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Blended Learning in Higher Education: Theory and Praxis

G. Reinmann

J. Macdonald

Roisin Donnelly
Technological University Dublin, roisin.donnelly@tudublin.ie

J. Fransen

E. Poldner

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Blended Learning in Higher Education: Theory and Praxis

Chair: Professor Guus Wijngaards, INHOLLAND University, Netherlands

Discussant: Professor Robert McCormick, Open University, United Kingdom

Symposium abstract

Recent studies are showing that 'blended learning' is more than a mix between face-to-face and online education, or in other words: a mix of traditional and computer-based education. Blended learning seems to include mixtures between eLearning and other ways of learning, where the right choices have to be made in the distribution of learning content, didactical approaches, ways of communicating and characteristics of learning environments, in the perspective of the type of learning process and characteristics of students.

This symposium provides evidence from qualitative studies of blended learning in practical situations, drawing on tutors' and students' perspectives, contrasted with theoretical ideas. Attention is focused on assessment in blended learning environments and the use of ePortfolios to align learning, teaching and assessment when new educational approaches are implemented. Also, research on the roles and effectiveness of the eTutor in blended learning will be presented, focussing on academic learning and social integration. Furthermore, attention is focussed on blended strategies in problem-based learning by presenting recent case study research on a postgraduate course for academic staff in 'eLearning design'. Also, a redesign of the initial teacher training curriculum will be presented, offering different routes for groups of students according to their need of flexibility and support. Finally, a framework is offered for determining the quality of reflection reports in a blended learning environment. In sum, the concept of blended learning is studied from the main perspectives according to learning processes: designing a learning process, supporting a learning process and assessing a learning process.

The discussant will go into issues like the design, deliverance, support and evaluation of the presented projects, the degree of internal locus of control for the learners, the assessment methods and tutor and student perceptions on interactions.

1. **E-Portfolios**; A Blended Assessment Strategy between Bologna and Web 2.0 (Gabi Reinmann, Medienpädagogik, Philosophisch-Sozialwissenschaftliche Fakultät, University of Augsburg, Germany)
2. **Evolving Tutor Roles for a Changing Environment**; Blended Learning in Practice. (Janet Macdonald, Open University, Scotland)
3. **Blended Problem-based Learning** (Roisin Donnelly, The Learning and Teaching Centre, Dublin Institute of Technology, Ireland)
4. **New Blends in Education**; Blended Learning & Teaching and the Initial Teacher Training Curriculum (Jos Fransen, Centre for eLearning, INHOLLAND University for Professional Education)
5. **Determining the Quality of Reflection Reports in Blended Learning Environment** ; A New Frame of Reference (Eric Poldner, Centre for eLearning, INHOLLAND University for Professional Education)

E-Portfolios; A Blended Assessment Strategy between Bologna and Web 2.0

Gabi Reinmann (in cooperation with Thomas Sporer)
Medienpädagogik, Philosophisch-Sozialwissenschaftliche Fakultät, University of Augsburg, Germany

Abstract

Our proposal addresses to major trends in technology-enhanced education today: the rise of the next generation of educational technologies called Web 2.0 and the support of the Bologna Process via e-learning. Both trends are important issues for the theory and practice of learning in higher education, especially with regards to assessment strategies. The research focuses on self-organized and informal learning in context of Web 2.0 in contrast with the need for a common assessment framework for formal learning settings in context of the Bologna Process. We analyse how these issues interact with each other and show how a blended assessment strategy based on e-portfolios could be a means to integrate the promises of self-organized learning through social software with the necessity of establishing quality standards in the European Higher Education Area.

Extended Summary

The term *Web 2.0* represents a new understanding and utilization of the WWW for informal learning networks and self organization through social software. It stands for a technology-induced movement which *can* produce sustained change in the conception and practice of higher education. The idea of Web 2.0 promises a resourceful concretization of constructivist concepts and materializes them through the use of ICT. We consider Web 2.0 therefore as an important term indicating the challenge to learn and construct knowledge in a self-organized and heterogeneous manner with a high degree of internal locus of control for the learner.

