

## Work oriented continuing training for semi-skilled and unskilled employees

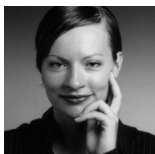
### An example from the metal and electrical industry

► **Semi-skilled and unskilled employees working in “reduced skill” areas have an important role to play in some branches. Despite the growing skills requirements in the workplace, however, this particular employment group is underrepresented in terms of participation in continuing training. The present paper portrays a work oriented continuing training concept for semi-skilled and unskilled employees which was developed within the scope of a three-year project involving companies from the metal and electrical industry and which has undergone successful piloting. The concept facilitates systemisation and promotion of self-directed learning in the workplace and is capable of autonomous and relatively rapid implementation by companies.**



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Up to 33 percent of those employed in the metal and electrical industry are semi-skilled or unskilled (cf. IG METALL 2003; GESAMTMETALL 2004). It is a notable fact that recent years have seen a significant increase in the requirements for “reduced-skills work” in production, manufacturing and assembly, and that these requirements have reached skilled worker level in some areas. Some of the very many attributes called for are an ability to deal with complex technologies, process competence, IT competences, flexibility, responsibility, involvement in work organisation, an awareness of quality and participation in continuing training measures (cf. LOEBE/SEVERING 2004). The consequence of this is that although workplace related skills requirements are rising for many “reduced- skills” work activities this is not accompanied by an increase in the provision of appropriate (formal) qualifications.

Notwithstanding the fact that semi-skilled and unskilled employees are dependent on continuing training both in terms of their own individual needs and with regard to the requirements of the workplace, they display the lowest level of participation in organised continuing training provision. This is an area where the opportunities for upgrading training for the semi-skilled and unskilled provide a possible way of tackling the shortage of skilled workers. Nevertheless, the group of semi-skilled and unskilled workers contains a large number of persons who may be categorised as unused to learning (such as employees from a migrant background or older employees). Such people frequently experience major difficulties in school oriented forms of learning such as seminars or similar courses. For this reason, continuing training for this target group needs to involve innovative forms of learning addressing particular learning requirements.

Semi-skilled and unskilled workers are often in possession of well founded know-how (implicit knowledge) on company organisation and company working tasks and processes. When learning takes place, it is essential that the integration of new content into an existing knowledge structure is facilitated in order to enable a link to be established between existing and new knowledge content.

If, however, knowledge is already in place in an implicit form, abstract learning content represents an inadequate and inappropriate method of tapping into this knowledge. Work-oriented continuing training measures, on the other hand, are capable of being designed in such a way so as to link in with implicit knowledge and make such knowledge usable for company organisational tasks. This means that work-oriented continuing training exhibits significant benefits compared to seminar-based forms of continuing training.

- Learner motivation is increased because learners notice that their experience and implicit knowledge is being used to process learning tasks.
- Learning is effective because learners confront challenges directly within their own work areas. There is no need for transfer of theoretical content to practical application, something which is often difficult for the target group of semi-skilled and unskilled workers.
- Learning is efficient because what has been learned is capable of direct application within the work process, and the processing of organisational tasks also results in a specific benefit for the company.
- Acquiring competences by working together practically within the company environment directly promotes employability skills and/or advancement opportunities for learners.

## The WAP Project: objectives and approach adopted

The first stage of the project “Continuing Training in the Work Process for Skilled Workers in the Metal and Electrical Industry in Baden-Württemberg” (known by the German acronym of WAP) involved using continuing training requirements analyses to identify company structures which fostered or hindered learning. This then served as a basis for generating findings in relation to areas of work and groups of persons where there was a requirement for continuing training. (cf. BAUER et al. 2007a). The results of these analyses then provided a foundation for determining the areas of work (such as the work activity of a plant driver) for which the aim was to develop work oriented continuing training programmes. Since real work constituted the point of reference within the WAP Project for the definition of the objectives and contents of continuing training, the second stage involved an empirical analysis of the selected in-company areas of activity. This took place with the assistance of the participative method in the form of expert workshops, in which experts from a field of activity convene and use a structured approach as a means of investigating their own company tasks (cf. KLEINER et al. 2002). The workshop conducted an analysis and description of current work within the relevant field of activity

in the form of characteristic work tasks and a systematisation of tasks in accordance with a competence development model.

