BRIDGING THE GAP – HOW WEB 2.0 CAN HELP BUSINESS EDUCATION TO FOSTER ORGANISATIONAL LEARNING

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Abstract

This paper presents an experimental approach to use web 2.0 tools for the re-design business courses on the idea of competence development. Web 2.0 technologies have the potential to move education from knowledge transfer to competence development. But while web technologies are currently changing the competitive landscape of companies in modern business, the deployment of interactive learning technologies in management curricula remains weak. By increasing the use of web 2.0-based learning technologies, we think that business education can narrow the gap between the competence development of students in management studies and competence requirements of companies in business practice. We present with close conceptual reference to the work of Donald Schön a case study on reflective practice how web 2.0 tools can be used to create educational scenarios in form of reflective laboratories. To understand the long-term impact of this learning intervention, this study needs to be complemented with psychometric approaches to measure competence acquisition or longitudinal studies to assess change of behaviour like self-responsible learning and reflection processes of participants in their future business environments.

1. Introduction

This paper asks the question to which extend business education serves the workforce needs to be successful in modern business. It takes the perspective of competence-oriented learning outcomes of graduates which should enable them to meet modern work tasks. We elaborate this perspective with a specific focus on the web 2.0 generation of IT tools, which fit well with a growing focus on organisational learning and knowledge management in organizations.

The broad lines of argumentation in knowledge management literature (e.g. Alavi & Leidner, 2001; Davenport & Prusak, 1998; Drucker, 1992 and 1995, Malone, 2004; Nonaka, 1994) state that (1) knowledge has become the most valuable means of production, that (2) knowledge workers own their means of production, and that (3) modern workforce loyalty comes not through the monthly paycheck, but through input and yield from knowledge in peer groups.

The combination of technological innovation and a growing concern for knowledge creation and collaboration in modern firms considerably impacts current business models (Chesbrough, 2003; Brynjolfsson & McAfee, 2007). Web 2.0 technologies have the

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potential to enhance idea generation in firms which are based on the active interaction, collaboration and the flow of information among modern knowledge workers in networks. But is this learning potential of web 2.0 technologies perceived and practiced in business studies to develop the related competences of students? We see beyond an increasing awareness for the topic only marginal attempts to integrate web 2.0 - based learning activities in the educational practice of management education curricula; and that inspite the availability of a wide portfolio of web 2.0 tools and their potential for communication and interaction. While some inhibiting factors like the insufficient level of IT-competence and lack of incentive systems for faculty have been identified (Bates, 2000; Euler and Seufert, 2004; Hagner and Schneebeck, 2001; Johnson, 2003; Kerres et al., 2005; Allen and Seaman, 2007; Schneckenberg, 2008), the reasons for such a poor performance remain so far unknown.

We describe in this paper how web 2.0 technologies can be used in order to create educational scenarios in form of 'reflective laboratories' aiming to foster ICT competence development of business graduates. We suggest that such competence development approaches in universities can form the basis for organisational learning processes in companies because being socialised in innovative web 2.0 learning environments graduates can carry over their reflective learning and development skills and apply them to corporate environments (Mandl et al 1992, Mandl et al 2001, Seufert 2007). A number of reseachers like Albrecht (2005), Boyatzis (1982), and Mandl et al (2001) argue that the pedagogical design of business studies and the learning routines of graduates which they have incorporated during their studies seem to impact their future capabilities as workforce to participate in the creation and nurturing of companies as learning organisations. In particular Boyatzis (2008) emphasises that effective management competences can be developed in business education - if only learning in the sense of a holistic program to develop critical thinking skills, reflection, and social as well as emotional competences would finally become the main purpose of management education.

One reason for the growing importance of competence orientation – rather than mere knowledge transfer – in higher education is the increasing complexity that we face in modern business. In the globalised world of the 21st century, companies are confronted with a fierce economic competition and volatile markets. The uncertainty of the environmental contexts leads to a high dependency of companies on the capability of their workforce to learn and acquire new skills and competences in order to adapt to the changing external situations and job requirements. As a result companies raise the entry bars for young business graduates - a war for talent has been initiated and future managers need to be equipped with new competences to adapt to constantly changing work and life conditions in knowledge-based economies. The value of knowledge as production factor has led to a wide recognition that people are the most important asset for growth and employment in society and in companies (Drucker 1992 and 2005, Stewart 2001).

