The Relevance of Work Based Learning on the Federal Initiative on Recognition of Prior Learning Outcomes on Higher Education Programmes

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Summary
In Germany, work based learning as learning in and because of the workplace plays a prominent role in the concept of vocational education and training and – to a negligible extent – in the realm of higher education. In order to enhance individual qualifications and potentials, and make the German education system more permeable and support lifelong learning, the Federal Ministry of Education and Research (BMBF) launched the "Initiative on Recognition of Prior Learning Outcomes on Higher Education Programmes" in 2005. The article explores the question on the approach and relevance of work based learning in the pilot projects by two case studies.

Key words: applied scientific project, learning outcomes, recognition of prior learning, work based learning, work embedded learning

1 Work Based Learning and Lifelong Learning in the German Education System

In Germany, work based learning plays a prominent role in the vocational education and training (VET). Its most well-known form is vocational training within the "dual system", where education and training takes place in co-operation between school and company.
Even in higher education, work based learning is implemented in form of work placements which may take some weeks up to half a year, and project studies as constituent parts of study programmes. An equivalent to the dual system of vocational training are study programmes, where academic learning takes place at university and in a company, co-ordinated by a joint curriculum. However, the quantitative relevance of these approaches in higher education is small.
Due to the federal structure of Germany, there is a big gap between vocational education and training system and higher education. Regarding lifelong learning, one finds it very difficult to move on from formal vocational training to higher education without starting from the beginning.
It is up to the individual to get recognition for his/her professional knowledge and competences gained prior to higher education. Although there is some regulation on this, the procedure for acknowledging prior work based learning is left to the single institution of higher education to accept learning outcomes. This leads to a low number of students with recognition of prior work based learning.

2 Federal Initiative on Recognition of Prior Certificated Learning on Study Programmes

In order to enhance individual qualifications and potentials, make the German education system more permeable and support lifelong learning, the Federal Ministry of Education and Research (BMBF) launched the "Initiative on Recognition of Prior Learning Outcomes on

Higher Education Programmes" in 2005.[1] The initiative comprises eleven pilot projects which will develop concepts and procedures to assess and recognise the relevant competencies acquired in vocational education and training and equivalent to higher education. The European Credit Transfer System (ECTS) plays an important role in this process.
The pilot projects are supported and evaluated by a scientific team. This team shall develop a generic approach for recognition of prior certificated and work based learning on study programmes by taking the results of the pilot projects into account.

The pilot projects assess the learning outcomes laid down in the examination regulations of a specific further vocational training programme. In addition, other learning outcomes are considered which are stated as entrance requirements, e. g. a certificate in a recognised occupation, or at least three years of relevant employment. The results of this assessment are compared to the learning outcomes of a selected study programme in order to identify equivalents. The drafts of the European and National Qualifications Frameworks are often used as guidelines to identify and compare learning outcomes.

As already described, the range of work based learning elements in vocational training and higher education differs a lot. The article will reflect on the importance of work based learning aspects in the pilot projects under consideration of the German education system and the BMBF initiative. The influence of work based learning elements on the assessment and comparison process will be regarded on this basis. Due to the fact that the initiative started in autumn 2005 and will run until the end of 2008, only first results in form of case studies are presented.

3 Case studies

The first case study describes a study programme of the University of Oldenburg where the project work is the crucial feature of the study process. This approach can be interpreted as work based learning. The second case study reflects the approach of work embedded learning in vocational training for the recognition of prior learning outcomes on higher education.

3.1 University of Oldenburg

The University of Oldenburg is one of the twelve pilot projects of the federal recognition programme, taking part with the Bachelor study programme on business administration for small and medium enterprises.[2] The study programme is accredited by a German accreditation agency for the period of July 2004 until August 2009. After three years of course development and testing a pilot module in the summer semester 2003, the course of studies started in winter 2003/2004. The aims of the programme of learning are equivalent to level 6 of the Northern Ireland Credit Accumulation and Transfer System[3], NICATS.
The study programme is tailored to the needs of junior members of the management of small and medium enterprises for academic education. The adult students come mainly from branches like trade, service, crafts and industry and work in areas such as human resources development, marketing and management, or have their own firm. So it is very much to the interest of the adult students and their employers to do part time studies with relevance to the world of work and to how to solve problems there.
Due to its learning and course design the study programme can be described as innovative and work based. It is a distance learning higher education programme with elements of blended

