eJUMP 2.0 – Implementing e-Learning 2.0
in everyday learning processes in higher and vocational education
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Introduction

This publication draws together a selection of Action Research Reports produced by teachers who took part in courses developed through the European Commission Transversal Programme project E-JUMP 2.0. The aims of the project have included raising the competence and confidence of teachers in the use of e-Learning 2.0, developing e-courses and identifying success factors and obstacles to such implementation. The project focussed on the professional development needs of teachers in implementing the use of social media and e-Learning 2.0 in their daily practices. It involved the development of three courses and a framework for action research and involved participants from East and West Europe, Central Asia, the Far East and China in working on the courses which have focussed on the pedagogical aspects of new technologies of e-Learning 2.0. The framework of action research was developed to support associated professional and educational development and to encourage the sharing of practice through the documentation of small scale action research projects.
THE COURSES

New Technologies of e-Learning 2.0

This course is centrally concerned with the design, development and evaluation of teaching, studying and learning processes that are supported by the use ICT and social media applications. The course content focuses on the use of Web 2.0 and in particular on the ways in which this allows users to create content in such a way that allows others to both read and write to a such a web environment. Social media is seen as a feature of Web 2.0 involving tools that are used to communicate in different settings such as one-to-many (blog or podcast) and many-to-many (wiki). A major feature of social media is that it enables people to connect together, providing a space in which they can interact and share ideas, experiences and knowledge. Such use of ICT and social media applications can be seen to encourage social networking and active and inquiry-based approaches to learning. The course utilised a range of software tools combined with a diversity of hardware devices which have been used to promote access to learning resources within an open and flexible learning environment. Furthermore the course content has been structured around the pedagogically orientated themes of My Learning, Collaborative Learning, Mobile Learning and Multimodal Learning which has each formed one module at Advanced (Masters) level and credit rated under the European Credit Transfer System (ECTS). This course development has been led by Umeå University.

New Assessment Methods

This course emphasises a learner-centred view of assessment and the use of social media in assessment. It aims to create new opportunities for learning with social media and to promote social interaction and a shift from a “knowledge-receiving” role as a student to an active and “knowledge-creating” one. The use of a wiki and process writing has aimed to make learning processes transparent and learning outputs as sustainable wiki-based articles. It is seen that assessment, rather than teaching, has a major influence on students’ learning. Assessment practices direct attention to what is important and have a powerful effect on what students do and how they do it. However traditional assessment practices have not focused very much on the processes of learning or on how students will continue to learn after the formal summative assessment has taken place. There have been many innovations in assessment such as portfolio assessment, self- and peer assessment, authentic assessment but to date there has been little impact in bringing these approaches together around the major purpose of equipping students to learn for the long term. Students also need to develop their own repertoire of assessment related practices that they will be able to use when confronted with learning challenges throughout their working lives. This course is also credit rated under ECTS and has been led by the University of Turku.
How to Design, Implement and Evaluate an E-Learning Project

This course focuses on the aspects of design, implementation and evaluation which are seen as the three fundamental axes that constitute the process of developing e-learning projects. Every action related to them has consequences in order that the final result matches the intended objectives and fulfils the stated criteria for quality and success. The main objective of the course is therefore the capacity building in concrete fields of action and decision taking. It has adapted a predominantly practical approach in which the learner and his or her active and collaborative tasks hold a fundamental role. The course is aimed at teachers in higher and vocational education, who are interested in developing or improving their skills in designing and implementing courses or learning units based on the use of virtual tools and environments offered through Web 2.0 tools and applications. In order to design, implement and run an e-learning project (program, course or unit) over a considerable amount of time with high indicators of quality, sustainability and acceptance, it is important to understand the main factors that influence the development and the carrying out of such a project. The course enables participants to identify these factors (such as context, target group, training needs and objectives, available tools and technology, pedagogical considerations, roles, human resources, financing, time, etc.) and to keep them in the foreground during the entire design process. It invites participants to apply design and implementation skills to a sample unit for their own teaching and learning context and offers opportunities to explore, use and experience the affordances of Web 2.0 tools for concrete purposes. Based on the implementation of the sample unit, the course invites participants to carry out action research in order to determine the strengths and weaknesses of the explored strategies, procedures, tools and environments for ICT-supported teaching and learning. This course is also credit rated under ECTS and has been led by the Open University of Catalonia.

Action Research Framework

The framework for conducting action research was designed in two phases, with the first phase consisting of action research planning and the second phase involving participants in carrying out their own action research projects. The first phase has been designed as an introductory module on Action Research Planning and the second as a more extensive course in the form of an Action Research Project. Both the module and the course are credit rated under the European Credit Transfer System (ECTS) and have been led by Umeå University.

**THE ACTION RESEARCH PLANNING** module has been structured around the process of action research planning. This involves the identification of the key developmental goals and research questions, research methodology and methods, issues related to research ethics, review of relevant literature and an activity plan. The course of study has been structured around a number of moments through which participants share their ideas and provide peer feedback to others. Each participant has had the support of an Action Research study supervisor in order to provide one to one tuition and support. The approach to the design of the course is based on an educational design framework which extends the traditional instructional and learning design models by addressing the complexity of the teaching-studying-learning process. Teaching is conceptualised broadly as the activity that teachers engage in whether as course designers, facilitators, coaches, mentors etc., whilst studying is seen as what students actually do and learning is seen as the outcome of these complex processes. In particular the aim is to focus attention on the design of teaching situations, pedagogical activities and learning environments. This approach is framed within a cyclical process of didactical design which involves analysis, design, development, interaction and evaluation.

**THE ACTION RESEARCH PROJECT 2.0** course focuses on putting ideas in action through conducting an action research project that involves the application of resources and tools which utilise Web 2.0 and
An objective of the e-Jump project and the Action Research Project course was to produce a compendium of action research in order to share practice of using e-Learning 2.0.

**Action Research Reports**

The Action Research Reports published in this compendium have been recommended first by the tutors who assessed the work and second by a review panel which comprised of other members of the e-Jump project team. Papers selected for publication are seen by the review panel as examples of work which use action research methodology to investigate the introduction and use of Web 2.0 applications and which draw on at least one of the project’s courses.

Action Research methodology was applied by all participants who completed the course, however the articulation and implementation of action research as a method varied considerably. Whilst the cycle of planning, acting and reflecting was used by most participants as a series of stages in a research and design process some reports also incorporate and reflect an understanding of educational theories such as social constructivism and gender analysis while other reports pay little attention to theoretical models. Nevertheless the reports published in this compendium show how Action Research has guided the design of learning activities and made a difference to the practice of teachers.

All reports were produced within a constrained timescale and, given more time, would benefit from further refinement particularly in relation to their presentation for a wider audience. All reports are thus seen as starting point for further development and as a basis for the authors as researcher to build on.

Each author has granted permission for the reports to be published through the Creative Commons Attribution/Share-Alike License. See Terms of Use for details [http://creativecommons.org/licenses/by-sa/3.0/](http://creativecommons.org/licenses/by-sa/3.0/). Furthermore each author was informed about their responsibility as a researcher to address matters of ethics and anonymity in their reports.

**Trends and Variation**

Overall the reports reflect aspects of technical and pedagogical development and indicate increased levels of motivation among learners using Web 2.0 applications. There is a strong emphasis from all authors on the design of learning activities and the use of Web 2.0 applications to improve traditional ways of teaching and as enhancements to virtual learning environments.

Course participants showed particular interest in exploring tools and designing learning activities which support collaboration, evaluation, reflection, and formative, summative and peer assessment. All action research projects investigate the use of specific tools for specific purposes, for example the use of ePortfolio applications for reflection and assessment and the use of Wikis, blogs and general Google applications for collaboration, personalisation, assessment and evaluation. Some research projects include the evaluation and selection of Web 2.0 tools in the research process. As one might expect the subjects of the research activities vary, for example one project uses action research to improve a staff development session.
on the use of wikis, another project investigates the use of blogs for publishing and peer assessment whilst another explores gender peculiarities and collaborative e-learning 2.0 activities within a community of practice.

Conclusion

The reports included in this compendium are all examples of ways of putting ideas into action that involve the application of resources and tools which utilise Web 2.0 and social media applications by integrating them into the design and development of teaching situations, pedagogical activities and learning environments. The framework for conducting action research has encouraged a process planning, action, reflection on action and the critical evaluation of its impact on student learning outcomes.

