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Promoting Competence Development of Apprentices through Combined Workplace and Workshop Learning

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Summary: Both on-the-job and off-the-job learning situations are crucial to provide high quality apprenticeship training, so that training workshops can also fulfil a crucial role in providing modern and effective training of apprentices. The shape of such training workshops needs to be revised, however, changing from the pure training of basic manual skills towards promoting the acquisition of work-process knowledge. Three case studies were carried out in large-scale companies and the results show how each has designed appropriate learning environments for their apprentices.

Keywords: Appropriate learning environment, training workshop, case studies.

Introduction

A fundamental element of the dual system is that the workplace takes a major role as a learning environment for apprentices. There is, however, the question of whether the workplace can be seen as an adequate environment for learning. This question is raised all over Europe, when researchers (Ellström, 2001; Van Woerkum, 2003) and educational authorities discuss innovations and improvements to the initial education pathways. When managers have to establish priorities, production and productivity will usually outstrip learning, because the return on investment plays a minor role in the considerations of the responsible actors. Another problem is integrating work-based learning and school-based learning. Brandsma and Nijhof (1999) propose that a transition stage between education and labour as a 'guided familiarisation period' at the beginning of a job, in which the school no longer plays a substantial role, could help to solve the problem.

Primarily large-scale companies in Germany and Austria tried to find another solution by setting up a third learning environment for apprentices besides the vocational school and the real workplace: the training workshop. This formal learning environment is intended to train vocational skills and competences, but isolated from the existing pressures in front-line business. Mainly in the 1970s and 1980s, more and more training workshops were built by industrial companies, and it looked as though the appropriate solution had been found. In recent years, however, the value and status of the workplace as a learning environment have increased, not only for apprenticeship training, but also for learning activities in general (Severing, 1997).

Moreover, through the increased application of the line management concept, both initial and further training costs are increasingly being evaluated by cost-benefit analyses and, as a consequence, both the extent and numbers of training workshops have been reduced (Buck, 1996).

New learning concepts like the organisational knowledge creation strengthen the importance of sharing the tacit knowledge of experienced workers, which induces an increased meaning of learning in practice and learning while working (Nonaka and Takeuchi, 1995; Van Woerkum, 2003).

Collins, Brown and Newman (1989) have elaborated the cognitive apprenticeship model (see also Brown, Collins & Duguid, 1989; Collins, Brown & Holum, 1991) and define the following criteria for turning learning environments into effective and successful learning situations:

- Any learning experience should be meaningful and motivating for learners;

- Any learning experience should take prior knowledge into account;

- Learners must be actively involved in their own learning. Learning professionals are therefore required to coach their students intensively at the beginning of their learning sequence. Gradually, coaching and error correction should decrease, with the aim of making the learners more autonomous;

- Learning sequences should become more complex over time;

- Learners should concentrate more on the general nature of a task before attending to its details;

- Learning experience should go beyond domain-specific knowledge in order to train learners in ways and opportunities to control their own performance and strategies for acquiring additional knowledge.

These conditions are valid in principle to any learning environment, i.e. also for workplace and traditional schools (Brandsma & Nijhof, 1999). Based on the model of cognitive apprenticeship, Mulder (1997) developed a three-dimensional configuration of increasing complexity for vocational courses. In this model, complexity refers to the dimension of the content of the learning tasks, the dimension of teaching behaviour and a contextual dimension. Nieuwenhuis and Mulder (1999) conclude that vocational education should consist of a mix of different instructional models. Part of the required qualifications can be acquired in problem-based learning settings like school or training workshops, whereas other qualifications should be acquired in authentic learning situations. For qualifications such as job attitude, it is important to experience real work situations. Summing it up, on-the-job as well as off-the-job learning situations should be used complementarily to design vocational education (Nieuwenhuis, Mulder & Berkel, 2004).

When reviewing the list of conditions for successful learning environments, one element is missing: planning and structuring the learning phases of apprentices with respect to both learning environments. When companies offer two 'learning sites' for apprentices (workplace and training workshop) managers of apprenticeship training must ensure that the learning periods within both settings complement and harmonise with each other and that the cooperation and coordination between both sites follow the conditions described above (Nijhof, Heikkinen & Nieuwenhuis, 2002).

Given the different concepts and considerations above, a key question of our research study was (Stöger, 2007):

How could an appropriate learning environment for apprentices in large-scale companies look like?

We believe that both on-the-job and off-the-job learning situations are crucial to provide high quality apprenticeship training. We, therefore, advocate the use of training workshops as a complementary part of vocational training at real workplaces. In order to increase the variation in apprentices' experience, it would be useful to alternate the learning sequences at the training workshop and in the front-line business (see Table 1). Another benefit of such sequences would be the promotion of the apprentices' reflection phases on the experience acquired.

One important issue with regard to the interconnection between both learning sites is the formulation of an effective design, how to match the different learning settings. To this end, it is important that there is close cooperation between the VET department and the Training department.

Another crucial factor is the expansion of the key tasks of the training workshop. Usually, training workshops are separate, off-the-job training institutions, which mainly impart basic manual skills. To provide successful learning conditions, a training workshop is required to extend its function to various areas. For instance, it should strive to combine the delivery of declarative knowledge, procedural knowledge and strategic knowledge, which could be realised by training generic skills in the frame of real work commissions. Another opportunity is the conducting of further training activities in order to foster cooperation between HRD and apprenticeship.