The increased requirements that companies define for job profiles and contemporary labour markets create for the employability of graduates is pushing universities to reconfigure their curricula structures from knowledge transmission to competence-oriented learning outcomes. The objective of this process is serve the human resources demand of companies for independent and reflective knowledge workers through the supply of business graduates able to meet these needs. The application of learning technologies, in particular when it makes meaningful use of the potential of web 2.0 technologies, can play a valuable role in the progress of universities towards more holistic educational models that focus on reflective learning rather than mere knowledge accu-

mulation. The key question of this paper is: how can business teachers deploy web 2.0 tools in educational scenarios to foster reflection and competence development of students rather than to remain in the traditional scenario of knowledge transfer through established forms like lecturing and class-based exercises?

To answer this question, we take four steps:

- first we discuss with reference to models from pedagogical psychology the conceptual and learning theoretical background for competence development (Erpenbeck 1999, McClelland 1973, Weinert 1999 and 2001, Winterton et al 2005). We explore differences between qualification and competence and their implications for the learning design (Baumgartner 2004, Erpenbeck 2006, Leslie 2003).
- Next, we compare the pedagogical approaches of transmissive and participative learning in business studies and and introduce the concept of reflection for competence development (Kolb & Kolb 2005, Salzgeber 1996, Schön 1983 and 1987, Varner et al 2003).
- On basis of these conceptual comparisons we subsequently present a case study for a project-based teaching experience in business information science that has integrated web 2.0 technologies to shift the model of learning from knowledge transmission to knowledge reflection (Erpenbeck 2006, Robes 2007). We describe in the case study how weblogs can be used to create laboratories for reflection and foster competence development of students (Baumgartner et al 2002, Lewin 1982). The core of the teaching experience is centered round reflective writing and peer-reflection activities of student groups.
- Finally, we draw conclusions for the application of web 2.0 technologies as reflection tools in the educational practice of business teachers in higher education and the potential of a re-design of business curricula around reflective and self-directed learning tasks, which prepares students in a more efficient way for future work challenges.

2 Understanding Competences

We can make a distinction between formal instruction and competence development by outlining the difference between 'qualification' and 'competence'. *Qualifications* are one integrative element of *competence*, but they do not necessarily include a moment of performance – the responsible and adequate action within a given context, while integrating complex knowledge, skills and attitudes (Van der Blij 2002). Qualifications represent descriptive educational learning objectives, which are taught in formal pedagogical settings like study courses. Acquired qualifications are directly measured through knowledge tests and certified by educational institutions. Competences on the other end include the dispositional ability to *efficiently act in complex situations*; they cannot be taught, instead they require pedagogical approaches which are based on active learning and experience-making. The results are *dispositions for adequate behaviour*. They can not be directly measured, but need to be interpreted through an analysis of the performance of individual in an authentic context.

2.1 Can Competence be Developed Through Learning?

McClelland & Boyatzis (1973, 1982) define competence as a prerequisite to master specific challenges in a concrete field of activity. They assume that individuals can im-

prove given and gain new competences through learning and experience. The learning, which takes place, and the experience, which is made in authentic situations, is seen as the basis for a process of individual or collective competence acquisition. Weinert (1999) supports this view and states that learning is a necessary condition for the acquisition of prerequisites that enable a successful mastery of complex tasks – which is one description for competence (Weinert 1999, p. 7; ibid. 2001, p. 63). Thus, competence is considered a learnable human trait.

One important aspect for the role of learning in competence development is the unstable character of the learning process. Learning is sparked and initiated through a state of irritation, which is caused by action that takes place in an unstable, non-routinised and complex context. In this unfamiliar and complex context, the effect of individual or collective action is not predictable, as any experience on the effect of action is lacking. Challenges under such uncertain conditions lead to a *labilisation* of the existing value system – the learners have to learn through *concrete experience* about the effects of their actions in a new and complex context. When the action has been completed, the gained experience and knowledge is incorporated into the existing value system, and thereby modifies existing attitudes of the learner (Erpenbeck 2005). Thus, to develop competences requires authentic challenges in uncertain contexts.