The term *Bologna* refers to a process that aims at building a homogenous European Higher Education Area which will change our university landscape. This process requires accreditation and certification amongst various programs and institutions in order to offer comparability and transparency. In contrast to Web 2.0 the term Bologna does not primarily refer to the level of the individual learner, but to the level of the university as an institution. Striving for comparability via educational quality standards, Bologna is an important term in the organization of higher education that adopts an external locus of control within the educational practices where assessment of learning outcomes plays a pivotal role.

On conferences and meetings you can well separate between these two trends and might argue that there is no relation between them. But in the actual experience of *students* and *professors* who want to meet the demands of both these trends, requirements and expectations arise that are inconsistent at first glance. These conflicts mainly concern the fields of assessment, curriculum and incentives. This proposal focuses on the field of *assessment* as explored in our current research.

Assessment plays a key role in the life of a university: students expect to learn and to be taught in a manner that suits the prevalent forms of assessment in order to attain good grades. Educational practices like project-based learning and reflective thinking might be noble goals for some students, but practical problem-solving and social engagement are hardly assessed by typical quantitative forms of performance tests. The problem at hand might be therefore that how we assess strongly influences the acceptance of new learning and teaching scenarios. Resistance to new educational approaches often seems to be due to conflicts between learning and teaching on the one hand and inapt or lacking strategies of assessment for exploiting the potentials of digital media on the other hand.

Our thesis is that assessment via e-portfolios may solve this problem, because to assess the required competencies (assessment *of* learning) is a necessary element of evaluation (in quality management)

along with Bologna. Reflection and peer reviews as self-evaluation (assessment *for* learning) can be integrated in the philosophy of Web 2.0. In this context e-portfolios qualify as a blended assessment strategy between Bologna and Web 2.0.

Aims of our project therefore are to develop a theoretical framework for the introduction of e-portfolios as an assessment method and to develop the concept of a multifunctional e-portfolio as a tool by implementing and evaluating it in a bachelor and master university program. Methodologically we are working within the design-based-research approach which is a relatively new strategy for researching a wide range of fields, including technology-based instructional designs such as e-portfolios (Dede, 2004). Design-based research employs an interventionist approach, takes place in naturalistic contexts, passes through successive stages towards greater improvement, and results in the production of new theories on learning and teaching (Barab & Squire, 2004).

Currently we work on the development of a theoretical framework for the implementation of e-portfolio assessment into the curricular structure of universities. So far our findings focus on the characteristics and properties an e-portfolio should possess in order to solve the conflicts described above. Although e-portfolios (Mason, Pegler & Weller, 2004) are useful multifunctional assessment instruments which can mediate between assessment *of* learning and assessment *for* learning, it is important that both functions cannot be realized at the same time. Efforts to directly meet those diverse needs are not very successful so far. Consequently Barrett and Wilkerson (2004) postulate three interconnected portfolio-systems (working portfolio, story portfolio, test portfolio) which we re-conceptualize as the different stages in the utilisation of e-portfolios. In the *working-portfolio*-stage you have to support a form of individual reflection-in-action (Schön, 1983). For this function *podcasts* seem very suitable, but are rarely tested so far. Producing podcasts makes it possible to assess experiences in an oral and easy manner without the necessity for a systematic arrangement. Besides that one can annotate small products (like text documents and photos). In the *story-portfolio*-stage you have to foster a form of reflection-on-action (Schön, 1983). This function can be realized by *weblogs*: Written documentation forces someone to reflect more intensively and to structure the results along meaningful dimensions. Additionally, reciprocal commenting is established within the blogosphere and interconnected weblogs support small communities. Finally, in the *test-portfolio*-stage there is some reflective decision-making to selct which learning performances should be an artefact for evaluation through a third person. For this function specific functions of a learning management system or some kind of *assessment management system* may be used.

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Evolving Tutor Roles for a Changing Environment; Blended Learning in Practice

Janet Macdonald
Open University, Scotland

Abstract

Interest in the role of the tutor has been widespread in UK Higher Education, fuelled by the demands of a mass higher education system and an increasingly diverse student body with a broader range of needs. For students who are off campus much of this tutor support is mediated by distance technologies, and arguably forms part of a blended strategy. However, it is not always clear what aspects of the tutor role might be particularly effective in leading to better student learning or integration, or meeting a diversity of needs. A rapidly changing environment at the Open University (UK) has led to a rich diversity of approaches using a variety of technologies, illustrating well the pragmatic aspects of blended learning. But which of these interactions are really effective in supporting student learning, and what does it mean to be a good tutor? This paper will describe findings from a qualitative study of tutor-student interactions at the Open University (UK), drawing on tutors' and students' perspectives.