Table 1: Crucial conditions of appropriate learning environments for apprentices

Indicators	Clarifying issues
Alternate training sequences in front-line departments and training workshop	In order to foster reflection on and control of the apprentices' expertise, the learning sites 'front-line business' and 'training workshop' should continually change during the apprenticeship period.
Close collaboration between front-line departments and training workshop	In order to adapt the learning processes in both learning sites, the company promotes close cooperation between the training workshop and the front-line departments.
Multifunctional tasks of the training workshop	In order to reduce the separation of apprenticeship from front-line business and HRD and to raise the added value of the training workshop, it should conduct more tasks than the training of basic skills, for instance, the conducting of concrete work commissions or offering further training activities.

Methodology

We decided to conduct a particular survey with the exclusive aim of selecting three ideal cases. 'Ideal' means that these companies have reached the first stage of the growth process towards a learning organisation, because they perform proactive HRD and apprenticeship training. Hence, they are called 'learning-oriented

organisations' (LoO). Two different questionnaires were developed for the areas of apprenticeship and HRD, and two 'scaling' lists, which relate the indicators to the questionnaire items. A target population was defined on the basis of two criteria: the training of apprentices and the size of companies. The latter was chosen because it is mainly the large-scale firms that have adequate financial, structural and personnel resources to conduct proactive apprenticeship training. Moreover, it allows some comparisons between the different cases to be made. In total, questionnaires were sent to 150 companies, and 30 firms returned completed questionnaires. The subsequent analysis indicated that ten companies scored more than 50% of available points in both fields (HRD and apprenticeship training) and could be regarded as LoO. Finally, we were able to secure three companies as case study objects, which held the first, second and eighth positions in the companies' ranking.

Multiple Case Study Research

We had four reasons to choose a case study approach (Hamel, Dufour & Fortin, 1993; Johnson & Christen, 2004; Stake, 2000; Yin, 1994). First, both organisational and learning activities in the field of apprenticeship training are 'real-life phenomena', which primarily demand a holistic and naturalistic research methodology. Secondly, case study research takes a specific role among the various qualitative research approaches, because researchers can develop theoretical concepts about the reality (e.g. from literature review) before the empirical research takes place. Thirdly, case study research allows the combination of understanding the specific cases in detail and searching for something universal beyond the single case. Fourthly, a focus of this research study is the corroboration of the theoretical concept in the business reality. More attention is therefore paid to the identification of common settings than to pointing out the differences between the cases.

The research plan aimed to interview seven people belonging to the VET department, the HRD department, the front-line business and the management, which could be realised in one case, while in two companies six interviews were conducted. The research methods used were focused interviews and document analyses.

Results

Case I

Case I is a private construction company and belongs to a worldwide enterprise group which develops, manufactures and markets products for professional customers in the construction industry and building maintenance. The plant in Austria mainly focuses on manufacturing certain units and components for drills, chipping hammers and direct fastening. The plant employs about 400 people and trains 48 apprentices. The company runs a training workshop for apprentices, in which three full-time apprenticeship trainers are employed.

All the interviewees from this company agreed that the training workshop is an essential prerequisite for the successful training of apprentices. Some of them emphasised that a key factor of the high quality of the apprenticeship training provided is the alternation of training periods between the training workshop and

front-line business. Another important feature seems to be the fact that the training workshop fulfils tasks which cover more duties than the pure training of apprentices in basic manual skills, for instance, the conducting of practical commissions or the further training of employees.

Case II

The selected case is a private steel company. The company employs 7,800 people and trains 323 apprentices. About 60% of the apprentices are trained in the field of metalwork and the rest serve electronic apprenticeship trades. The VET department employs 22 full-time apprenticeship trainers, who work in the training workshop.

The transformation of the training workshop into a multifunctional service facility is an outstanding example of how such a learning site can become an integral part of the company's business life. The conducting of several services, for instance, the training of internal and external employees has increased both the economic value and the internal status of both the apprenticeship training and the training workshop. In our view, the VET department has found remarkable answers to the economic and organisational challenges which are even more massive for those companies that finance a training workshop for apprentices.

Case III

Case III is a multi-utility supplier and represents a holding company which is the property of a large city. It has one servicing subsidiary and four operative subsidiaries: Electricity, Gas/Heat, Community Services, Public Transport and Management Service. The whole company (including the holding and the five subsidiaries) employs 2,600 people and trains 77 apprentices. About 55 apprentices are trained in electronic apprenticeship trades and the other apprentices serve commercial apprenticeship trades.

All interviewees emphasised the necessity of a training workshop for providing high quality apprenticeship training. However, the challenges and requirements for being a modern and effective training environment have considerably changed in the last decade. Now, a training workshop is required to carry out more tasks than the training of basic manual skills.

The training workshop we analysed fulfils nearly all these requirements; for instance, it closely collaborates with the front-line units by conducting practical commissions. Another measure is the permanent rotation of apprentices between the front-line business and the training workshop, which promotes both the reflection phases on the experience acquired and control of the learning progresses. Finally, we want to refer to a very important initiative, which underpins our thesis regarding the usefulness of a training workshop. In the last few years, the VET department has followed the overall trend to gradually extend the practical training periods of the apprentices in the front-line business. Recently, some front-line units have started to hold introductions to the particular working tools in use for the apprentices assigned there. After a while, both the VET department and the craftsmen in the front-line units recognised that the procedure was ineffective, and agreed to assign these preparation courses to the training workshop.

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