[1] See: http://ankom.his.de/ (accessed on November 13th, 2006)
[2] See: http://www.bba.uni-oldenburg.de/ (accessed on November 13th, 2006)
[3] See: http://nicats.ac.uk/doc/scr_prnc_guide.pdf, p. 40f (accessed on November 13th, 2006)

learning such as an internet aided learning platform as a virtual room, phases of attendance, learners´ networks and online course material, and with project work as the crucial feature of work based learning.
The course is studied part time in eight semesters while going to work. It is awarded with a Bachelor degree of 180 credit points. The programme comprises 20 modules and one final module. There are different types of modules:
- 10 obligatory modules on basic knowledge of business management,
- 10 compulsory optional modules on further knowledge of business management and on broadening foreign language skills, and
- a final module consisting of the Bachelor thesis and a research colloquium accompanying the thesis.

Due to a high percentage (50 %) and a comprehensive catalogue of compulsory optional modules, the adult students can make up their own study programme to meet their individual learning needs and career plans.
The obligatory and optional modules are structured in the same manner and comprise six phases or steps respectively as follows:

Phase / Step	Objective	Duration
I Online preparation phase	Self study of the online course material with individual feedback	About four weeks (flexible timing)
II Attendance phase 1	Checking the self study phase (exam) and preparing the project phase	Two days
III Online project phase	Carrying out the project at work	8 – 12 weeks (flexible timing)
IV Attendance phase 2	Presenting the project work results and reflecting the learning process	Two days
V Project oriented exam work	Processing the project results (e. g. group or web-based presentation, portfolio)	In attendance phase 2 (presentation) or follow-up documentation phase
VI Follow-up documentation phase	Documenting the project work and results	Four weeks (flexible timing)

The innovative learning arrangement allows flexibility in time and place

The innovative learning arrangement designed for this internet aided study programme and in form of the blended learning concept, provides the working students with a course which shows a variety of subjects and has a communicative approach to learning as well as much relevance to work. For this reason it is possible for the students to integrate their studies into daily work. One reckons the work load per module to be five hours a week. Apart from the two attendance phases with the other students, each two days, one is free to plan when learning should take place.

Adult students, mentors and teachers build up a learners´ network

The students are guided and supported by mentors and teachers. Mentors are supposed to be learning guides in all module phases and therefore keep close contact to the students, while teachers are addressed for subject related questions. The mentors hold a university degree as a rule and provide support for subject related matters as well as give advice to how to organise learning and project work. Most of the individual or team guidance takes place via the learn-

ing platform, apart from face to face during the attendance phases. When required also by phone.

Course material and online assignments provide the theoretical input and prepare for the project work

The course material, especially produced by experts according to the didactical needs for adult learners, provides general knowledge on economics as well as information on small and medium enterprises and is presented in a way which is adequate to the content and the work based learning approach of the programme. All the information which is needed to acquire the relevant knowledge and competences is set out in the course material.

Simultaneously to studying the online material, the students are asked to do assignments which are not marked but give them an individual feedback on how their learning process is going on. This allows them to realise how much they are prepared for the written exam in attendance phase I and for the project work which follows (see phase IV).

Attendance phases create personal contact and teamwork

Each module has two attendance phases where all people involved in the course get to know and work with each other face to face. For the first attendance phase, students, mentors and teachers come together and discuss the course material and doing the last preparation for the written exam which is taken then as well. The second main objective of this phase is setting up projects related to the topic of the module and relevant to the work of the students, and building project groups of up to three or four students. Then each group works out a provisional project plan with obligatory milestones. This process is being coached by the mentors and teachers.

Projects in the world of work allow much application

The online project done by a group of students holds the key to the methodological approach of the course concept. It takes up between eight and 12 weeks and is the most comprehensive part of the module. Therefore it is awarded with six out of eight credit points and makes four out of five of the mark. The students come up with project ideas which are linked to their work places and get together with other students who would like to work on a similar topic. Thus the students share their work experience with each other, gain new knowledge important to deal with the project task and develop strategies to handle and solve the problems.

Good project work is characterised by the following features:

- close ties to problems relevant to the world of work / transfer of theory to practice under consideration of the company context,
- a clear linkage to the contents, theories and models of the course material,
- an acceptable coordination effort and manageable work load, and
- a clearly circumscribed topic.