These reports represent snapshots of a number of ongoing processes of development which we hope will continue over time and which may also inspire others to carry out similar investigations in the future. The support from the supervising tutors was an essential factor in the success of these projects and the editors of this text wish to acknowledge the invaluable contribution made by all the course developers and members of the tutor team over the life time of the e-jump 2.0 project.
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Introduction

In this report we deal with the action research process developed as part of the postgraduate course “Educational Innovation Practice” as part of the master’s degree “Educational Innovation Policies and Practice for the Knowledge Society” of Malaga University. This research process used the Lesson Study method, which we can consider a variant of participatory action research, as its methodology. However, this lesson Study commenced a few years previously, when, along with our research group, we first designed and developed an online master’s degree with an experimental and innovative outlook, in which the proposed course was called “Interdisciplinary Core”.

In this edition, in keeping with the Lesson Study method, we reviewed the course in line with the conclusions reached in the previous experimentation and analysed the change to the presental version.

In this document we begin by describing the Lesson Studies and the methodological proposal, and then focus on the description of each of its stages over the two courses. The first stages refer to the “Interdisciplinary Core” carried out online with a group of seven Spanish and Argentinian students during the year 2006-2007. From stage 5 onwards we focus on the year 2008-2009, which also included seven students, this time all Spaniards, carried out in a presental manner.

1. Methodology: Lesson Studies

A Lesson Study is a professional development process that Japanese teachers engage in to systematically examine their practice, with the goal of becoming more effective. This examination centres on teachers working collaboratively on a small number of “study lessons”. Working on these study lessons involves planning, teaching, observing and constructively criticising the lessons. In short, a Lesson Study is the work and research process carried out by groups of 4 to 6 teachers, who meet regularly over a long period of time to work on the design, development, checking and improvement of an experimental teaching unit (lesson) (Stiegler and Hiebert 1999).
We could say that Lesson Studies are a system of learning for teachers, a series of practices, mental skills, interpersonal relations, structures and tools which help teachers to work in collaboration and to improve their practice (Chokshi & Fernandez 2004; Fernandez & Chokshi 2002; Fernandez & Yoshida 2004; Lewis 2002; Lewis & Tsuchida 1997, 1998; Stigler & Hiebert 1999; Yoshida 1999). Therefore, a Lesson Study is intended to achieve both action and research: action for change and research for understanding. Practitioners revise and reformulate the questions they are asking, the methods they are using, the plans they are implementing, the effects on pupils’ learning, and the empowerment of teachers’ professional knowledge, as a result of a regular and systematic cooperative study and critique of what they are doing. This cooperative way of experimentation and research has been developed in a highly satisfactory and sophisticated manner amongst teachers in Japan and other Asian countries, within this movement known as Lesson Studies (LS) (Perez et al forthcoming).

The Lesson Study methodology implies the following stages:

- To define the problem.
- To cooperatively draw up an “experimental lesson” plan.
- To teach and observe the lesson.
- To discuss the collected evidence.
- To review and reformulate the lesson.
- To develop the lesson reviewed in another class and to observe again.
- To discuss, assess and reflect on new evidence and to disseminate the experience.

**Stage one: to define the problem that will motivate and orientate the Lesson Study group**

Lesson Studies are fundamentally problem-solving processes. The connection between daily practice and the long-term goals of education is often lost. This is one of the most important weak points of educational reforms and is the main problem to overcome in a Lesson Study. We need to draw up goals for the learning and long-term development of students, in order to, in the second stage, orientate the design of specific practice in the form of a teaching unit to help reach these goals.

**Stage two: to cooperatively draw up an “experimental lesson” plan**

In line with the methodology proposed in the Lesson Study, we must design the lesson to carry out the proposed goals. The goal is not only to produce an improved lesson, but also to understand how and why the lesson works and leads to understanding by the students. It is also necessary to design and plan its study, monitoring process and observation. The team designs a plan to check how students learn from the lesson and the type of evidence that should be collected. The main focus of the study is not what students learn but how they learn, how they make sense of the material, which difficulties they come across, how they respond to the questions, how their thoughts change, and how communication and comparison can be promoted through the available online tools. The LS must make the thoughts of the students visible, meaning we need to design activities that externalise the thoughts of learners, allowing them to observe and analyse.

**Stage three: to teach and observe the lesson**

This stage involves the development of the lesson by one of the components of the team, whilst the others register and collect
Stage four: to discuss the collected evidence

The different items of evidence are used to improve the lesson in particular and the instruction processes in general. The lesson is assessed and its effects on the students reflected upon. The focus is not the teacher but the lesson itself, forming a self-criticism of the entire group that designed it.

Stage five: to review and reformulate the lesson

This can lead to the changing of the materials, activities, questions and problems considered.

Stage six: to develop the lesson reviewed in another class and to observe, analyse and improve it

Stage seven: to assess, to reflect again and to disseminate the experience

This stage describes, analyses and assesses the lesson so it can be understood, learnt and used by other teachers. This involves, firstly, describing the process of the teaching unit developed, its goals, planning, chronology and the teaching material used. Secondly, it is necessary to document the processes followed in order to convert this lesson into an object of study and professional development: the goals of the research, the challenges, problems and concepts to be researched, the data collection methods and an explanation of the analysis of these data and the conclusions reached, particularly with regards to the learning of students and the methods used to bring it about.

We can highlight the following as the most relevant characteristics of this methodology:

- **IT IS BASED ON A LONG-TERM MODEL OF ONGOING IMPROVEMENT.** It involves small, slow changes that modify the whole system; in short, it is a model that aims to modify the entire deep-rooted teaching culture. Cultural changes are slow, existential processes, in which immersion in a reflexive and shared professional cultural context is key to achieving learning which consolidates new structures and remains throughout life. (Ronal Gallimore 1996; D.L. Speece and B-K. Keogh 1996.

- **IT MAINTAINS A PERMANENT FOCUS OF OBSERVATION IN THE LEARNING OF STUDENTS.** It is important to design activities that get students involved in high-level, relevant mental processes, activities that make the thoughts of students visible. It is based on skilled observation and on calm discussion of how students process information, their strategies and their most common prejudices and confusions.

- **IT FOCUSES ON THE DIRECT REFINEMENT OF THE TEACHING IN ITS OWN REAL CONTEXT.** It leads to focusing on the simplicity of a lesson, within the complex context of a class. It involves refinement based on evidence. It is a process of knowledge construction and research developed by the practitioners themselves, in which matters of teaching and learning are researched in class (Zeichner & Noffke 2001). Students learn to know their own assumptions on teaching and the
different concepts that come about in this regard. Since observation and constructive criticism form an explicit part of the analysis and improvement process, teachers generally do not feel they are subject to a process of scrutiny and control.

- **IT IS COLLABORATIVE.** Working in groups to improve the teaching, the teachers learn to develop a common language to discover and analyse it, and to teach it to each other. Despite having similar concepts, goals and experiences, teachers traditionally work on their isolated teaching function, limiting the possibility of constructing shared knowledge. The isolation of teachers brings serious consequences, since teaching is considered to be an activity which is more private than public, and Lesson Studies can be an efficient tool to overcome this situation. In order to construct professional knowledge, the knowledge of practitioners must be public, shared and verifiable (Hiebert et al 2007).

- **IT Focuses on the learning of teachers.** It provides an opportunity for teachers to research their own practice, to verify how their knowledge and how students learn the most significant aspects. To this end, this model favours an ongoing training model based on the professional and intellectual development of teachers in which, whilst teachers refine their practice and develop their profession, they develop as professionals. It brings about the deep intellectual involvement of teachers in the learning of their students and in the act of teaching. Finally, it promotes the enrichment of teachers through the consultation of external sources. In this manner, they compare the treatment of a single subject in different texts and check innovative materials and specialist articles.

With regards to action research, in addition to those indicated above, Lesson Studies provide interesting nuances that are fundamentally related to the researcher-facilitator relationship.