## Development of profiles as a reference system for work oriented continuing training

The results of the workshop (list of work tasks) define the target profile for the continuing training programme, the aim of this being to prepare for the field of activity. Ten company continuing training profiles were drawn up within the scope of the project (cf. BAUER et al. 2007b): Machine operator, Machine setter, Internal logistics operator, Manufacturing operative, Group coordinator and group leader, Laminator, Quality operative, Die component producer/gear cutter, Screen printer.

Persons without formal qualifications and semi-skilled workers who have completed vocational training in a non-technical occupation are employed in most of the work areas listed. Some adjusters are skilled workers. All die component producers/gear cutters are skilled workers. Each profile comprises a list of work tasks which describe the context, objects, contents and requirements of work within the area. Figure 2 depicts an example of the work tasks of a machine setter.

The work tasks map the characteristic contents and requirements constituting a field of activity. In order to use this as the basis for the drawing up of a curriculum or a continuing training programme, the work tasks need to be structured in accordance with a didactic principle. The alignment of tasks in the WAP Project took place on the basis of a competence model ranging from beginner to expert (cf. RAUNER 1999). The characteristics of the tasks, the way in which tasks are tackled and the required competences all form criteria for the differentiation of the type of task. Three areas were defined, each of which group work tasks with a similar level of requirements.

- *Tasks for beginners:* everyday, regular work (e.g. simple production orders) which are processed systematically and in accordance with fixed rules
- *Tasks for advanced workers:* work which is significantly more complex and associated with problems (such as the alteration and maintenance of components)
- *Tasks for experts:* Unpredictable tasks requiring a high degree of experience and intuitive problem solving (such as the identification and elimination of complex malfunctions).

## Work oriented continuing training concept – work-based learning projects

The so-called work-based learning projects (cf. box) make up the central learning concept of the WAP Project. Work-based learning projects (WLP) are developed for a work area on the basis of the continuing training profiles and attendant competences described above and are closely tailored to the requirements of the organisational unit and staff carrying out these projects. This renders the bundle of tasks constituting a specific field of company activity a reference system for the design concept of the continuing training programme.

It is in principle possible to develop a multitude of work-based learning projects for each work task, these projects comprising a meaningful reason for learning or action within the relevant working context. Figure 1 depicts the general principle of developing the WLP on the basis of the work tasks; Figure 2 shows the development of the WLP taking the profile of an machine setter as an example.

The expertise of employees who have complete mastery of the tasks within the work area was also integrated into the development of the work-based learning projects. An initial workshop was held to familiarise the in-company stakeholders with the concept of using the profile as a basis for the development of work-based learning projects. This was followed by a discursive process which generated a number of example WLP's for selected work tasks. Autonomous completion of the WLP set for the whole of the profile became possible once the internal company project groups had internalised the concept, structure and quality characteristics of the WLP's.

The consolidation of an internal WLP development group is in line with the objective of achieving sustainable establishment of the learning concept within the companies. The ultimate aim is to enable companies to use the instruments introduced in an autonomous manner after the end of the project and to implement the learning concept as an integral part of the organisational culture. An internal project group charged with identifying learning incentives or reasons for learning on an ongoing basis, structuring such learning incentives or reasons for learning and formulating appropriate task assignments for the WLP's has been demonstrated to be a useful way forwards in this area.

The box below documents the aims of the six work-based learning projects for the work task of "Planning and implementing work processes directly within the production process" within the example continuing training profile of "machine operator".

This covers all the objects and contents of the work task. All projects add value, and some also accord consideration to the further development or optimisation of company standards. As long as such projects are successfully

completed, individual learning may also provide impetus for the organisation. The above example also makes clear the various levels of difficulty which are involved. The first three WLP's were developed for work task beginners and enable the parallel or sequential acquisition of specific competences for the purpose of completing these partial tasks. By way of contrast, the other WLP's are more complex and require competences from the previous WLP's for their completion. These are designed for advanced participants and should not be undertaken until the first three WLP's have been successfully worked through. Once continuing training participants have successfully completed the set of WLP's they will have acquired the competences they need to be able to tackle expert task 7 from the machine setter profile.

## Self-directed learning with learning advisory support

The challenges presented to the learners by the WLP's can only be mastered if learners develop the necessary competences to process the tasks and if they learn within the work process. A WLP begins with the description of a problem or task assignment, and this constitutes the reason for learning or action on the part of the learner. Possible action stages for the processing of the project are put in place in order to provide assistance for management of the learner's own learning process. The degree of difficulty of each WLP is capable of variation in a needs oriented and individual manner depending on the structure of the task assignment and action stages (close or open management). One example of a WLP task assignment ("Carrying out shift transfers") is presented in Figure 2.