Friedrich & Mandl (1992) link competence development in the field of cognitive psychology to the model of *active learning*, which describes learning as an active reception and processing of information. The reception and assembling of information is characterised as active, self-directed and constructive process – a learner acquires knowledge, skills and abilities through active reflection on a specific learning object. In this view, individual competence development follows a certain pattern: It starts with the acquisition of accessible and available knowledge, which is required for competent action. In the process of learning, this new knowledge needs to be interpreted, classified and integrated into existing body of knowledge and into the value system of the learner. Learners' progressively develop strategies for *adequate* action in specific contexts which consist of knowledge, values, skills and experiences – the dispositional competence components of the learner. When a motivation to act adds to the other dispositional competence components, the performance strategy of the individual learner will realise in action. In this way, the learner's performance strategy results in action competence, which Erpenbeck & Heyse (1999) define as self-organised, dispositional ability to act, while integrating knowledge, values, experiences and skills (Erpenbeck & Heyse 1999: 163).

Finally, competence development is facilitated in complex contexts. To cope with complexity, individual actors have to acquire and to integrate new knowledge, to apply this knowledge within a specific action, and to assess and to value the results of the action. This way, learners acquire competences in confrontation with their immediate environment.

2.2 Competence Based Learning

What are characteristics of competence-based learning environments? One key assumption which has been stated above is that learning has to be active and participative. Mandl & Krause (2001) propose a concept of constructivist learning as pedagogical framework for the design of a stimulating and interactive learning environment. This concept considers learning as a self-directed process, which builds on the learner's active construction of knowledge. When learners acquire new competences, their existing body of knowledge, their experiences, and their attitudes influence their learning proc-

ess. Learning of an individual learner depends on their self-directed and active knowledge construction (Mandl & Krause 2001, p. 4ff, Zawacki-Richter 2004, p. 262) – a call to rethink learning environments. They have to be active and engaging and learner-centered, concepts which are long discussed but often not practiced. To put them into practice three key assumptions should be met (Baumgartner/Welte 2002):

1. Regular Articulation and Reflection (Mandl et al.1997): Reflection is seen as a key component for competence-based learning. Students are seen as reflective practitioners (Schön 1983) with the aim to develop the competence to reflect on their behaviour. The reflection takes place during the action (reflexion-in-action) as well as after the action has been finished (reflexion-on-action) and includes the action itself as well as the contextual conditions for the action. Students gain theoretical insights in form of reflected experience in this process, which contains contextual knowledge, but includes in addition generalised knowledge which is relevant beyond their specific action context. The process of reflection follows the underlying rational of making the implicit actions, assumptions and knowledge explicit to formulate so called ad-hoc strategies in situations where problems are perceived (Baumgartner 1993, 250ff, Mandl et al.1997). Once learners have reflected on the results of their decisions and actions, they incorporate and interiorise the learned experience into their internal system of values and into their network of relationships (Erpenbeck 2005, Lewin & Graumann, 1982).

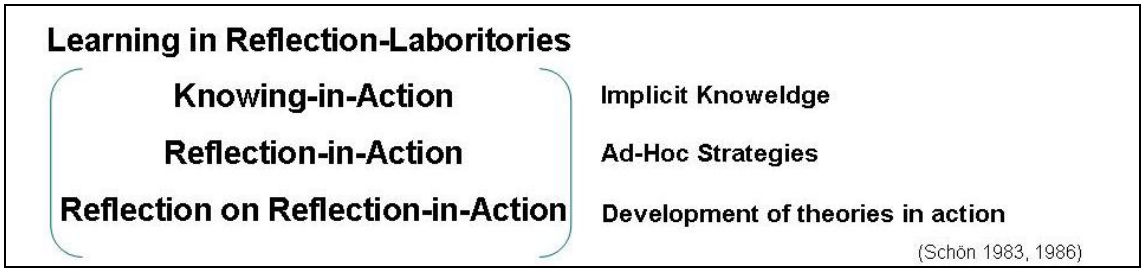

Figure 1: Learning Environments as Reflection Laboratories

The experiential learning theory of Kolb & Kolb (2005) is also emphasising reflection as an important component (see fig. 3). One model for reflection that has been used in the case described in this paper is based directly on Kolb & Kolb's (1984, 2005) experiential learning cycle where active experimentation leads to a transfer of learning from a current to a new cycle. Kolb & Kolb are using a holistic approach for the design of learning environments. Their model emphasises that learning needs to combine phases of action and reflection; and learning is heavily based on interaction.