In action research, the facilitator offers help, advice and comparison that the teacher needs in order to carry out the action research. The trust between the facilitator and the teacher is necessary as an element of balance of the interactions. On occasions this critical friend is not a colleague at school but rather another educational professional. It is important to pay attention to these relations when we are establishing the bases of action research processes since the facilitation or, in particular, the external initiative of action research processes creates a paradox: firstly, it supposes that action research is related to teaching autonomy, since teachers are expected to research their own practice, based on their own needs and pedagogical concerns, whilst on the other hand action research could be generated by external intervention, establishing the direction of the teaching work and leading the process (selecting a subject, offering theoretical and methodological resources, establishing a specific organisation, etc.). Teachers could consider the facilitator to be an expert and become dependent on him. As a consequence, action research may degenerate into a technical process: action research orientated by an expert with teachers limited to putting into practice the expert's plan.

For these reasons, we believe it is important to emphasise that Lesson Study places both roles at the same level because it is a collaborative practice between teachers and all the participants develop the roles of facilitator and researcher simultaneously, depending on the practical context in which the lesson is developed.

With regards to professional teaching development, Lesson Study helps to increase:

- a. The knowledge of teachers from a pedagogical, disciplinary and student point of view. Different ways of working the lessons are dealt with, the disciplinary content which forms the object of the lesson is analysed in detail and the thoughts of students, the most commonly used strategies and the most frequent sources of confusion are learned from.
In other words, the model of connection between the practice of learning and the study of lessons and improvement of teaching grows from concern and emphasis on the planning of the lesson to focus on the abilities, mental skills and learning communities developed through collaborative observation and the study of teaching practice (Lewis et al. 2004). To connect the daily practice of the teachers to long-term goals, to construct strong collaborative networks and to promote deeper knowledge of pedagogy and of content are the strengths of the Lesson Studies movement. It is this long-term cultural change that is practical, reflective, cooperative and focused on the individual which makes this movement attractive and different.

Nevertheless, it should be remembered that, as with any other form of action research, Lesson Studies are not a unique or uniform practice. As with the activity of teaching, Lesson Study is not a fixed series of things that can be dominated in a short period of time, making the teacher an expert for ever. It is a series of skills, talents and knowledge (competences) put to the test and that can be developed or deteriorate every time a new situation comes about (Atika 2004).

Lesson Study is not simple, transportable, free or independent from the context, acting within a wide spectrum of problems and in an easily predictable manner. Rather, it should be considered a flexible system to learn from practice, which requires specific materials, knowledge, conditions, skills, attitudes and structures in order to flourish.

2. Rethinking our practice: a Lesson Study in a university postgraduate course.

In this section we shall describe the Lesson Study process developed by the authors from the initial “Interdisciplinary Core” within the online version of the master’s degree “Educational Innovation Policies and Practice for the Knowledge Society” during the academic year 2006-2007, to its review, reformulation and new development in the presential version of the same master’s degree, during the year 2008-2009, with the name of “Educational Innovation Practice”.

2.1 Stage one: to define the problem that will motivate and orientate the Lesson Study group.

The academic year 2006-2007 saw the first online edition of the master’s degree “Educational Innovation Policies and Practice for the Knowledge Society” (Servan et al. 2009; Pérez Gómez et al. forthcoming). The opportunity to prepare and reproduce the materials and the methodology of the online version of the Programme, along with the opportunity offered through the implementation of the European Higher Education Area (EHEA), was used by the teaching team with the intention of setting up the didactic experimentation of a new curricular structure for teaching and learning.

The main goal of the programme can be summarised as aiming to lead to significant, relevant learning, as the best guarantee for the personal and professional development of teachers. In our opinion, relevant, useful learning requires the intense, ongoing interaction between theory and practice, between practice and theory, between research and action, and between reflection and all aspects of action. From the methodological point of view, we believed we needed...
to design programmes that were ingenious, creative, flexible, based on real contexts and orientated towards analysis and problem-solving. This general principle took shape in the following basic aspects:

- Activity played a crucial role in the didactic model. To this end, the activities envisaged in the master’s degree aimed to arouse the curiosity of students, motivating them and involving them in intervention and research projects, always based on their interests and needs.

- Knowledge involves an active, social construction process. For this reason we should try to encourage students to participate actively, exchanging opinions with regards to the questions dealt with and the methods used, benefiting from the different contributions and sharing reflections and proposals for a greater sense of reality. Collaboration thus becomes a fundamental methodological pillar.

- Constant stimulation is required to promote the reflexive consciousness of students. Control over one’s own learning process would be another fundamental methodological pillar. The use of a portfolio as an assessment tool was essential.

- Promotion of personalised teaching is important. Individual attention to each student should be given in order to ensure that the tasks, exercises and projects are related to his/her interests, needs, possibilities, rhythm and expectations.

- To promote the drawing up and development of work projects knowledge must be related to the understanding and resolution of real life problems, situations and projects, based on real contexts.

- Activities that cover a wide spectrum of didactic formats should be promoted. This demanded the use of a plural, flexible didactic methodology in which to show the strengths and limitations of the different ways of carrying out teaching and learning processes in accordance with different contexts, content, problems and learners.

This first stage, apart from establishing the general goals of our research, was used to design the data collection processes in order to assess the implementation of the lesson. We decided to carry out a dual process of internal and external assessment through interviews and meetings between teachers and students, student surveys and data collection based on the work of students and online communication using forums and e-mail.

2.2 Stage two: to cooperatively draw up an “experimental lesson” plan

In order to reach these goals, the design of the curricular structure was inspired by the methodology of Problem-Based Learning and Action Research. Regarding Problem-Based Learning, we highlighted the following characteristics (Barrows 1996; Davis and Harden 1999; Savin-Baden 2000), which we considered most useful for our purposes:

- Learning focused on students.

- It is a learning process that takes place in small groups under the orientation of a tutor who helps students and guides them in their work. Therefore, we should consider it a process of learning in cooperative contexts.

- The problems form the starting point for learning, providing a tool to acquire the necessary knowledge, along with the skills for the understanding and resolution of problems. It is therefore a
learning process that connects the concepts to the specific situations of future professional reality.

- The problems are understood not as simple simulations, but rather as current, contextualised problematic situations.

In relation to the Action Research movement, we should emphasise the idea of teachers as researchers into their own practice. We could define AR as the study of a social situation in order to improve the quality of the research into it, using the knowledge that the agents themselves generate in the intervention process. Improving practice requires improving the understanding of the situation and of the action by the agents intervening in it. The purpose of action research consists of providing elements that can be used to facilitate practical judgement in specific situations, with the validity of the theories and hypotheses it generates, depending on its usefulness, to help people to act in a more rational, autonomous and suitable manner. The ultimate goal of action research is the ability to transform. For this reason, the focus of research is not only on the problem to be resolved, but also on the change processes, barriers, obstacles and procedures for the diagnosis and assessment of contexts, processes and products (Elliot 1993 2007; Perez et al 2009; Somekh 2006). Educational action research would thus aim to improve the conditions, contexts, processes and results of the educational process.

In line with these principles and methodologies, we designed a curricular structure for the master’s degree based on three elements: the disciplinary modules, the interdisciplinary core and the personal work project. The teachers involved in the second research cycle, which forms the object of this report, were entrusted with the interdisciplinary core; this is the element that was put back into practice during the academic year 2008-2009, and as a result this report will focus on it. However, we believe it is necessary to briefly summarise the complete curricular structure, in order to understand the origin of the interdisciplinary core:

1. **The Personal Work Project:**

   This first element is carried out in line with the centre of interest chosen by each student. This interest will give meaning to the concepts, theories, activities, experiences and techniques to be learnt in order to respond to the problems and challenges deriving from the carrying out of each personal project. This Project forms the pillar of both theory and practice throughout the Programme, becoming, at the end of the process, the thesis of the master’s degree.