Extended Summary

Interest in the role of the tutor has been widespread in UK Higher Education, fuelled by the demands of a mass higher education system and an increasingly diverse student body with a broader range of needs. Tutors can help students to become more readily integrated into life and productive independent study with ultimate implications for retention rates. Thomas & Hixenbaugh (2006) provide a wide variety of case studies of the personal tutoring role and how that is implemented in different institutions. They describe how tutoring may be designed for all students, or just those in need; it may be proactive or reactive; integrated into the curriculum or an additional support activity; perhaps based on inter-personal relations or service oriented. For students who are off campus, much of this support is mediated by distance technologies, and arguably forms part of a blended strategy. However, it is not clear from such institutional strategies what aspects of the tutor role might be particularly effective in leading to better student learning or integration, or meeting a diversity of needs.

The Open University (UK) is the UK's biggest provider of distance learning, with 580 courses offered to 200,000 undergraduate students and 30,000 studying at postgraduate level. The University employs 8000 part-time tutors, who act as the human interface between the university and its students. Each tutor is responsible for the support of a group of around 20 students, although the group may vary in size depending on the geographical distribution of students. So in spite of the scale and size of the University, the great strength of the system is that all students are identifiable individuals to a tutor. We know this system is popular with students, because in a recent National Student Survey funded by the Higher Education Funding Councils, student satisfaction ratings for the Open University were higher than for any other University in England and Wales (Hefce, 2006).

While some staff work for the University part-time and provide support to one group on one course, others have a portfolio of courses, and effectively work full time. Their role is to mark assignments with detailed formative feedback, and to provide support to students as appropriate. Tutors are not concerned with the delivery of content, since that is delivered in the form of printed or web based course materials. The nature of their support will vary to some extent with the Faculty and course, but broadly speaking there is a standard remit, and they will mediate content and help students to question, and understand challenging content.

All tutors must be online for administrative purposes, but also increasingly for supporting learners. This rapidly changing environment has implications for the ways in which students can be supported by their tutors. With the use of online media, new and arguably more complex patterns of support have become prevalent, for both groups and individuals in formal and informal ways (Macdonald 2006). Learner support includes a spectrum of uses for computer conferences, including online tutorials (a term with a variety of meanings), and the potential to support students in larger groups beyond the boundaries of the traditional tutor group, together with the widespread use of email to support individual students on demand. At the same time, on most courses there continues to be provision for traditional approaches such as face to face tutorials. This diversity, which is strongly influenced by institutional concerns, illustrates well the pragmatic aspects of blended learning.

But which of these interactions are really effective in supporting student learning, and what does it mean to be a good tutor? Such considerations should underpin an informed approach to blended learning. Critical to students' persistence to study is what Kember (1989) describes as academic and social integration. Arguably, both of these aspects are likely to be of significance to tutoring strategy when considering an effective and responsive approach to student needs. Richardson et al (2003) found that the attitudes and behaviour of distance tutors are crucial to students' perceptions of the academic quality of courses in distance education. Haggis (2006) describes how students may be unfamiliar with the process of study and institutional expectations; and argues that there is often little discussion with students of what our expectations are, and that staff should be more overt in describing what it means to study in a particular discipline.

This paper will describe findings from a qualitative study of tutor-student interactions at the Open University (UK), drawing on tutors' and students' perspectives. The study forms part of a larger study of conceptions of tutoring in distance education (Jelfs, Macdonald, Price, Richardson & Cannell, 2006).

In choosing our approach we wished to derive a rich picture of interactions between tutors and students and to gather data to describe tutor and student perceptions on interactions which were particularly important for student learning, and the contexts in which they took place. We chose to capture the tutors' reflections in a collaborative blogging environment to which 20 tutors from all Faculties were asked to contribute over a period of three months. An iterative reading of the transcripts by the research group and subsequent discussion led to the development of a number of categories which described the activities undertaken by the tutors. The findings give an account of the major trends which emerged, illustrated with extracts from blog transcripts. This is contrasted with data from telephone interviews with students.