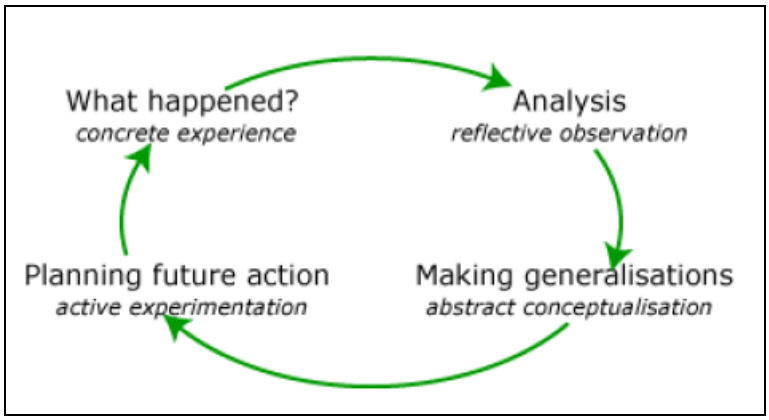

Figure 2: Reflection cycle (Kolb & Kolb 1984)

2. Use of Learning Diaries/ E-Portfolios[2]: Articulation and Reflection in learning environments can be fostered through the use of an e-portfolio for reflective writing through writing assignments that require students to engage in critical and reflective thinking. Section three shows how to integrate reflective writing using weblogs in educational scenarios. Reflective writing can include the use of readings, observation and experience related to the learning situation in question. It can be highly structured as in a take-home exam or unstructured as in stream-of-consciousness writing. Reflective writing may also be inwardly or outwardly focused depending on the degree to which reflection is directed towards self-awareness or development of domain content (Varner & Peck, 2003).

3. Learning with complex problems in uncertain contexts: Schön (1983, 1986) has developed the concept of the reflective practitioner which is very much at the heart of helping students to use reflection as a tool in order to progress on their way towards becoming professionals and acquire competences. It is the self-responsible identification and definition of the problem, which creates an attitude-based relation of learners to learning tasks. This means for the pedagogical design of a course unit, that a complex learning problem is developed by the students themselves. Main pedagogical objective is that students are encouraged to make autonomous decisions in an uncertain and complex context, and that they learn how to take and to share responsibility for the decisions which they have taken - in an ideal scenario the learning environment reflects to a high degree the complexity and uncertainty of decision-making in real work contexts (Salzgeber 1996, 282ff).

In addition to these three basic elements, Erpenbeck (2005) points out that learning environments have to include a component of value- and experience orientation in order to foster competence development. Values are challenged when decisions have to be made in uncertain contexts when dealing with authentic problems. Once learners have reflected on the results of their decisions, they incorporate and interiorise the learned experience into their internal system of values and into their network of relationships (Erpenbeck 2005, Lewin & Graumann, 1982). Based on these conceptual considerations, we discuss below the potential of electronic tools, in particular web 2.0 tools, and pedagogical scenarios for competence development in e-learning.

3 Learning to reflect with Web 2.0: A Case Study

The following section describes how "competence-loaded" learning scenarios can be implemented into an effective practice in normal universities seminars using weblogs. The case is especially selected to show that it is necessary to open up educational concepts in order to harness the potential of new technology, and in addition, that there is a dependency of the pedagogical scenario and the characteristics of the technology used. These interdependencies lead to new requirements on both the learner's and on the teacher's side - as will be shown in the case study.

The case is a synopsis of teaching experiences which have been made in the context of several university seminars in different universities and in different Master Pro-

[2] E-Portfolios are web-based information management systems which use electronic media and services. Learners can use E-portfolios as digital archive for personal annotations, comments, collecting relevant material or documenting their learning artefacts. (IMS Global Learning Consortium 2004, Meder 2006).

grammes: Educational Media, Business Information Science and Multimedia Design. The students in each seminar were studying in the Master Program Study cycle, the seminar took place as a blended learning seminar with presence meetings, coaching phases and virtual project work. Weblogs, which were used in the seminar, served as place for reflection and documentation of progress made in individual and/ or small group's learning projects.