2. **The Disciplinary Modules:**

   The Disciplinary Modules group together the basic content of each of the areas of knowledge and the skills we consider fundamental for specialist training in educational innovation within the framework of contemporary society. With this goal in mind, the materials made available to pupils in each of the disciplinary modules use all kinds of components to help to situate the problems, understand the concepts, show the analysis procedures and, above all, exemplify both the contexts and the alternative intervention processes and projects. The modules thus bring together theoretical texts, related experiences, specific exemplifications, intervention proposals, practical applications, individual and shared reflection exercises, references and links. The Disciplinary Modules are resources that students can use as necessary to correctly develop their Personal Project or Interdisciplinary Core. The authors of the different Disciplinary Modules were also available online to deal with any specific queries or questions from students.
3. The Interdisciplinary Core:

The interdisciplinary core refers to the basic, formal components present in all educational innovation processes, which require an interdisciplinary approach and cooperative treatment. It can be considered to be a practical and theoretical tool that enriches the intellectual resources of the educational innovation specialist, providing support when dealing with specific innovation projects in different contexts and situations. The core is conceived as a didactic area for the exchange of ideas, experiences, concerns, alternatives and examples that can be used as sources of inspiration for the personal project of each student. In short, it constitutes a practical theoretical experience of reflection and educational innovation proposal.

The interdisciplinary core was designed with the following stages:

- Description of one’s own educational practice;
- Internal comparison and discussion of the practice descriptions amongst the components of the student workgroup;
- External comparison with other educational innovation experiences in schools, in particular the experience known as Accelerated Schools (Levin 1987; Soto 2006);
- Individual educational innovation proposal in line with the conditions of the professional context of each one of the students by virtue of the work and discussion developed in the previous months.

2.3 Stage three: to teach and observe the lesson.

The interdisciplinary core is developed, as described in the previous section, in four successive stages:

STAGE ONE: DESCRIPTION OF THE PRACTICE: In the first stage, the in-service teacher reflects upon the specific experience of his or her teaching practice, as a first step towards identifying and reconstructing it. To this end, the team of tutors of the interdisciplinary core drew up a guideline of suggestions that students could follow in order to complete this description. In this manner, apart from referring to their work context and to the activities they developed on a day-to-day basis, in-service teachers were asked to describe the goals which led their teaching practice, and were questioned with regards to their level of satisfaction with them and, in particular, their feelings about their teaching practice (delight, confusion, happiness, etc.).

The greatest difficulty which in-service teachers found was precisely focusing their teaching practice in a straightforward, descriptive manner without taking refuge in theoretical explanations and abstract frameworks which had little to do with what they really did in the classroom.

The questions formulated by the tutors in order to improve the descriptions caused the in-service teachers to become more aware of some of their implicit beliefs and the consequences they had on the way they perceived situations and how they behaved in them. They took for granted that there were aspects of their teaching practice which were assumed, which formed part of common sense and which did not require explanation, and were surprised when we asked them for clarification of certain aspects. On occasions these were beliefs and theories which had not been considered, at least in detail, and which formed part of an imaginary shared pedagogy that had gone unquestioned until this moment. The exercise of having to explain them to the tutors constituted the first chance to reflect upon them and to have to justify them, given the need to
make them understandable to other people. This exercise began to reveal contradictions between the explicit theories and the theories in use, and to generate a certain level of dissatisfaction amongst the in-service teachers (Korthagen 2004).

**STAGE TWO: INTERNAL COMPARISON:** During the following month the in-service teachers exchanged their descriptions. This provided a further step in the feedback process started by the tutors in the previous stage, since the in-service teachers asked each other questions and many of the demands which had not been met in the previous stage were reiterated by their fellow students. The process, enriched by the comparison of differing practices, allowed the in-service teachers to apply their perception to teaching situations other than their own and, in the same way, to contemplate how their own day-to-day practice was interpreted by colleagues who were working on different contexts and had different behaviours, competencies, beliefs, identities or missions. The role of the tutors in this stage involved encouraging discussions and organising interventions, despite coming up against significant difficulty when trying to overcome resistance to question and analyse the proposals and descriptions in more detail, going beyond simple cultural differences or the pedagogical language used.

Later on, we focused the discussion on each one of the thematic cores that we considered essential elements in the educational innovation processes. The contextualisation of experience, the way we diagnosed and assessed the needs and contexts which lead to innovation, ways of creating and organising joint learning communities, and methods of overcoming the difficulties and obstacles associated to this process. Other elements were the design, planning and development of the innovation, from the identification of goals to the assessment of processes and results; and, the teaching resources and materials that need to be drawn up, selected and used.

**STAGE THREE: EXTERNAL COMPARISON:** The third stage is related to the analysis of an integrated, systematic educational innovation model that involved a network of schools, with a clear educational direction and abundant available material: the Accelerated Schools movement developed in the United States. The Accelerated School movement was analysed and discussed in different themed forums, focusing on the following questions: Why? (contextualisation and philosophy of the experience) How? (diagnosis, assessment and creation of learning communities) and What? (design and development of teaching and learning activities).

**STAGE FOUR: INNOVATION PROPOSAL:** The purpose of the fourth stage was for students to make an individual proposal regarding what they could change in their practice using the elements analysed in the previous stage (diagnosis, creation of learning communities, design and development, assessment). The in-service teachers had to start off from the description of their own practice and the resources obtained in the comparison with their colleagues, with the proposed innovation experience and with the material of the disciplinary modules in order to construct this innovation proposal. In some cases, those students whose personal interest in the topic chosen for their Personal Work Project converged with their teaching practice were encouraged to integrate the innovation proposal of this fourth stage in the Personal Work Project. In these cases, the Interdisciplinary Core constituted the first stage in the spiral of reflection and shared epistemological comparison of a Personal Action Research process.
2.4 Stage four: to discuss the collected evidence

Based on the results of these assessment processes, we can state that:

- Students have, to different degrees, reflected upon their own professional practice, analysing different dimensions which they had not previously considered, and some of them were able to question, having dealt with important conflicts and resistance, their beliefs, identity and mission as teachers, coming to realise that it is possible to undertake an organised process for the improvement of their practice.

- Students have understood that their practice may have unforeseen consequences and that school contexts are uncertain and changing, which means they must become reflexive professionals who are constantly investigating these as a means for improvement.

- The development of the core has also allowed, as shown in the external assessment report, constant interaction between practice, the educational practice of our students and the practice of the Accelerated Schools movement, and theory, both that which accompanies the chosen innovation experience and that of the disciplinary modules which provided the resources for analysis and discussion of these practices, placed clearly at the service of the reconstruction of the personal theories.

- In a curricular structure based on individual work, the Interdisciplinary Core introduces the essential cooperative element which, firstly, mitigates the isolation of the online environment and, more importantly, shows that the innovation projects to be promoted must be based on teamwork, as LS proposes.

- With regards to the portfolio, the external assessment team highlights two main difficulties: difficulty of access of the tool used (the portfolio module of the Moodle online learning platform) and the absence of agreement with regards to use amongst teachers, which results in disorientation among students. Although the entire teaching team agreed on the value of the portfolio as an instrument to promote reflection on learning, making the learner conscious of the importance of the process as well as the result, when it came to defining use within the master’s degree, some teachers leaned towards the portfolio showing the product more than the learning process, which led to the aforementioned confusion and prevented the total development of potential.

2.5 Stage five: to review and reformulate the lesson

The opportunity to replicate the innovative design experienced in the interdisciplinary core came about in the presential version of the master’s degree, in the academic year 2008-2009, as part of the course “Educational Innovation Practice”. Taking into account the conclusions obtained in the previous stages and the adaptation of the structure to the presential version, the teachers of this course envisaged, in line with the proposals and goals of the previous stage, that the overall aim is that students, working in groups, should understand, analyse, debate and interpret their own educational practice, in addition to it being a real experience of educational innovation, this time in a presential context. This leads to the following key developmental goals, which involve further analysis of some of the goals set at the start of the Lesson Study, but adapted to a presential context:

1 The Disciplinary Modules become the presential disciplines in which students take part in the fundamental content of the Module directly with the authors. The Personal Project becomes the thesis of the master’s degree, which the student, in line with availability, can begin to use at an early opportunity, in relation to their interests or some of the content dealt with, from the start of the master’s degree. Finally, the Interdisciplinary Core becomes a further presential discipline of the master’s degree, known as Educational Innovation Practice.
• To work with interdisciplinary content in order to tackle the complex problems presented by educational innovation in a real context.
• To actively involve students in the analysis of their own practice and of the way they behave in real, complex situations of educational innovation in contemporary school contexts.
• To promote cooperative work among students.
• To promote the drawing up of action and reflection projects, within the professional work of the students, taking into consideration their real limitations and possibilities.