With a form the project group plans their project work and writes down a working plan with fixed dates to the milestones. It is laid down what the single working packages are, who is responsible for them and when the results of each of them are due. Furthermore the date for the project documentation and other agreements like approach, procedures, rules of co-operation, exchange of formats, places of action, are agreed upon as well. The organisational fine tuning, the exchange of experience and the bringing together of the results of the joint project work are undertaken via the online learning platform. In this phase the students are supported and coached intensively by their mentors and teachers, using the internet aided discussion forum on the learning platform. Finally the project results are summed up by the group and presented to the course group in the attendance phase II which follows (see project oriented exam work).

There is another special type of project, a so called implementation project, where those of the students who are junior members of the management, work out detailed concepts for their companies. If a project generated in a module is implemented in an enterprise, the student can get credits for it. An implementation project comprises the presentation and discussion of the project and its detailed proceeding with the board of executives, its implementation in at least one area of the enterprise and a concluding target/actual comparison. Finally there is an oral exam in the company. Two projects successfully implemented make up for one compulsory optional module.

Module accompanying exams avoid time consuming preparation

Each module includes two exams: one written exam on the basis of the online course material and a project related work to show one´s achievement. The objective of the latter is that each student of the project group shows that she or he is capable of developing solutions for the practice by using academic tools and models and presenting them. This project related work can be presented by different forms as follows:

a) a presentation to the whole class (of 30 minutes at the attendance phase 2) or
b) a short classroom presentation of 15 minutes and a written report of 6-8 pages afterwards (see follow-up phase VI) or
c) a web-based presentation or
d) a project portfolio.

In the course of studies each student is supposed to do a) or b) and c) or d). The presentation is assessed by the quality of input, the formal arrangement and structure and the style of performing. The project portfolio contains 15 to 20 pages and includes the presentation of the topic of the project in the form of a scientific report. Furthermore, it is required to document the proceeding of the project, if necessary with original documents of the project processing (e. g. plan of milestones, work plan etc.). Finally, to end up the module, the people of the project group who did not present in the class write down a project documentation (see c) and d)) describing the different phases and the results of the project (see phase VI).

Bachelor thesis and research colloquium

At the end of the study programme the students have to write their Bachelor thesis and attend a research colloquium carried out in form of an online workshop supported by the mentors and teachers.

Conclusion

This elaborate concept of project-oriented learning in higher education meets some criteria of work based learning defined by the DEWBLAM project group. The learner undertakes an applied scientific project, which is essential and relevant for study and work environments. The project work as an element of work based learning is an educational and training approach, central for competence development. It is an experience-centred teaching and learning approach in which the learner will develop competences in multiple contexts, especially in and because of the workplace. It takes place in a context of structured partnerships and environment and brings about a definite added value for all parties involved, namely the learner, the higher education institution and the workplace. The process lies in the hands of the learner him- or herself, which entails the fact that she/he her- or himself is responsible for the own learning experience and the ensuing transition.

3.2. Workflow-embedded qualification and the new IT Further Education System (2002)

One characteristic of the IT sector is that a lot of personnel have no degree or acknowledged qualification. Due to that the German Federal Institute for Vocational Training (BIBB) was commissioned by the Federal Ministry of Education and Research (BMBF) with developing training profiles, in cooperation with experts from industry and IT qualification service providers. The Fraunhofer Institute for Software and Systems Engineering was commissioned to develop the conceptual and didactical framework for an IT Further Education System (2002-2005).

One important part of the new IT Further Education System is the 35 career profiles divided in three levels of proficiency, each profile based on a process-oriented curriculum. The three levels of proficiency are 29 Specialist profiles (e.g. Software Developer, Sales Advisor, Network Administrator), four Operative Professionals profiles (Certified IT Marketing Manager, Certified IT Systems Manager, Certified IT Business Manager, Certified IT Business Consultant) and two Strategic IT Professional profiles (IT System Engineer, IT Business Engineer). All specialist profiles not only contain technical skills, but also other competencies as problem analysis and solution, communication, presentation, conflict management, project organisation etc. In addition, the Operative Professionals have larger areas of responsibility, such as for personnel and budget. Strategic IT Professionals are characterised by strategic decision making in companies in addition to the personnel and budgetary responsibilities.