3.1 The Learning Potential of Web 2.0

A number of authors perceive web 2.0 not necessarily as a new generation of internet technologies, but rather a paradigm shift in which users make use of the potential of the internet for mutual interaction and collective creation of knowledge. Web 2.0 stands for a portfolio of emerging tools, which form the basis for a more mature and responsive internet, in which users can collaborate, share information and create network and scale effects in large communities (Albrecht et al 2007, Kerres 2006, Mc Afee 2006, Musser & O'Reilly 2006, O'Reilly 2005, Seufert 2007). The adaptation rate of web 2.0 tools is high. They are often easy and intuitive to use, and they are useful, as they allow for a direct online publication of user content in the web. In this perspective web 2.0 tools comply with two key conditions, which Davis and Venkatesh (2003) have identified and empirically verified in their research on technology adaptation processes. They assume in their Technology Acceptance Model (TAM) that ease of use and usefulness predetermines the intention to use an innovative technology in a sustainable way (Venkatesh et al 2005).

Web 2.0 tools shift the content production in the internet from a centralised broadcasting model to a peer-based collaboration model. Whereas formerly broadcasting units like companies and educational suppliers pushed generalised information towards web users, now the users act as peers and use aggregation tools to pull specified content into their personalised work environments. The instant publishing technologies of web 2.0 enable everyone to become both author and publisher at the same time. This active participation of users through content production, personalisation of information retrieval, and exchange of knowledge requires new roles of distribution in the internet: the broadcasting model of information distribution, where media and corporate companies served as providers and users as recipients, is gradually converging into a collaboration model, where corporations and users interact in social networks and new knowledge emerges from mutual collaboration.

This potential of web 2.0, if it is efficiently applied in the pedagogical design of learning environments, might enhance in educational institutions the shift from teaching to learning, the shift from transmissive to participative learning models. Teachers need to design learning environments which are structured according to the constructivist principles and which include collaborative and interactive tools like blogs, wikis and ePortfolios (Zawacki-Richter 2004, 263). The changing roles and functions of teachers from instructor to moderator of learning sequences and the empowerment of learners, as well as the impact on educational structures and decision processes is summarised in the table below:

Table 1: Shifting learning and teaching modes

FROM	**TO**
classroom instruction	learning design
control of teachers	autonomy of learners

Classification of data	recognition of patterns
push of content	pull of content
general knowledge	contextual knowledge
centralised planning	decentralised decision-making
mechanistic structure	adaptive behaviour

3.2 Construction, Reflection and Weblogs: A Case

In order to allow the described shift from transmissive to a learning centered model a project-based course design as been employed in which students are encouraged to develop their own learning-problems, work on their own projects and develop educational micro-scenarios, which they teach to others in short workshops.[3] The whole process is combined with extensive reflection phases because of the essential role reflection plays in the development of reflective practice. Thus, the students do not only reproduce solutions in their field, but have capabilities to renew and innovate their strategies on the spot.