Specifically, we envisaged the following key research questions with regards to presential development, compared to the previous one:

1. How can we work with curricular content to deal with real problems?
2. How can we promote the analysis, reflection and development of action projects by students?
3. How can an e-portfolio contribute to our goals?
4. How can we stimulate cooperative work?

This led to the introduction of some changes in the design of the lesson. The most striking and obvious changes are clearly related to the adaptation to a presential context and the inclusion of some new content.

With regards to the presential context, this edition would allow us to maintain direct sessions for the presentation of the course, the description of practice, direct simultaneous debates for internal and external comparison and presentation and discussion of the innovation proposals. We believed that the different exchanges and presential sessions programmed in the course would introduce interesting and enriching nuances to the development of the course, since the online teaching and learning contexts allow different processes to those developed in presential contexts.

As multiple research studies have shown, the contexts in which the teaching-learning processes take place are key to their quality. The contexts offer opportunities, establish relationship networks, demand attitudes and behaviours, disseminate ideas, models and systems of interpretation and action, provide shelter or desolation...both for students and for teachers (Pérez Gómez and Soto Gómez 2009).

WITH REGARDS TO THE INTRODUCTION OF NEW CONTENT and the most striking conclusions regarding the previous development of the course, we believed it was necessary to further analyse the concept of educational innovation by examining the epistemological roots of the construction of the practical thinking of teachers as a fundamental tool to stimulate not only cosmetic but also cultural change processes. In this regard, a constant concern both in the course and in the research was to analyse the keys to practical thinking which teachers activate when they are in the classroom before the influence of multiple simultaneous tensions which the life of the group and of the school institution present to the teacher. The priority goal of LS within PAR must be understanding the practical thinking of teachers, their peculiarities, genesis and working. A complex process that involves cognitive, affective and behavioural aspects which are frequently forgotten in teacher training programmes.

In line with the work of Schön and Argyris (1978, 1993) and the more current developments of Korthagen (2001, 2004, 2005), it should be emphasised that classroom intervention processes, in the same way as with experiential learning, involve
a more or less evident interaction between the unconscious aspects which exercise control over action and the conscious aspects which impregnate reflection (Pérez Gómez et al forthcoming).

Teacher practice is informed by intuitive theories, while critical review and planning are informed by conscious theories and assumptions. Argyris and Schön (1978), in the development of their action theory, consider the distinction between theories-in-use and espoused theories to be key.

In our course, in addition to further analysing the aspect of the construction of what we could call basic teaching skills, we believed it was necessary to extend the educational innovation experiences which fed the external comparison process, introducing university Problem-Based Learning experiences, questions regarding the European Higher Education Area (Perez et al 2009) and other innovation experiences developed in a school context closer to us than the accelerated schools, such as the learning communities (Alcalde, A.I. et al 2006) in addition to the analysis of alternative education experiences led by a visiting specialist in this sphere (Contreras 2004).

Our initial belief was that these new incorporations would help to promote the use of disciplinary knowledge in order to deal with real problems and the capacity of analysis and reflection of action projects by students, thus intensifying the relationship between theory and practice.

WITH REGARDS TO PARTICIPATION AND ASSESSMENT, our goals included analysing and stimulating participation and collaboration amongst our students, and striving to avoid the problems that appeared with the portfolio on the previous occasion. We were fully aware, unlike the previous stage, that the function of the portfolio was a reflexive presentation of evidence that shows the learning process of the student, although it was obvious that another tool would be necessary for its elaboration.

In this sense, based on our participation in the EJUMP courses “Design, Implementation and Assessment” and “New Assessment Methods”, we believed that a good method for the portfolio would be the use of an educational social network, and, following a review of the different networks proposed and tried during the course, we decided that Ning offered most possibilities, flexibility and ease-of-use.
Lesson Studies In a Postgraduate Course: Rethinking Our Practice

Compared to other online learning environments\(^2\) which require greater direction from teachers and establish a more hierarchical relationship between teachers and students, we believed that the social network gave all participants in the course – students and teachers alike – a more democratic context in which the opportunities to take part and to design an individual environment were more real and possible. This led to the students enjoying the autonomy necessary to develop their portfolio in line with their interests. As a result, we were able to promote more satisfactory development of the portfolio and encourage the cooperation of students, whilst going beyond class time and classroom space with a friendlier and more personalised environment.

**WITH REGARDS TO THE RESEARCH PROCESS**, on this occasion the strategies for the collection of information used by the two teachers responsible for the course were redesigned:

- **Teachers’ diary:** the teachers drew up a joint research diary using a private blog in Blogger. This was used to enter our experiences and our observations of the sessions imparted by the other colleague, along with the reactions of the students, with regards to the established goals, and also to register the meetings held. As envisaged in the project, we normally alternated the directing of the class, allowing the other teacher to observe and make just occasional interventions. The diary therefore shows the situation firstly from a protagonist point of view and secondly almost as an observer, and we make full use of the blog to provide reflections after the session and as a result of the reading of the colleague’s diary.

The decision to develop the sessions jointly, alternatively distributing responsibility in terms of exposition, encouragement, etc., was a decision taken not only through our research but also as a result of the positive collaboration maintained during the last edition.

“We counting on her throughout the drawing up of the subject, along with our discussions, proposals and material elaborations, provided me with a richer, more contrasted and accompanied view”  

*(Encarna’s Diary)*

We are aware that teamwork is a complex process in which it is necessary to constantly balance and contrast our desires and initiatives with the view of our pedagogical colleague, trying not to place a limit on the creativity of the other colleague but rather allowing for creative reconstruction and the discovery of spaces of freedom. A space that is, above all, living and organised. To share is to create participation, and involves anticipating, organising and comparing with the colleague.

- **Weekly meetings:** Right from the start of the academic year we held regular meetings in order to draw up the activities and materials for the course. The course was carried out during a weekly session lasting two hours every Wednesday, from the end of February to the start of June. Every week we met prior to the session in order to assess the research process and reflect upon it, with a view to introducing any necessary changes and in order to discuss possible modifications of the subsequent sessions in line with the information collected. These meetings were registered by each teacher in the collaborative research diary.

- **Collection and analysis of online communications data:** Online communication (using the Ning

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\(^2\) For example the Moddle environment that we used in the Online Edition of the master’s degree.
social networking site and e-mail allowed us to reach the proposed goals and supplement presentational communications, whilst providing a sphere in which students could develop their portfolio. All this information was collected and analysed in the framework of our research project.

- Student assessment: finally, in the last class session, we asked students to assess the course, expressing the greatest strengths and weaknesses and any improvements they would introduce.

2.6 Stage six: to develop the lesson reviewed in another class and to observe, analyse and improve it

Context:

As we indicated in the previous stage, one of the fundamental changes in this edition of the course is the passage from the digital context to a physical context using digital tools. This context took shape in a suitably sized classroom, using modern furniture set out in a circle, at the Education Faculty of Malaga University. The class size was similar to the previous course, seven students who were working teachers from different teaching levels, from infant to secondary education, with different functions: primary school tutor, primary and secondary education specialist teacher and orientator. Only one student was not actively working, since she had just finished her Social Education Diploma.

Both the class size and the classroom were therefore ideal for the development and implementation of the course: a small group of students who had voluntarily chosen the subject and a classroom layout which continuously favoured dialogue and comparison were some of the key variables of the proposed methodology.

With regards to the timescale, the course was counted as 10 sessions lasting 2 hours each, which began during the first week of March and concluded, presentally, in the first week of June (followed by the correction stage and final comments on the innovation proposal and the portfolio developed). Some classes were postponed due to coinciding external conferences organised in the master’s degree or as a result of holiday periods, which led to its conclusion being delayed.

Development:

We began to plan the new edition of the course through electronic communications and meetings in mid-February. At this prior stage, in line with the work structure of the Lesson Studies, we tried to reformulate the programme developed in the previous two-year period, bringing it in line with the presentational characteristics of the current context, and also reconsidering those aspects of content, methodology and assessment which had required a partial approach, as shown in the account of the previous stage. Nevertheless, the planned sessions were of an open, interactive nature during the reviewed development stage. In other words, although there is organised content to be followed, we remain open to any suggestions, desires and needs which students express with regards to the content and proposals or as deriving from the analysis of their practice.