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Blended Problem-based Learning

Roisin Donnelly
The Learning and Teaching Centre, Dublin Institute of Technology, Ireland

Abstract

Blended learning in the context of this study consists of a blend of at least two pedagogical approaches: the integration of face-to-face problem-based learning in a tutorial setting with a variety of eLearning technologies. The concept of blended problem-based learning is introduced here through an outline of recent case study research on a Postgraduate Diploma Module entitled 'Designing E-Learning' for academic staff in Higher Education in the Republic of Ireland. In recent educational research, there has been an obvious shift towards more social, collaborative and communal perspectives of learning. Various forms of collaborative and inquiry-based learning include the idea that learning should be understood as a combination of participation, knowledge creation and internal processes. Problem-based learning (PBL) is one form of inquiry-based learning that is a holistic approach to education inclusive of the learning environment, design of curricula, student support and facilitation of learning. Problem-based learning and eLearning are pedagogical approaches that each support a constructivist theory of learning, and social interaction plays a fundamental role in the development of cognition among participants; there is a group-oriented, knowledge-building discourse throughout the module, and the participants work collaboratively in real-time and asynchronously to manage the problem. Interaction is a critical component because learning occurs in a social context through collaboration, negotiation, debate, and peer review. Although using e-learning in conjunction with PBL has a number of advantages, there are also a number of difficulties to be overcome. This paper reports on each of these and discusses how this module challenged some of the rhetoric about both PBL and eLearning.

Extended Summary

In recent educational research, there has been an obvious shift towards more social, collaborative and communal perspectives of learning. Various forms of collaborative and inquiry-based learning include the idea that learning should be understood as a combination of participation, knowledge creation and internal processes. Problem-based learning (PBL) is one form of inquiry-based learning that is a holistic approach to education inclusive of the learning environment, design of curricula, student support and facilitation of learning. The basic principle supporting the concept of PBL is older than formal education itself, namely that learning is initiated by a posed problem, query, or puzzle that the learner wants to solve (Boud and Feletti, 1991). As it is grounded in experiential, collaborative, contextual and constructive theories of learning, PBL has clear point of convergence with everyday learning and action processes (Portimojärvi, 2006).

Saven-baden and Howell-Major (2004) suggest that the term computer-mediated PBL has been used initially to define any form of PBL that utilizes computers in some way. However, this is seen as problematic since it offers little indication about the ways in which computers are being used, the areas of student interaction, the quality of the learning materials or the extent to which any of these integrate with PBL. Problem-based learning and especially the tutorial groups can be examined as communities of learning and construction sites of shared knowledge. However, collaboration in a distributed group presumes social presence, shared understanding and versatile communication among the participants. Transforming group activities to online environments requires selecting suitable media for each situation and task.

The concept of blending face-to-face and online problem-based learning is introduced here through an outline of recent case study research on a Postgraduate Diploma Module entitled 'Designing E-

Learning' for academic staff in Higher Education in the Republic of Ireland. This ten week module is part of an accredited professional development programme for these academic staff. The aim of the module 'Designing E-Learning' is to enable the participants (lecturers, librarians and educational technologists), through a blended learning approach to PBL, to become aware of the practicalities of designing, delivering, supporting and evaluating an online module in their own subject disciplines. Interacting with peers from higher education institutions internationally was regarded as important for providing multiple perspectives to learning collaboratively. Various recent case studies (Bonk and Graham, 2006) have expressed a belief that most, if not all learners learn best through blended learning. Indeed, one of the oft-quoted text bytes on blended learning is "the question is not if we should blend…rather the question is what are the ingredients" (Rosenberg, 2001). Blended learning in the context of this study consists of a blend of at least two pedagogical approaches: the integration of the PBL face-to-face learning in a classroom with eLearning. For example, the classroom is used by the PBL group to discuss critical concepts, and the discussion boards and synchronous chat room in the online environment WebCT, is used to encourage an international dimension to participant dialogue around the concept.

Problem-based learning and eLearning are pedagogical approaches that each support a constructivist theory of learning, and social interaction plays a fundamental role in the development of cognition among participants; there is a group-oriented, knowledge-building discourse throughout the module, and the participants work collaboratively in real-time and asynchronously to manage the problem. Interaction is a critical component because learning occurs in a social context through collaboration, negotiation, debate, and peer review.