The second important part of the IT Further Education System is the methodology for workflow-embedded qualification (in German “Arbeitsprozessorientierte Weiterbildung – APO”). The goal is to build up key qualifications that enable employees to cope with open work assignments and the rapid pace of change. Therefore the main learning setting is work. Learning is guided by Work-Process-Oriented Curricula – these are generalised reference processes for each career profile and contain learning outcomes. They serve as a template, which is filled with company specific content and procedures (Rogalla & Prehn, 2004). The learner is accompanied by a coach to reflect learning processes and to give support for personal development. In addition, the learner is accompanied by technical experts to support technical problem solving processes (Loroff & Mattauch, 2005)

During the qualification process, the learner works on one or more transfer projects (Rohs & Mattauch, 2001) which are oriented on the Work-Process-Oriented Curricula. The work and the learning outcomes are documented in a specific way. The documentation must meet certain formal requirements. Whereas IT Further Education of Operative and Strategic Professionals falls into an area regulated by national law - they are examined by the German Chamber of Commerce and Industry - the IT Further Education of specialists is carried out within the framework of a comprehensive certification procedure determined in accordance to European standards. (Rohs et al. 2004).

The goal of the new IT Further Education System is a systematic career development from the vocational up to the academic level under consideration of work embedded learning. Due to that the new IT Further Education System facilitates systematic professional certification from IT Specialists, to Operative Professionals, to Strategic IT Professionals. The system provides structures to use work embedded learning for the qualifying process. The career profiles are based on the description of learning outcomes. The documentation describes the learning process and results. In addition, the System contains structures and standards comparable to the higher education sector for determining qualification equivalence.

Recognition of prior work based learning for operative professionals
Two of the pilot projects in the context of the "Federal Initiative on Recognition of Prior Learning Outcomes on Higher Education Programmes" focus on the development of an equivalence process to assess the extend of recognition of prior work based learning for Operative Professionals. Both projects have in common that they create a systematic approach to compare the learning outcomes of Operative Professionals with the learning outcomes of certain study programmes.

ProIT Professionals[4] (Technical University Darmstadt, co-operating with the Hessian Employers Associations, the Chamber of Commerce and Industry Darmstadt and the University of Applied Science Darmstadt)

The goal of the ProIT Professionals project is to identify possibilities of the recognition of learning outcomes from the qualification for Operative Professionals with study courses in economics, and in computer science and economics jointly. Therefore, the project develops a systematic method under consideration of EQF and ECTS to identify equivalence of learning outcomes. In this process, the project cooperates with representatives from industry, universities and the Chamber of Commerce and Industry not only because of their expertises, but also to build up acceptance between these three important main actors for the recognition process for the idea of life long learning 'across the borders' between education systems, and specifically the ProIT-method. This is important to support the permeability and mutual acceptance and recognition of equivalent learning outcomes between the two education systems – vocational education and higher education.

The project has created a first version of the method to identify equivalences between academic and professional career profiles.
The main pillars of the method are:
- The assignment - under consideration of the EQF - of levels to the learning outcomes of the regarded career profiles, and a mapping of the learning outcomes achieved in each of the career profiles.
- The identification of the extent of correspondence between the achieved learning outcomes.

To generate this method, the project decided to focus on the context of application as reference point to compare learning outcomes from vocational education and higher education, and not on the context of a learning process. Due to that, learning outcomes of work embedded learning processes can be compared with learning outcomes from higher education. In future, this also opens possibilities for the acceptance and recognition for work based learning.

Bringing the two education systems closer together and supporting the project efforts, a regional dialog between the examiners of vocational education and higher education will be implemented to generate common statements about equivalences and common frame conditions for acknowledged equivalent examinations. Until the end of the project in December 2007, the goal is to develop a method which can be generalised to transfer the project results and experiences into other regions of Germany and into other branches of industry.

[4] See project website: http://www.proit-professionals.de (accessed on November 13th, 2006)

ANKOM-IT[5] (Technische Universität Carolo-Wilhelmina zu Braunschweig, in co-operation with the Salzgitter Service und Technik GmbH, SZST)

ANKOM-IT has the same goal as the project described above - the identification of possibilities for the recognition of learning outcomes from the qualification of Operative Professionals with study programmes in computer science and economics jointly, in computer science and in computer science/economics/electrical engineering, and to generate an equivalence identification method. To save resources and use synergistic effects, the project does not develop its own method, but supports the development process of the ProIT Professional project. The necessary comparisons about learning outcomes are based on the aforementioned studies courses at the Technische Universität Braunschweig, the University of Applied Sciences Braunschweig/Wolfenbüttel and the University of Applied Sciences and Arts Hannover and the two Operative Professional profiles IT Systems Manager and IT Business Manager. The project also discusses possibilities of recognition of prior learning from higher education to vocational education in the IT sector.