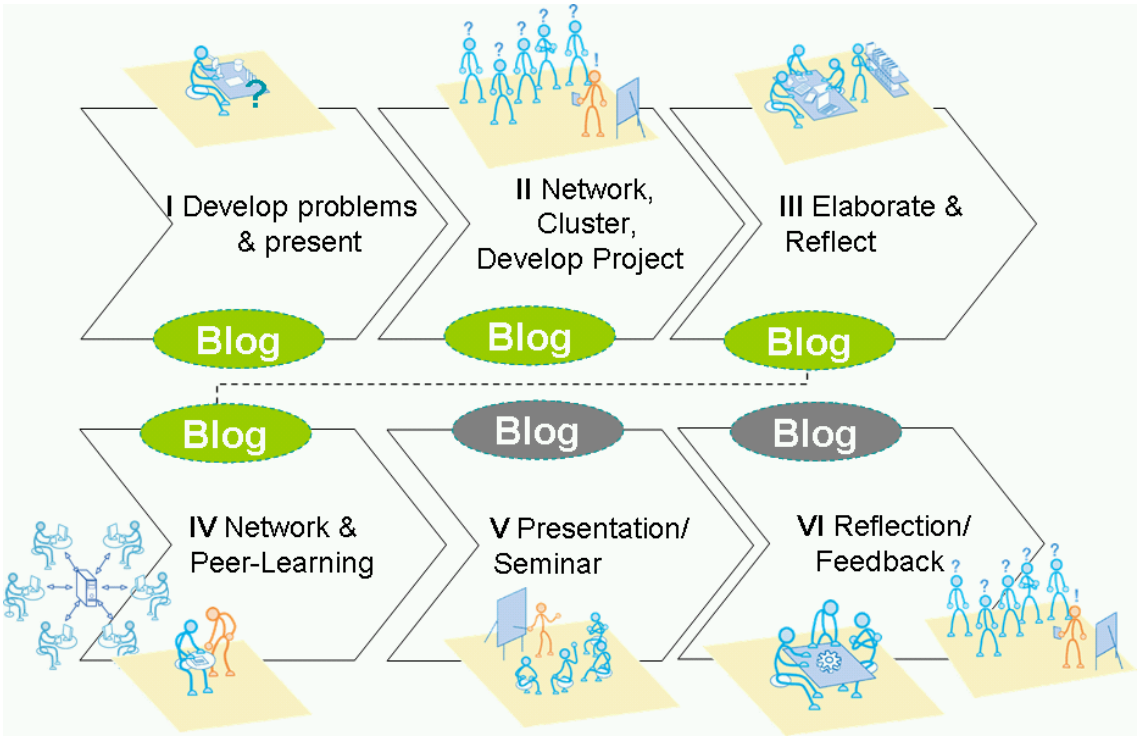

Figure 3: Weblogs for Reflection in the Project Based Teaching Scenario

The project is based on six steps (fig. 3) and is following a constructivist approach in so far as the students have to (1) identify their own learning problems, (2) work in social networks, (3) reflect on their (self-reflection) and others learning processes (peer-reflection), and (4) are coached by the teacher, who is in a support and not in a lead role. Weblogs are used as the medium where students document their reflections. Reflection processes, either self-reflection or peer-reflection, are encouraged in each of the six steps. The approach is driven by three central characteristics of the constructive learning model presented earlier (section 2.2):

[3] The project based seminar approach has been developed and implemented in two university programmes with different student groups (Business Information Science, Educational Science, Multimedia Design) students in the field of on quality management and two on educational design for e-learning.

- Regular articulation and reflection (Mandl/Gruber/Alexander 1997)
- Using weblogs as learning diaries for reflective writing
- Learning with complex problems in uncertain situations (Schön 1983 und 1987)

Phase 1: Definition of themes and complex problems
The course starts by encouraging students to invent complex problems in the general thematic area of the course: Students are asked about their questions concerning the topic of the course. This introductory activity is reversing the consumption mode of students, who passively listen to a teacher, and immediately requires them to adapt to a participative mode of learning. (The usual experience is that it takes a while until students get used to the role of leading their own learning process. Institutional learning processes often teach students to consume rather than to proactively shape educational offerings and learning processes.) During the first two to three sessions of the course, students are asked to develop a set of complex problem descriptions. It is helpful to have a short input presentation by the teacher to introduce to the thematic field; then students should freely develop problem descriptions. During this time students are encouraged to do their own research and to use the internet for exploration of topics. Experience shows that the success of the learning process depends to a large extend on the initial problem definition. Coaching and reflection by the teacher is important in this initial phase to work out criteria for meaningful problems with the students.

Already in this initial stage the Weblog plays an important role. It needs to be introduced to students and initial documentation starts with noting down thematic considerations, problem descriptions and definitions. The process of reflection and articulation helps students to develop a language and understanding for their own learning process. They become reflective in learning, researching and sharing information amongst each other. On their way from reflection novices to experts they increasingly relate to their motives, actions, barriers and own action strategies. It is difficult in this initial phase to reflect about ones own underlying motives and strategies. Therefore, concise feedback and help from the course facilitator about strategies and themes for students' reflections is helpful. Ideally, students understand that the process and the documentation of reflection in writing is not an optional add-on, but rather an integral part of learning in the course, and the course topic is rather the medium than the central learning objective.