With regards to the content, students’ concerns in the first session of the course during the online master’s degree focused mostly on group work and on how to encourage and organise it, to which end we provided them with diverse material on the subject, along with some discussion sessions. During the development of this course, students have shown particular interest in how they can promote innovation processes amongst teachers with whom they share their teaching task, in other words how to facilitate permanent training processes related to educational innovation, to which end we opened the programme by dealing with interesting experiences in this regard, such as those currently being carried out in Asia and the US on Lesson Studies.
A) 1ST AND 2ND SESSIONS: PRESENTATION AND CONCEPTUAL INTRODUCTION

Following the presentation of our programme and of the aims of our course, Educational Innovation Policies and Practice (aims, content, methodology, assessment, etc.), we began the second session, which would deal more closely with educational innovation, the central core of our course. To this end we prepared a reading (Carbonell 2002) for our students and invited another teacher of the master’s degree, an expert on the matter, to discuss it. Defining innovation in a basic manner, we could say that it is any change that involves improvement or, in our context, improvements of educational character, in other words those which contribute to the autonomous development of the subject. It is therefore basic that teachers should be aware of the educational processes they set up in their school context and their consequences in order to analyse in depth the difficulties and potentialities which are contributing or otherwise to the development of this educational process. There are frequently incongruencies and contradictions between the explicit theories, verbalised, and the implicit theories or theories-in-use, which lead to the deterioration of the efficiency and quality of the professional and personal practice.

“People hold maps in their heads about how to plan, implement and review their actions. Few people are aware that the maps they use to take action are not the theories they explicitly espouse. Also, even fewer people are aware of the maps or theories they do use” (Argyris 1993).

We need to be aware of our theories-in-use and their relation to the explicit theories we manage, therefore starting an in-depth, reflexive learning process of the second order (Pérez Gómez et al forthcoming) in which we try not only to modify our actions, but also to bring into question fundamental aspects which govern our thoughts, desires and actions.

The explicit behaviour of each individual, or teaching professional, is the result of complex interactions between different internal levels, the identity and interactions of which need to be investigated (Kortagen 2005). Encouraging the teachers of the course to know their explicit theories and their theories-in-use, along with their models of understanding and of action in order to reflect on them and, if necessary, to reconstruct them, forms the central core of our proposal. To this end, these theories and models also formed part of the content of our course and the rest of the stages are related specifically to this reflection process, and, where appropriate, the reconstruction of the educational practice.

How can we transfer our theoretical frameworks to daily practice? How can we recognise the keys to this thinking by analysing our practice?

Below we shall describe the stages of the course, trying to describe the fundamental aspects of the development in this second edition. Each stage had a variable duration in terms of the number of sessions, in line with the needs of our students.

B) STAGE ONE: DESCRIPTION OF THE PRACTICE

Bearing in mind what is indicated above, it is obvious that our first requirement at this first stage was that each student of the master’s degree should carry out a description of their own teaching practice. We wished to start with a brief but substantial narration of the educational activity in which each individual is immersed. This account consisted of describing and assessing daily practice in a very personal manner, also expressing the affections and emotions related to it. We suggested the following matters for elaboration:

GUIDE FOR DRAWING UP THE ACCOUNT:

- Where do we work, why and what for? What are the limitations, problems, advantages and possibilities that our WORK CONTEXT offers?
- What does our work involve, what are our tasks, our ACTIVITIES, our occupations?
- What are our aspirations, OBJECTIVES and interests in this work context? What is our level of satisfaction with them?
- How do we FEEL with regards to our professional activity, our problems and our achievements, and what are these feelings? Delight, confusion, happiness, doubt, fear, astonishment, despondency, optimism, security, certainty, tranquillity, hope, expectancy, etc.?
- Which aspects do we currently find to be particularly open to IMPROVEMENT? Which intuitions, ideas, plans or schemes are we now putting into practice or hope to put into practice soon?

Students worked for around one month on drawing up this account. They had around two weeks to draw up a draft. The teachers checked and gave feedback with regards to the draft, and the students had a further week to make changes. The definitive account was uploaded to the personal pages in Ning, thus allowing all colleagues to see it and comment on it.

Unlike with the previous edition, the descriptions of the practice have, in an almost generalised manner, been much closer and specific than during the online course of the previous year:

“In general, I have found those I have read to be much closer, more intimate and sincere than those received in the Online Campus, and I wonder whether the fact that we have seen each other every Wednesday and have generated an environment of trust in the presentational sessions makes it easier for students to describe their real practice”

(Mª José’s Diary).

“In general students have, with the exception of Aurelio, who has not kept up, organised an orderly, impressionistic and intimate account of their specific educational practice. The accounts show different realities, despite sharing a single political and administrative context, and different modes of expression”

[Encarna's Diary].

We hope these brief notes from our diaries have helped to bring attention to one of the most striking changes of this action. We have each read and made suggestions with regards to the accounts, which we later pooled and discussed before sending them to the students. We were struck by the ease with which they had taken on board the personal, descriptive and specific character of their daily practice; they had truly focused on their theories-in-use, trying to relate them to their explicit theories, indicating the contradictions they found, along with any doubts and uncertainties. Unlike with the online edition, students, almost in a generalised manner, outlined their explicit general theories and hardly touched upon their daily actions, i.e. the strategies they put into practice day-to-day at school.
C) STAGE TWO: INTERNAL CONTRAST

Constructing the accounts was the necessary basis to begin to share something concrete, forming the first moment of the development of a process that aimed to convert all participants into members of a LEARNING COMMUNITY. This understanding of the problems and of the value of the intuitions, ideas, principles and strategies used to deal with them, as necessary in order to begin transformation processes, requires SHARED REFLECTION ON OUR PROFESSIONAL EXPERIENCES.

We must assume the challenge of beginning to jointly build a SHARED CULTURE ON EDUCATIONAL INNOVATION, finding meaning to help us to understand the problems of an educational intervention which is often far removed both from the goals of developing the autonomy of the learner and of ensuring that knowledge is a powerful tool which learners construct in order to understand the world in which they live, and also from the necessary commitment to ethics, justice and democracy.

The expert character of this level requires both an in-depth analysis of the theoretical concepts that sustain the educational practice and the starting up of a real, attractive process of analysis of practice.

In this sense, the convergence of our practical contexts and those of our students, all teachers of different educational levels, marks and constitutes a dual spiral both in our developments and in our reflections.

The teachers in charge of the course reflected jointly on a shared practice, namely the design and development of the course. At the same time, we tried to bring about the parallel reflection of our students on their own practice, which in this case is not shared, since each one develops his or her teaching task or pedagogical tutorship in different contexts. Nevertheless, we tried to build a learning community by promoting collaboration through group analysis of individual experiences and extracting the transversal elements that characterise teaching at any level.

“Students are generally receptive, motivated and willing, and we hope their enthusiasm remains throughout the sessions. The climate is pleasant and intimate: will we, as Elias (a student) said, be able to undress ourselves from a professional/practical point of view? I was struck by some comments made on this day, when Mario (a student) commented on a professional situation which was taking place, in which he was clearly asking for help, support and orientation”

(Encarna’s Diary)

Mario’s intervention is a clear example of how to use practice to build bridges to the theory worked on, sharing concerns with colleagues and asking for their expertise, providing a form of recognition for this small community which was being formed.

However, in order to construct this learning community, it is the responsibility of teachers to, apart from the characteristics of the context, create a CLIMATE OF TRUST, AFFECTIVE SECURITY, EMPATHY AND EMOTIONAL COOPERATION, allowing and guaranteeing the open experimentation process without any personal resistance, without fear of ridicule, in which error is perceived by all as a chance to learn. Cooperative learning and group work is basic in order to create educational scenarios of support, trust, freedom and creation (Kegan 1994; Mezirow 1996, 2000).

In this stage, our responsibility as teachers was to indicate and compare the general lines that appear in the personal accounts, along with the key elements which we had to discuss during the debate, remembering the importance of first leaving a space for students’ initiatives. We therefore established a generic system that we hoped would lead to the appearance of the fundamental issues; otherwise we would have to draw them out. The system was as follows:
• TO REQUEST FURTHER INFORMATION ON THOSE ASPECTS OF MOST INTEREST with regards to the narrations.
• TO SHARE concerns, whilst coinciding or differing with regards to their sense and value.
• TO TRANSFER ELEMENTS on resources, strategies or instruments used to deal with common problems.
• To present areas FOR SHARED RESEARCH to deal with similar conflicts.