The learning process largely takes place in a self-directed manner. This means that the method of working and learning and the approach towards identifying a solution need to be worked out by the continuing training participants themselves rather than being pre-stipulated. This does not mean, however, that participants are left entirely to their own devices within the learning process or in working their way through a WLP. Specially trained in-company learning advisors, who are ideally employed in the same work area or department as the participants, support learners in their self-directed learning by providing process related advisory input. This learning advisory support uses targeted interview techniques to stimulate reflection on the part of the learner and helps open up a new perspective. The tasks of the learning advisors encompass the following:

- drawing up an agreement on the specific aims and forms of the continuing training in conjunction with the learner;
- supporting and managing the learning process on the basis of the WLP and the agreement on objectives;
- advising on all learning related problems;

- reflection on and evaluation of competence acquisition via special evaluation meetings (follow-up to the learning process);
- assistance in the preparation of presentation of the results (in front of a committee, colleagues, line manager, specialist advisor etc.);
- assistance in documenting learning processes and results;
- drawing up feedback on the learning processes and results for the company and documenting these where required.

Learning advisors are provided with training extending over several days and comprising a number of modules for the purpose of preparing them for their tasks and are also supervised during the term of the project<sup>1</sup> (cf. RÖBEN 2007).

## Conclusion

The following conclusions may be drawn in respect of the individual stages of the process, the concepts and methods deployed and the results of the WAP Project.

- The continuing training requirements analysis instrument assisted in identifying action and thematic areas for work oriented continuing training within the companies.
- The expert workshop method is also an appropriate tool for the analysis and description of work in the field of “reduced skills” work or for the work areas of employees with a low level of qualification. Company stakeholders accord the profiles a high degree of acceptance and relevance. At the same time, the participative development of work-based learning projects via in-company groups of experts facilitates the systematic use of the areas of learning potential within the work processes and the structuring of learning in the workplace.
- An analysis of the contents of the company profiles or work tasks confirms the fact that the requirements placed in “reduced skills” work have increased and that employees are not generally extensively prepared for activities involving a high degree of responsibility.
- Work oriented learning in the form of work-based learning projects enjoys a high degree of acceptance and is accorded considerable relevance for learners and their working environment. The direct practical reference of the continuing training measures, the fostering of correlative and process understanding, the promotion of personal competences and the strengthening of motivation and confidence are all areas which are evaluated particularly positively by participants.