Possible questions for reflection: Why is the chosen topic of relevance to you?

Phase 2: Cluster and Network
In this phase students take over the responsibility to decide on a relevant topic for their learning project. They do so in social interaction, they create networks of ideas and negotiate research topics with the aim to cluster topics to project groups. Students are asked to read through problem descriptions on the Weblogs. In a discussion which follows in a presential phase, students are encouraged to ask questions for clarification purposes and to form groups on basis of similar or related problems. Main objective is that students are able to agree on a common problem for their learning project. Once the negotiation and agreement phase is over, the seminar is sub-divided into groups which work on specified problems.

Each group gets the assignment to develop a knowledge base and an educational microscenario which they plan and organise for the whole group and in which they work with the others on case studies, give them the necessary background material and lead discussions. Through this approach are taken into an authentic, real-life situation, in which

they have to make decisions based on their own teaching strategies and to reflect on the learning process of others. All students are asked to document their reflections as well as the process of negotiation, their experiences and the final decision in their Weblog. The group then develops a project plan, including a timeline on how to work out their project.

Possible questions for reflection: What did you discuss? Describe the process of agreeing on a common topic?

Phase 3: Research and Inquiry Phase

In the inquiry and development phase students are asked to do desk research on the problem, the background and possible solutions and to collect information which they are asked to put together into a background reader. They develop in addition an educational micro-seminar. The groups work individually on their projects. It has proved to be important for the groups – especially in the initial phase – to offer frequent coaching possibilities in which they get feedback, report on their current status and their additional needs. It is important to remind students that the reflection exercise is an integral part of the learning experience, as the start of the research and inquiry phase for many of them seems to be "the real work". The documentation of their reflections, learning experiences and outcomes within a Weblog is in the foreground. As a general rule, students are encouraged to provide their written reflections to the facilitator before they come into a meeting and discuss their study project.

Students are asked to perceive themselves as multipliers of their knowledge rather than to just learn for themselves. The background reader should be ready and send to the group one week in advance of the final workshops to allow for time to prepare the seminar. The micro-scenarios should be learner-focussed and include mainly support activities on the teachers' side.

Possible questions for reflection: How do you work on your learning project? Which strategies did you chose? Which problems did you solve? What are the next steps you will take?

Phase 4: Networking and Peer-Reflection

Articulation and reflection can be facilitated through peer-reflection and networking events during the research and inquiry phase. In this phase the student groups work pretty much for themselves for about 6 to 8 weeks. They are authoring their experiences and report on the state of the projects in their Weblogs. A supportive activity of the teacher is to organise one or two peer-learning and networking events in this phase. The facilitator pools together two teams and asks them to make a mutual peer-reflection on the current status of their respective project works. This should start with assessing and mutually commenting their Weblogs, and then have a presential or virtual meeting to discuss and share information on issues which are unclear. A mutual reflection report should be provided containing the main recommendations and findings. The networking and peer-reflection phase has a mentoring function – an experience which again should be reflected in writing in the Weblog.

Possible questions for reflection: How is the other group working? Where do you see similarities with your own group? What can you learn from them? Where can they learn from you?

Phase 5: Presentation and Teaching

The presentation and teaching phase puts students into an authentic professional situation. They are in a situation where they have to develop ad-hoc strategies while they teach, they reflect in action, and they find alternatives. In the presentation phase students organise seminar days for which the individual project groups conduct workshops with the whole group on the topic they have worked on. The activity of the teacher should be kept low in favour of student activities. In this phase students actually change roles and take over the teachers' role. They practice teaching themselves and they practice reflection in action. It is a real-life example of a practice situation. In the reflection phase students' action strategies are identified, analysed and a feedback by the other students and the teacher is given and complements the self-reflection phase.

Possible questions for reflection: How did the group manage to activate you? What could you learn from them – apart from the content – for your own presentation?