In addition, the project compares the documentations of Operative Professionals with bachelor theses to identify further correspondences and differences of vocational education in the context of the new IT Further Education System and higher education. The project also evaluates the possible utilisation of individual portfolios as they are used at the Alsatian universities in France to complement a systematic equivalence identification method.

Parallel to the identification of possibilities for the recognition of learning outcomes, six attendees participate in a qualification process for Operative Professionals organised and accompanied by the cooperation partner SZST. They are willing to participate in testing the equivalence identification method and in evaluation procedures during the project. Results of first interviews with the attendees show that all have interest to study after being qualified as to Operative Professional. The main motivation is to improve their chances on the labour market. For their studies they would prefer part time courses or evening classes.

To support the recognition processes, an examination board of two employee representatives, two employer representatives and one dean from a university of applied sciences is implemented to fulfil the tasks for the examination of the Operative Professional at the Chamber of Commerce and Industry in Braunschweig. First results of the common examinations are expected for autumn 2007 when the qualification of the Operative Professionals will be completed by the examination.

The role of work based learning in the pilot projects focussing on the new IT Further Education System

Both projects were asked about the relevance of work based learning for their projects. The results in combination with document analysis and observations of the scientific support team are described below. Not all aspects are directly connected with the topic work based learning, but they give an impression for possibilities and barriers to implement new ways of learning:

- The first results of the projects show that learning outcomes of the work-embedded qualification process can be recognised for higher education.
- An advantage for recognition of prior learning is the orientation on Work-Process-Oriented Curricula which is based already on the description of learning outcomes. This

[5] See project website: http://www.love-it-plus.de/themen/ankom-it/ (accessed on November 13th, 2006)

makes the comparison with learning outcomes on academic level easier.

- Work based learning in the context of the two described pilot projects has only an indirect role because of the relevance of work-embedded qualification in the new IT Further Education System. The focus is the recognition of work-embedded qualification processes in vocational training for Operative Professionals on an academic level. Work based learning during the studies has no relevance for the projects. However, the developed equivalence identification method uses the context of application as reference point to compare the learning outcomes of vocational education and higher education. This could open possibilities for the acceptance and recognition for work based learning results during higher education.
- Accompanied with systematic reflection processes during the work-embedded qualification process in the new IT Further Education System, especially the informal learning processes are realised by the learners and become transferable to other situations (bottom-up approach). But the qualification process does not contain a scientifically oriented reflection process based on theoretical approaches or methodology. On an academic level, scientifically oriented education is in focus. Today, practical experience at universities is implemented in internships and – especially at universities of applied sciences – through a semester in companies to get practical experience. However, the most accepted source of knowledge and qualification at university is still the lecture hall (top-down approach). Work based learning could be a possibility to bring these two approaches together.
- The goal of education at the academic level is not only to teach with a focus on vocational training, but also methodology and theory. Due to the changes in the German higher education system the question for many universities today is in which extent they want to become education service providers for the labour market and/or in which extent they follow a scientific path. This could be one of the reasons why universities are reluctant when it comes to vocational training and recognition of prior learning.
- The idea of transfer projects oriented on Work Process Oriented Curricula, such as the new IT Further Education System could be an approach to bring work based learning into higher education. As previously described, some work based oriented approaches for education can be found at universities of applied sciences. Here, students have to attend a semester in companies to get practical experiences in which they have to carry out and document projects as part of their studies. But systematic reflection processes to identify learning outcomes are rare.

4 Discussion

These pilot projects of the federal recognition programme were selected because of their proximity to the work based learning approach. However, there are also projects where work based learning is not relevant.

Due to the fact that the projects described are already close to the idea of learning in work processes by the systematic use of projects which are implemented in a special setting as described above, the idea to learn in work processes and to recognise learning outcomes acquired at work processes is familiar to them. Therefore one objective of these pilot projects is to recognise the learning outcomes gained by projects done at work. This is the core issue of developing a method to identify the equivalence of learning outcomes of vocational and higher education. Other projects of the federal recognition programme use different sources to identify this equivalence such as learning outcomes laid down in the examination regulations of a specific further vocational training. For the projects of the case studies there is the challenge to convince their colleagues at universities by a well proofed method to identify equivalence of learning outcomes gained by learning in projects using work processes to learning outcomes of higher education.

The next step will be to evaluate whether there is a diversity (and to which extent) of methods to identify equivalence of learning outcomes and to recognise them by projects with different proximity to work based learning approaches, developed in the context of the federal recognition programme.

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