Real time online events were as important as asynchronous discussions in the blended PBL approach. The Synchronous Chatroom feature of WebCT was used for specific aspects of problem-solving, so that the tutor could help participants on a one-to-one basis, or one-to-small group basis. Many technologies can meet varied individual needs and each technology has its own particular instructional strengths. The design of this module needed appropriate selection and choice of a blend of delivery methods to meet the learners' needs. Thus the role of technology in this instance is ultimately the same as the tutor's: to be a facilitator in eLearning.

Although using e-learning in conjunction with PBL has a number of advantages, (such as students having access to wider resources and often innovative problems, new and different forms of dialogue and immediacy in communication and learning), there are also a number of difficulties to be overcome. Students can very easily be overloaded with information. Problem scenarios may be pitched in terms of complexity of information management rather than of the development of criticality. Communication problems can arise both within the group locally and internationally and between the group and the tutor(s), particularly if there are language barriers to overcome; essentially this is because of the difficulties of understanding text-based dialogue rather than live dialogue. PBL is an approach that relies strongly on communication and learning through dialogue, and if the text-based communication (chat or email) is misunderstood or tutor feedback is received as negative when it was trying to be developmental, this can lead to discontentment and disjunction.

Therefore, there are a number of issues which need to be taken into account by any lecturer wishing to blend PBL and e-learning: developing tutor's online facilitation capabilities, designing and producing synchronous events to support students, encouraging collaborative interactive participation and finding ways of engaging students who seldom participate in the online PBL group.

This module challenged some of the rhetoric about both PBL and eLearning. It is very easy to plan on paper how one can integrate and blend a constructivist, socio-cultural context for learning, yet, putting this into practice with activities that are truly meaningful and authentic for learners in a limited time frame, can challenge the design skills of many.

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New Blends in Education; Blended Learning & Teaching and the Initial Teacher Training Curriculum

Jos Fransen
Centre for eLearning, INHOLLAND University for Professional Education

Abstract

The School of Education of INHOLLAND University for Professional Education started in 2005 with the project 'New Blends in Education', to develop three learning routes that meet the demands of students and society for flexible learning arrangements. Those routes are positioned in a continuum, extending from maximum teacher-directed synchronous learning to maximum student-directed asynchronous learning. The project involved the development of a theoretical framework on blended learning and the design of learning practices, followed by four experiments on innovative design of practices within the initial teacher training curriculum. Research on process and results of those experiments offered new insights leading to the design of new experiments on a larger scale in the second year, resulting in the recommendations for the redesign of the initial teacher training curriculum.

Extended Summary

September 2005 the School of Education of INHOLLAND University for Professional Education started the project 'New Blends in Education', to develop a set of learning arrangements for different groups of students, matching specific needs for distance learning and self-directed learning. The project is aimed at developing three learning routes within the initial teacher training curriculum that meet the demands of students and society for flexible learning arrangements, within the perspective of student-oriented, competence-based education. The point of departure is eLearning, enriched with learning activities like face-to-face meetings, training sessions and learning in practice. Differences between students occur as a result of competence, learning style, motivation, ability in reflective self-directed learning, and perception of the learning practice. Those differences determine to what extent a student is able to study independently [asynchronous learning], and what kind of supervision he needs with that. The three routes are placed at three positions in a continuum, which extends from maximum teacher-directed and synchronous learning to maximum student-directed and asynchronous learning:

