portfolio assessment does include the product-dimension, but one problem in school educational contexts could be that actual product development and production seldom take place. School learning is often characterised by a focus on individual learning and the reproduction and transformation of existing knowledge. In order to include assessment from products and customers, a "real-life" situation is required. This involves some kind of real production and a real recipient, which goes beyond a

focus on individual learning. However, a focus on assessment through products, tools & equipment and customers is really nothing new, if one considers the history of paedagogical thinking. Even Rousseau argued that the ideal upbringing of a child should take place through “being taught by the things themselves” rather than being influenced by a teacher’s “indoctrination” (Rousseau, 1762, here 1962, p.136). Rousseau insisted on bringing forth the natural human, being rather than scholars whose intended rationality (usually applied in politics and wars) often worsen the human condition. However, Rousseau’s ideas of bringing forth the “inner” natural human being through education, is rather different from a situated insistence on the socially-conditioned learner. In situated learning, the emphasis is on learning as an integrated aspect of identity-transformation projects both in and across communities in social practice (Lave & Wenger, 1991). We become particular people in social practice, and are conditioned by resources and barriers to learning in practice and not as an expression of some “innate natural kernel”. Nevertheless, this paper deals only with the argument that product-assessment and situations of “real-life-production” can be included in the paedagogical repertoire in a school situation.

Assessment through Increased Responsibility

Significant forms of assessment in apprenticeship are also conducted non-verbally, specifically by assigning the apprentice to tasks that demand greater responsibility. Recognition for doing a good job is particularly appropriate when asking the apprentice to perform more difficult and significant parts of the work process. It involves moving the apprentice away from work done under the guidance of the masters and journeymen, towards independent work and the assumption of responsibility. This ladder of tasks with increasing responsibility is imposed downwards through a formal structure. It is adjusted flexibly to the apprentice’s actual competences and in terms of the required challenge, in order to help the apprentice learn more and contribute more intensively to the community of the workplace. Can such a ladder be applied to other forms of education as a mode of assessment? This would imply that the student is given access to increasingly more difficult tasks, ultimately requiring some kind of independent problem solving. It would require the education to be adjusted to different students and their different levels of proficiency in the subject. Progressive assessment (Biggs, 2003) is again nothing new. However, rather than assuming one linear progression through predetermined stages, assessment through increased responsibility requires flexible judgement. Sometimes, the progression of learning of a student, for example, may even have to be decreased for a period, on the basis that more responsibility will be allowed or become possible in the future. The important point is that this kind of assessment refers to tasks within the learning landscape, rather than only to levels of learning referring to the individual. Being progressed to more challenging tasks will, in itself, communicate to the learner that he or she is “doing alright”.

Consequential Assessment

The possibly provocative thesis derived from studies on assessment in apprenticeship is that consequential forms of assessment may be effective and that the apprentices valorise them. The apprentices studied in this context stress the use of a harsh tone of voice or even bullying as preventing them from making the same mistake twice. The direct tone involved in this type of communication makes it very evident to the apprentice what is expected from them. Of course, it is an ethical question as to how harsh a tone of voice is acceptable. Nonetheless, the general point might be that a direct message to the apprentices about the value and quality of their performance is preferable to no feedback or vague and non-transparent feedback. Diffuse feedback may be too non-specific to be useful for the apprentice in order for him to progress in the community of practice. The theme of assessment in a harsh form also touches on power relations in the workplace and encourages reflection on what constitutes acceptable forms of communication in educational situations.

Peer Assessment

Assessments of the apprentices' own performance in comparison to the other apprentices is a central form of assessment in the workplace. Assessment through peers may be part of the learning curriculum created by apprentices in a community of practice. Nonetheless, these forms of assessment are often ignored in a teacher or trainer-focused learning environment. Peers cannot learn from one another if the apprentice is placed in a job function that is unrelated or physically separated from those of the other, relevant peers. In a conventional high school, students are often grouped in same-age groups, making it difficult to learn from older students. Nevertheless in the Jesuit schools of the 15th century, which constitute the basis of much modern schooling, the students were supposed to learn best by teaching others. The intention was that they themselves would benefit from the discipline, perseverance and diligence that teaching others requires (O'Malley, 1994).