This second stage offered the opportunity to share doubts and beliefs, hopes and fears, expectations and frustrations, analysis, reflections and work hypotheses with the intention of starting to understand each other, of beginning to establish a shared code which we could use to improve understanding of our practice, of the core problems of Educational Innovation and of strategies which can be used to deal with them.

This stage captured the interest of students; to know in detail the practice of their colleagues was an attractive and relevant proposal, as they themselves declared. Discourse amongst the teaching profession is generally quite pessimistic with regards to changes in specific organisational and curricular aspects. To know how some colleagues had overcome different obstacles created a stream of optimism and interest that they had not felt up until now. It is necessary to emphasise the positive character of the exchanges during the discussion of individual practice. Students continually praised their colleagues’ practice and seldom pointed out controversial questions or issues that could lead to conflict, discussion or unease. However, when the discussions were about experiences outside of the group or theoretical reflections on any issue, we could say that they were more spontaneous and controversial.

D) STAGE THREE: EXTERNAL COMPARISON

Whilst the students were working on drawing up their descriptions, we, at the same time as the internal comparison session, began the analysis of the different innovation policies and educational innovation experiences related to the educational panorama in which we developed our practice, from Primary Education to Higher Education. To this end we analysed the different official plans and programmes, paying great attention to current proposals for university reform (EHEA, Bologna, etc.) with alternative documents such as the CIDUA Report4 and EHEA Support Guides (Pérez et al 2009). We stopped to deal with the concept of competency, analysing its implications in the different spheres that form the teaching and learning process and proposing the analysis of alternative, innovative practical experiences in the university sphere, such as Problem-Based Learning. We believed that these aspects were key to simultaneously understanding the advancements which regional Andalusian laws propose for the compulsory education sphere, and allowed us to connect to one of the goals of our programme: “To work with interdisciplinary content in order to tackle the complex problems presented by educational innovation in a real context”.

In the following sessions we dealt with innovation proposals developed in compulsory education, as mentioned in stage 5 of the process, such as Accelerated Schools in the United States and Learning Communities in our country, along with different national and international alternative teaching experiences developed by José Contreras Domingo5, a guest teacher in our course.

Through Ning, students had access to different information, articles, chapters of books, films, etc., or documents drawn up

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5 http://epaa.asu.edu/epaa/board/contrer.html
by us, related to the experiences outlined. In general, during the sessions dedicated to the knowledge of these innovative proposals, students remained attentive, active and highly receptive and interrogative. They frequently raised doubts and questions about the different elements or circumstances that characterised each of these experiences, beginning with a more or less unilateral exposition, finishing with an intense, lively debate. The common denominator in these debates was often the possible relationship between proposed and specific practice with regards to these experiences. These discussions helped us to analyse and compare the holistic and interdisciplinary dimension of the practice, related to the school as a whole or the educational system, compared to particular practice.

In the analysis of these experiences we placed special emphasis on the following aspects:

- **THE EDUCATIONAL COMMUNITY THEY FORM PART OF AND THE CONTEXT IN WHICH IT IS FOUND.**
- **THE DESIGN AND DEVELOPMENT OF TEACHING AND LEARNING ACTIVITIES.**
- **DIAGNOSIS AND ASSESSMENT.**

The aim was to understand the complexity of the educational innovation process from diagnosis to assessment and reformulation, passing through design, planning and development. In other words, we wished to know, analyse, value and question a real educational innovation experience in school contexts, asking what, how and why.

The practical conflict initiated in the internal comparison stage increased in this external comparison stage and the debates became more intense and dynamic. Specifically, some of the expositions referring to alternative experiences, outside of the official education system, did not have the same relevance for some, discussing the socio-cultural differences between the students who receive this type of education compared to official education. On the other hand, for others they were highly relevant and suggestive, since they created educational spaces that are difficult to imagine in official education. The already recognised experiences of macro-character, such as accelerated schools and learning communities, enjoyed generalised acceptance, and indeed some stated the relevance of knowing in detail their origin, development and analysis. Above all they highlighted the interest of the eminently practical nature of this course compared to others, also suggestive and interesting but with a more theoretical character and more removed from day-to-day practice, or which, as some stated, were more difficult to relate to and help transform practice.

**E) STAGE FOUR: INNOVATION PROPOSAL**

After this intense meeting (talks, readings, films, conferences...) in the third stage, we asked students to draw up an innovation proposal in which, based on their own practice (first account completed, identifying the challenges of the context and teaching practice), they will design strategies to deal with the challenges indicated, justifying their origin and meaning, along with a hypothesis of planning and putting into practice.

The purpose of the fourth stage was for students to make an individual proposal regarding what they could change in their practice using the elements analysed in the previous stage (diagnosis, creation of learning communities, design and development, assessment). This involves reflection on which aspects, why and how we can improve teaching practice, questioning what we can do, what conditions we require and which difficulties we will come across. This proposal should form a theoretical plan of a practical strategy that could be put into practice, regardless of whether or not, for whatever reason, it is subsequently carried out.

These innovation proposals were discussed at a final session, which culminated with an assessment of the course. The students drew up their proposals again in line with the results of this pooling session and received new individualised feedback from us.
The results of this stage were varied. In some cases, the innovation proposals were, right from the start, wide-ranging and ambitious, and lacked the level of specificity which we asked for from the first description of practice and which would make it possible to carry them out with the possibilities available, a question dealt with further in the next version. Most indicated characteristics and aspects of the experiences worked on during the course which have affected the final proposal and, above all, highlighted the influence not only of these proposals but also of colleagues’ practice.

At the same time, they identified those variables that went beyond their teaching responsibilities and required the implication of the rest of the team at the centre, recognising that, in most cases, there is no learning community and that this would be one of the fundamental challenges to be taken on.

From our point of view, an aspect of interest is the progress made in the vision of possibilities or ways of innovation. Students stated their belief that, although conditions are adverse, there is a great deal to do within the respective areas of autonomy and responsibility.

F) THE E-PORTFOLIO

Finally, as we have indicated, the students’ work is collected and assessed through an e-portfolio. This is another shared tool to stimulate cooperative learning.

In our experience, online digital communications platforms initially create anxiety among students, particularly when presented as a tool that contributes to the assessment of the course. They are not digital natives and, on the whole, prefer presentational environments. Nevertheless, as the process advances, they begin, each in their own time, to open up ways of communication and reflection using this platform.

“... It was wonderful to read Inma’s comments in the first blog saying what a good idea it was, and I get the feeling that the others feel more or less the same. However, I would have liked to see more entries in the blog and more students using the diary, because I think it is the only way to draw up a good portfolio, although I can understand that this is something personal, and must be voluntary as it greatly intensifies the task”

(Mª José’s Diary).

Our intention in proposing this form of online communication is twofold. Firstly we wished to use this social network with them fundamentally as an initiative that would overcome the poor results obtained with regards to the portfolio during the previous master’s degree. At that time we found that students did not take on board the reflexive character of the portfolio and used it as a mere collection of evidence and of products elaborated by them and required as a compulsory part of the course. As indicated in the external assessment report, the orientation offered by the teachers of the master’s degree may have been confusing, possibly as a result of the lack of consensus with regards to this tool.

In the experience of this year we believe that, in addition to the lack of incidence of this assessment tool in other disciplines of the master’s degree, different variables may come into play. Some of these variables may be:

- As some students pointed out during the sessions of this course, one difficulty may be the lack of...
socialisation with a type of writing that is more personal and reflexive and less reproductive and theoretical than usual (Pithouse et al. 2009). In this regard, some students (it must be remembered that the average student age is above 30) confess that they feel uncomfortable transferring their thoughts, ideas, reflections and even feelings into writing. One student commented in class that writing was like getting undressed, something that made him feel very uncomfortable (although it is true that this student regularly participated in the blog). This variable appeared in the conclusions of the online master’s degree, “unease is felt at having to write, since what is written is part of what you believe and may be disseminated beyond the limits of the classroom, something which does not occur with the spoken form” (Mª José’s Diary).

- Another aspect that should be emphasised is the lack of time available to students to deal with the process in the manner a tool of these characteristics requires. More accustomed to traditionally designed courses, they usually complete the final tasks more than the procedural tasks.