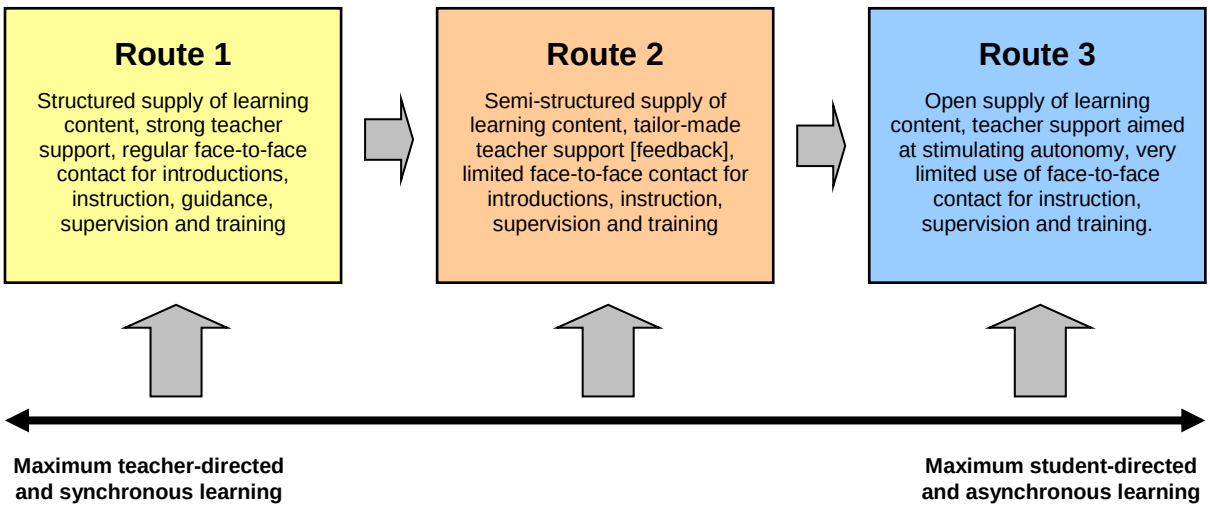

Figure 1. Three learning routes within the continuum of maximum teacher-directed and maximum student-directed learning.

The project involved the development of a theoretical framework on blended learning and the design of learning practices, followed by four experiments on innovative design of learning practices in the initial teacher training curriculum. Research on process and results of those experiments offered new insights leading to the design of new experiments on a larger scale in the second year, resulting in recommendations for the redesign of the initial teacher training curriculum.

The project started with the exploration of the concept of ‘blended learning’, resulting in a definition. Information and communication technology offers a range of possibilities for designing the learning process and enriching learning environments, because of the availability of multimedia, interactivity and the possibilities of the network aspect. That means that in every practice a multitude of possible choices are to be made in using the most effective media and instruments for communication, suited for the type of learning process and in line with the needs and characteristics of students. To support the decision process a framework was needed, and describing every learning situation as a dialogue between teacher and learner[s] was a helpful metaphor. In the end learning aims at understanding the world better to be able to cope with it or to act in it, and ‘understanding’ is always the result of some sort of dialogue. This implies dialogues with the teacher and fellow students, and the internal dialogue with the learning content. The dialogue with the teacher is important for the presentation of concepts and for checking if students develop misconceptions. Dialogues with fellow students are important in a process of knowledge construction, and in generating attitudes and values. The internal dialogue is at stake when new knowledge should be built in the personal conceptual framework. There are dialogues on the level of cognition, on the task-level and between those levels. The dialogue on the task-level involves goal setting, learning activities and evaluation of the results. Dialogues between two levels could be described as reflective, resulting in redirection of the process [student] or redesign of the learning practice [teacher].