Figure 1 Participative development of the WLP on the basis of the work tasks

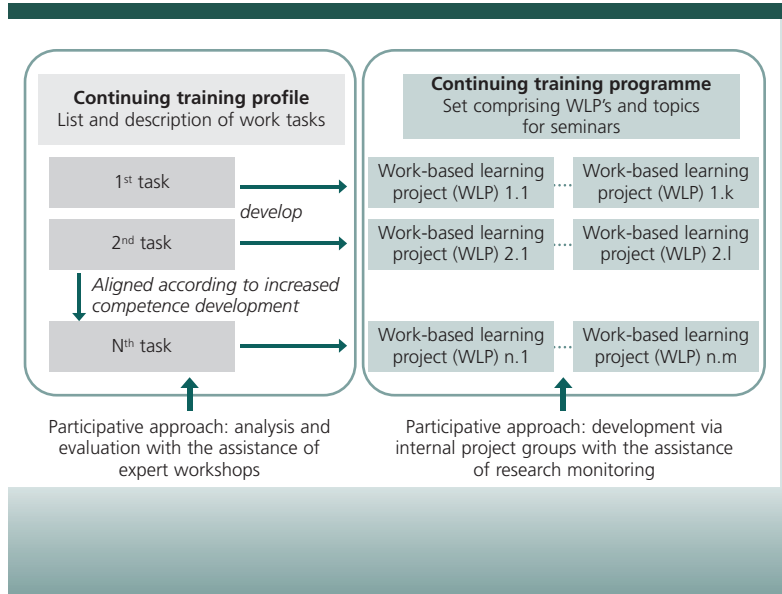
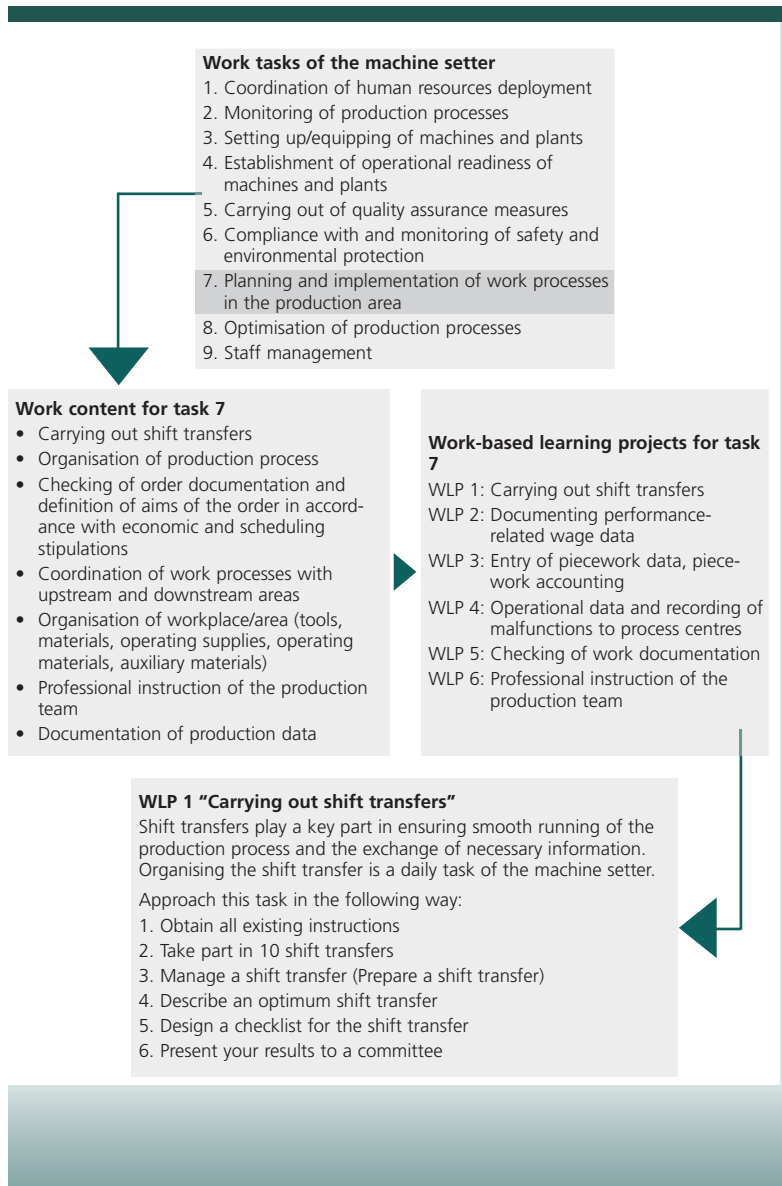


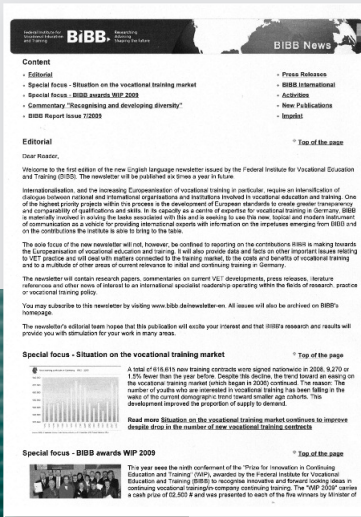
Figure 2 Development of the WLP's using the example of the machine setter



<sup>1</sup> Training for the learning advisors within the scope of the WAP Project was conducted by the Heidelberg Institute of Education in its capacity as project partner.



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- The introduction of learning advisors and project groups within the company is significant for the success of the learning concept and represents a key factor in its sustainable establishment within the companies.
- The temporal availability of participants is a fundamental problem implementing work-integrated continuing training. Economic constraints, company bottlenecks and the like meant that sufficient time was not always made available to participants to enable them to take part in the continuing training measures.
- Affording participants in continuing training the opportunity to implement the task assignments contained within the WLP's via practical application rather than merely responding on paper is of importance in terms of successful completion. These in-company deployment possibilities are of particular significance to those being prepared for a working field in which they do not currently operate.
- The instruments deployed within the WAP Project provide a way of interlinking human resources with organisational development.

All the instruments piloted in the project met with a high degree of acceptance on the part of the companies involved. Support from line managers, transparency, and the provision of information to all staff in the relevant work area are all factors in the successful implementation of the WLP method. In overall terms, the project succeeded in fostering a culture of permanent learning within the company and in promoting human resources and organisational development. This enabled companies to structure learning within the work process in a systematic manner from the initial identification of needs via the planning of continuing training measures and extending to encompass the evaluation of the measures. ■

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