Phase 6: Reflection and Feedback
The learning objective to become reflective professionals and to develop the ability to invent ad-hoc strategies for action requires a continuous reflection process. Although it is part of a university course, the teaching situation provides an authentic environment for reflection in action. It is followed by a structured group feedback and an individual (unstructured) feedback from the teacher. It is important to ask students about their experiences and to give them freedom to express these experiences through writing in their Weblogs. At the end of the course, students take time to recapitulate their weblog entries. This is an important process for students to understand their own progress towards becoming reflective professionals.

Possible questions for reflection: How did your own capability to reflect evolve? Do you find recurring themes in your own learning experiences?

4 Conclusion

Our reflections and evaluations of the experiences presented here lead to five main conclusions and messages which are in line with findings in the literature:

Peer-Learning and Reflection as „Nice to have“: Many students understand the activity of reflection as a "nice-to-have" and voluntary add-on to a seminar. They do not regard it as an integral part – in teacher's perspective it is THE essential part – of the learning process. It is therefore important to find strategies which introduce reflection and peer-learning activities to students in a comprehensive way. We know from research that there is attitudinal and behavioural acceptance of aspects related to technology-enhanced learning (Bürg & Mandl 2004). This finding requires for our case to create a culture of reflection in the class from the beginning by asking students to think about their underlying behavioural strategies, about their motives and values. The Weblog, which serves as instrument to reflect and to document the learning process of students, has to be linked to the class schedule. This may function well if general rules have been established which specify that for every work task there is one related reflection task to be done. To make reflection an important part of the course success also means to include it into the grading of students' performance. If class activities, research, presentation, and reflection are all linked, this approach works well.

Universities as primary place for personal development: Universities are often not perceived by students as the primary place for their personal development. Therefore,

students lack attitudinal acceptance for the suggested reflections tasks in courses. Reflection demands to from students more than producing learning artefacts and to engage but on a different level, reflect their underlying assumptions, behaviours and values. It is a prerequisite that students understand that the course they are taking goes beyond being a knowledge container, and aims to reach into their competence portfolio, thus addressing values, attitudes and motivations. As a strategy to achieve commitment, it is useful that teachers create from the start of the course a culture of learning and reflection, explain students why and what to do, and emphasise reflection as an activity which contributes to the institutionally recognised learning process.

Regular reflection times and tasks: Reflection needs to be an essential part in the everyday learning activity. The use of Weblogs makes the learning process and the way how students work on their projects more transparent, as the times when they work and the way how they work is documented. Although reflection can not be thought and prescribed, it has proven to be important that teachers arrange a regular time sequence for reflection activities in the same way they do it for other learning activities. To set deadlines also allows to enter students into per-reflection phases by asking them to mutually read and comment on their reflections. Especially in the beginning of a course students are often novices in reflection; therefore they need clear tasks and comprehensive feedback by the course facilitator.

Openness, Empathy, Feedback Rules, Culture: Self- and Peer-Reflection requires a class atmosphere that of values each others contributions and creates openness for collaboration. This is a frequent educational challenge, which goes hand in hand with the point which has been raised above - university as place for personal development. Reflection is an activity with its own importance and needs to be embedded into the overall institutional learning culture. Openness is a prerequisite, and empathy from the course facilitator as well as from the other students needs to be practiced. All participants have to understand that it needs a lot of practice to become a reflective professional. This practice needs support through feedback rules, which the teacher might develop together with the student group.

Rooting refection and weblogs in the universities teaching and learning culture: Using Weblogs in university seminars means to introduce a new element into the set of already well known mechanisms how teaching, learning and grading functions. Often neither students nor teachers have experiences and have a notion what it means for their teaching and study efforts respectively. In order to achieve the desired objectives it is of high importance that Weblogs and the reflection process is perceived as an integral part of the educational scenario of the described project-based seminar. It is essential to give students advice and to coach them in the initial phase and to give them continuous feedback on their reflective writing. The use of Weblogs has to be defined as one of the elements of the seminar without which the seminar cannot be successfully completed. It has to be granted that a quantitative indicator cannot be applied to judge the quality of individual reflections. However, our experience shows that there are two critical factors which determine the efficiency of reflection as an activity for learning and competence development: First it is important to give the students a structure and questions which they can use when they reflect on their learning experiences; it has proved to be useful to show them examples and inspire them how efficient reflective writing may look like. Secondly and most important it is necessary to give students a regular and positive feedback on their documented reflection processes.

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