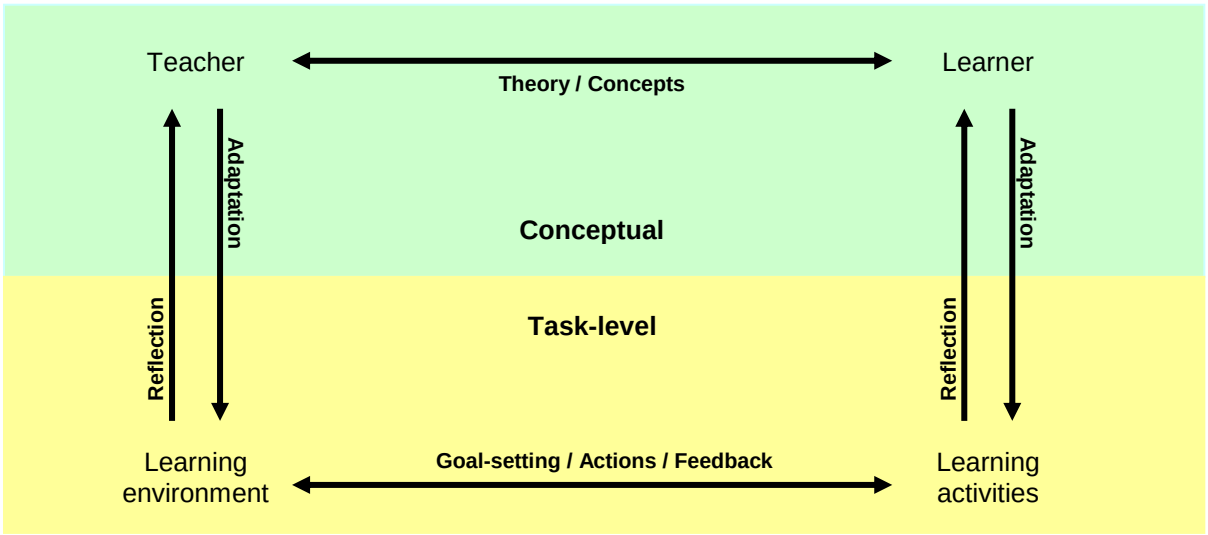

Figure 2. Interactions [dialogues] in the learning process [Adaptation of the model of Laurillard, D. [2005]. Rethinking University Teaching; Conversational framework, p.87]

The definition of 'blended learning', as a result of an exploration of aspects of learning processes and learning practices, lead to the notion that choices have to be made between ways of distributing the learning content, media application, communication instruments, didactical strategies, and in learning environments, related to type of learning process and characteristics of students and their perception of the learning practice. Those choices may change over time within a learning practice and different approaches may be used parallel. That means that synchronous learning and asynchronous learning

may alternate during a process, but both types of learning can also be programmed parallel, leaving room for students to make a personal choice between the two according their circumstances. Students were consulted during this project and were offered a role in redesigning the learning environment. The decision procedure in the design process is shown in the diagram below:

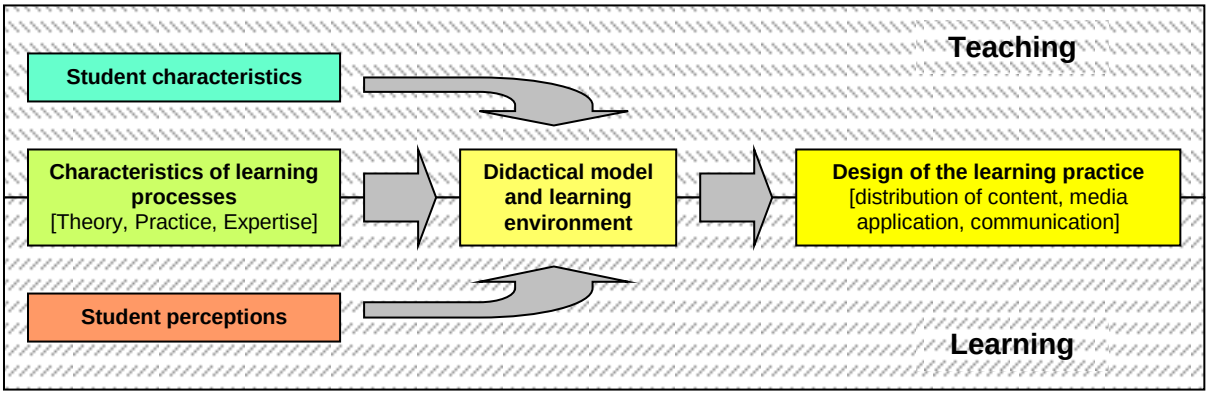

Figure 3. Decision procedure for the design of a learning practice in the perspective of 'blended learning & teaching'.

In the first year of the project four experimental practices were designed. Action research aimed at the exploration of new possibilities for supporting the specific type of learning process in each practice and finding out how students perceived those experiments. The same approach was used in each practice: context and student characteristics were analyzed and students and tutors were interviewed half way and at the end of each practice. Results had an impact on the design of the second year experiments. Results of the second year experiments are available in July 2007 and will lead to recommendations for the redesign of the initial teacher training curriculum. Also, recommendations in selecting students for the three routes within the curriculum will be part of the project results.