Assessment as Recognition

As mentioned earlier, assessment in apprenticeship is not always expressed in words. It may be manifest by giving the apprentice more responsibility in the workplace. Assessment as recognition is not focused on failure or mistakes, but integrated into everyday life—recognising, accepting and respecting the efforts and the results of the work done by the apprentice. It may be communicated verbally, but many of its important forms are expressed, for instance, simply by a nod of the head by the master to the apprentice or a journeyman's hand on the apprentice's shoulder. It is also part of allowing the apprentice enough room to experiment and to act creatively and competently. This form of assessment is perhaps the least technical kind and comprises more of an attitude in relation to the training process for members of communities of practice. It is a sort of overall framework of assessment in practice.

Assessment as Part of Instruction

Everyday assessment is frequently related to failure and mistakes, which are typically followed up by short sequences of informal instruction. It is assessment organised as an activity that takes place in relation to the ongoing flow of production in the workplace. In relation to school education, one dimension ensuring the functioning of assessment as part of instruction is if the adviser or teacher has enough time to give feedback, explain and encourage professional proficiency, grounded in the student's participation in practice. The feedback on performance must relate closely to the student's actual work processes in order to constitute useful learning resources. Moreover, teachers must be motivated to provide sufficient feedback on their students' learning.

Conclusion

In this paper, we focused on the relationship between assessment and learning. The analysis suggests that well-established modes of learning, which facilitate assessment in apprenticeship, present an "antidote" to an emphasis on assessment as selection and control, and substitute assessment as self-reflection as conveyed in newer theories on self-directed learning. In contrast to a rejection of apprenticeship modes of assessment as being out of date and obsolete, the paper suggests that it is worth considering research on assessment in apprenticeship when seeking to develop new modes of deliberately formative assessment practices in schools and workplaces. Drawing empirically on a case-study of electro-mechanical apprentices' learning across vocational school and workplace contexts, the paper illustrates how assessment in apprenticeship transcends the well-established distinction between a formative approach, aiming at enhanced learning, and a summarising approach, aiming at selection and control of the learning outcome. Assessment is an integrated aspect of everyday work and learning in the workplace and the appropriate standards of evaluation are the quality standards of good work that will satisfy both customers and the professional pride of the community of practitioners. The apprentices' work is evaluated continually in terms of these standards of good work. The primary goal is *not* to select and rank individuals, but to form competent practitioners. Everyday assessment in apprenticeship is direct and consistent and, for better or for worse, mirrors the local culture and can be unnecessarily harsh and authoritarian. However, even if ethically questionable, these forms of assessment effectively signal that the apprentice needs to make an effort in order to be accepted and, thus, do constitute powerful mechanisms of selection and control. The everyday assessment practices include assessment through models, appreciative assessment and assessment followed by short sessions of informal instruction.

Finally, we discussed some of the implications of these findings for education in general. We argue that it is important to develop formative assessment practices for everyday work and learning. Moreover, educational assessment practices should pay more attention to the facilitation of suitable learning processes, instead of

maintaining a one-sided focus on designing “learning-neutral” tools for the selection and control of individual learning outcomes.

We do not claim that summarising judgements are unimportant or that the selection and control aspects of assessment should be completely removed. Rather, we believe that it is important to develop assessment practices that deliberately balance and integrate the summarising and formative aspects of assessment, through, for example, contextually anchored reviews of the core competencies of the individual in question.

Note

1. Vocational training in Denmark lasts for four years and the apprentices are ensured trainee service through a formal contract with a company. As an element of their education they go to vocational school for five periods each lasting between 5 or 10 weeks. The trade practice is part of a national, government-funded scheme and the executive order requires that the trade practice contribute to the development of the apprentices' routine and to personal and professional skills and areas of competence.

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