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Determining the Quality of Reflection Reports in a Blended Learning Environment; A New Frame of Reference

Eric Poldner
Centre for eLearning, INHOLLAND University for Professional Education

Abstract

Reflection is crucial to enhance deep learning within the context of competence-based education and peer feedback and ICT-tools could be valuable instruments for improving the quality of reflection of the students and tutors. Research on the quality of reflection using peer feedback and streaming video in an electronic learning environment in a digital initial teacher training program will probably offer insight in the quality and level of reflection using those new tools. The research also resulted in a reflective framework for determining the quality of reflection reports. First results of quality improvement using peer feedback and streaming video in a blended learning environment will be presented.

Extended Summary

Within the 'DigiPabo', a digital initial teacher training programme of the School of Education Rotterdam INHOLLAND, students acquire teacher competencies with the help of ICT-tools. They collaborate on assignments, post concepts on forums and provide reactions and feedback to materials and notices published in an electronic learning environment. Students work together for ten weeks on themes, assignments and practical training, under the guidance of an eTutor. With the invention of 'VideoPoort' it has become possible to stream video recordings from practice, straight from the training location. The electronic learning environment enables students and eTutors to review students' video recordings from practice. The student or supervisor may edit the video recording to separate sections to present online by means of a simple video editor. The possibility to share video from practice (anytime and anyplace) by means of streaming video and the possibility to review the video within a forum and provide it with feedback, could lead to a quality improvement of reflection on practice.

Goal of this research is to see how the quality of reflection can be determined on the basis of reflection reports. The research is aimed at the development of a framework for the determination of the level of reflection in reflection reports. This framework will help professionalizing the work on, the supervision of, and the evaluation of the quality of reflection by students and teachers. The added value of peer feedback using streaming video, and the combination of these didactical strategies within an electronic learning environment, will also be looked into. Various researches suggest that these new means of communication could improve the quality of reflection.

The research implies a literature survey of existing reflective frameworks. The reflective frameworks will be analyzed for data concerning technical research aspects (units of analysis, research groups, reliability and usability). In addition, a group of experts will decide on the usability of the frameworks within the training programme. Research shows that working with peer feedback and streaming video can enhance the quality of the reflection reports. The group of experts will carry out research into peer feedback and develop a manual for students and tutors.

The practice research consists of a combination of qualitative and quantitative approaches. For the qualitative research, reflection reports qualified as good have been collected from within the training programme. A group of experts will review a selection from these reports and develop a coding system of their own. After that a number of reflective frameworks, selected from the literature research, will be used to evaluate the quality of reflection of the reports once more. Those various reflective frameworks will be judged on usability and results by the experts. A definite reflective framework will be developed

based on experiences with the coding system. This framework will be used for supervision (with peer feedback) and evaluation of the quality of the reflection reports.

In order to find out whether new ICT-tools have a positive effect on the quality of reflection reports, the method chosen is to compare a number of cases: groups that carry out the same process of reflection in different circumstances. The following groups are distinguished:

- A group without training in peer feedback, and without the use of streaming video within an electronic learning environment;
- A group with training in peer feedback, and without the use of streaming video within an electronic learning environment;
- A group without training in peer feedback, but with the use of streaming video within an electronic learning environment
- A group with training in peer feedback, and with the use of streaming video within an electronic learning environment

In the near future, four reflection reports from each group will be collected and entered into Kwalitan[1]. The reports will be analysed based on the reflective framework that has been developed. After the first report has been handed in, a short interview about reflection will be taken from students and tutors. After the first reflection report, the student's quality of reflection at the starting point, without extra interventions, is determined. In the following three periods the interventions (peer feedback, streaming video and the combination of peer feedback and streaming video) take place and the three reflection reports will be analysed. At the end of the research, the data from assessment interviews or study progress interviews will also be included. Also, another interview will be taken to see to what extent the student thinks his quality of reflection has improved and to what extent the student appreciates certain didactical strategies for the enhancement and support of reflection. In the case of the tutor, the questionnaire will involve the evaluation, the assessment of the reflective competence of students and the tutor's appreciation of the didactical strategies to enhance reflection.

Analyses of the students' first experiences while working with streaming video and peer feedback in an electronic learning environment suggest that students appreciate these tools and think that using these tools will help them to carry out reflection better and at a more substantial level. Students who are more experienced with ICT-tools turn out to be more prepared and capable to apply these tools. The reflection reports of first-year students, working with peer feedback and streaming video, show more growth with respect to the level of reflection than students who did not used these tools.

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