For all of this, we also reflected on the characteristics of the tool we set up (Ning), along with our function within it. We believe that students are grateful for our comments and feedback, our notes and the inclusion of evidence in the portfolio (using Ning). It is a new process and a new tool, and our interventions provided them with, apart from online company, reflection on their evidence and contributions. In some cases they did not understand the meaning of the portfolio:

“It is not a case of including everything found, but rather that which has meaning for what we do in class”
(Mª José’s Diary).

Equally, we tried to encourage the participation of other students in the different personal spaces of Ning.

Secondly, we believed in the Ning social network as an attempt to ENRICH, ADAPT AND FACILITATE ANOTHER COMMUNICATIONS PLATFORM DURING THE COURSE, another way of exploring and communicating which can be adopted by the group of students and that can go beyond the content of the course.

G) STUDENT PARTICIPATION

Finally, apart from the participation of students in the Ning social platform, we cannot close the analysis of the development of the course in this new edition without first analysing the participation of students in the different activities proposed in each one of the sessions.

Right from the start of the sessions, the environment was warm and receptive, although all absences in such a small group were very striking. When we were preparing the different sessions, and above all those which required participation, we had some doubts about whether they would be of interest to students and whether they would share their reflections and experiences with the group. Perhaps this uncertainty is related to our experience in the previous edition of the online master’s degree, in which the participation of students in the different forums and chat rooms was not particularly intense. The reality of the sessions made these doubts largely disappear. Students participated in the different topics, each at their own rhythm.
“Once in class, I felt that everything went very well, that the debate did not decrease at any moment and was very interesting and productive, although we could have stopped to deal with many other topics that I believe will begin to appear during the external comparison stage.”
(Mª José’s Diary).

Students generally focused on the topics in question, although the individual experience appeared and reappeared permanently, connecting to the different topics we had seen. On more than one occasion the individual experience of some of the students came more to the fore and it was difficult to get all students to participate in the same degree. This has possibly been one of our permanent searches and reflections throughout the different sessions.

“I have the sensation that there has been a good environment and openness in the dialogue, although some students often focus the debate more on their interests, whilst others maintain an attitude of listening and moderate intervention. One of our concerns is that all students should intervene in a balanced manner, but the difficulty is in how to achieve this. I believe that both Mª José and I tried to raise topics that appeared in the accounts of the least forthcoming students, introducing them into the debate. As with the online master’s degree, we tried to stimulate the intervention of the most passive students with questions and calls to attention in the forum.”
(Encarna’s Diary).

“I believe that, in order to fully benefit from the process, we need to get them to speak more because the goal is to start off from their practice, and by remaining quiet they lose this opportunity. In this regard, I am even more concerned that Celeste [the recent graduate who is not actively working as a teacher] may find herself out of place in the course. I am sure that she is finding sharing with this group a valuable experience, but I believe that perhaps we should give her a more defined role as a critical friend who inspires ideas for the innovation proposals of others, or something similar.”
(Mª José’s Diary).

The question of participation is always a complex issue in teaching and learning processes. Personal characteristics define different styles of learning and participation. Groups, however small, almost always include extroverted people who are less inhibited when it comes to speaking about themselves or about any other subject, almost as a way of elaborating and reflecting aloud, whilst others require less intervention and focus their participation on listening, although there are also others who are someway between the two. The group in this edition has several examples of each of these cases, so in each session we tried to analyse and comment on the documents of all students in order to encourage more generalised participation.
“I believe that intervening is a way of coming out of oneself. We know that thought can be constructed and deconstructed in multiple ways, whilst listening is also an important and necessary element, but it is outlining one’s own ideas that can be a strategy to help others place themselves before the mirror of other people’s opinions. Individually we can also feed our own thoughts and theories, and not expose them to debate or public scrutiny. Moreover it can help us to understand our own practice, question the reasons for our actions and compare them to other initiatives or proposals”

(Encama’s Diary)

For this reason we believed that it was necessary to establish different ways of communication and discussion, both the presential debates and the online debates through the comments in Ning, the documents on the description of personal practice published in Ning, the comments on the readings, etc., in order for each one to find a suitable area in which to communicate with others.

In this regard it should be emphasised that students have, on different occasions, expressed positive opinions regarding usefulness and interest for learning not only the content worked on in the course but also the examples and personal experiences which the colleagues have outlined during the debates. Some made comments in class, which we registered in our diaries, such as:

“I found your proposal to get the children involved very interesting, and I intend to carry it out this very week”

(Elías).

“I found Sara’s way of organising the content in the classroom around a series of projects to be very interesting for both infant and primary education, and after seeing all we have commented on with regards to problem-based learning, I am going to try it out next year, even if I have the Headmaster or parents to deal with”

(María).

“I found her way of understanding the classroom and, above all, the environment, to be very useful, as it allows students to feel at home”

(Celeste).

We believe that presentiality, one of the variables that has most marked the experience of this edition, is a format which is difficult to emulate in online teaching, and it is necessary to consider ways to help make these exchanges more intimate, interactive and presential. In presential teaching we can follow each of the responses of students with regards to content and methodology, their reactions to specific comments, any absences...in short, immediateness helps us to continually define and
redefine our interventions, sessions, content, proposal, etc. Above all, the different ways of communication established help bring us closer to the needs of students, although it is clear that it is necessary to continue working in order to improve them.

“Here we see each other every week for two hours; therefore, removing many of the obstacles we found, and the group is very different: we all share a national reality in our professional practice which will perhaps allow us to dwell less on explaining the formal differences between individual practices and further analyse what we need in order to improve our practice” (Mª José’s Diary).

2.7 Stage seven: to discuss, assess and reflect on new evidence and to disseminate the experience.

Throughout the different stages we have outlined our reflections, comments and conclusions with regards to the development of the course and we would like to deal succinctly with this in this final section.

We need to distinguish between conclusions on the development of the course in line with the proposals introduced and conclusions on the research processes followed.

With regards to the development of the course:

- **ON THE RELEVANCE OF THE LEARNING.** Students, in a more generalised manner than in the previous edition, have tackled and used, right from the beginning, the fundamental concepts worked on during the course. From the introduction session, where we dealt in detail with the construction of the practical thinking of teachers, concepts such as episteme and phronesis, with which we tried to differentiate explicit theories from theories-in-use, have often been incorporated not only into the oral exchanges in the different debates maintained in class, but also in the analysis of one’s own practice and in the reflections published in Ning. Likewise, we have discussed the different innovative proposals worked on and incorporated into their documents and proposals the different ideas, activities and strategies set out in them.

Nevertheless, we noticed that not all the content worked on reached this level of relevance and interest for students. This is merely a subjective perception, since there has been no explicit manifestation by the students. This was most notable in the session dedicated to educational policies, as we indicated in our diaries:

“… perhaps next year it will be necessary to set the focus in a different manner, dealing with innovation policies in Andalusia within the theoretical framework of what, in accordance with research, innovation policies should be, what we know with regards to the change and so on […], further analysing which aspects of the programmes we deal with would contribute to innovation if spaces were opened up for theoretical reflection on practice, if the division between the knowledge of the experts and of laymen were broken, if schools were given more autonomy, if due importance was given to the process or if conditions were created for “core reflection” […], for the next course we would have to envisage reinforcing the theory on innovation policies and how to promote the change in the school institution, even though we continue to dedicate only one session to this theoretical part” (Mª José’s Diary).
“… more macro-analysis, or perhaps analysis which is more generic and less specific… other points of view of authors who analyse the processes of reform, change, etc., such as Fullan, Hargreaves and others, in order to be able to compare these perspectives to the formulations we have made”

(Encarna’s Diary)

- WITH REGARDS TO THEORY AND PRACTICE. Students have, as a clear consequence of that set out above, shown greater specificity in their analysis and descriptions of personal practice, striving to explain the theoretical framework that supports them. However, involvement has not been the same in all cases. We could say that in this edition the pyramid has been turned upside down. In other words, in the online edition in only a few cases had any of the seven students developed the strategies and showed the level of analysis and development necessary in their interventions and in their personal practice accounts and final proposals. In this edition, on the other hand, only a couple of the seven students have shown a lower level of depth, elaboration and participation in the proposed activities. We believe that it is perhaps necessary to intensify some personalised tutorials in cases of this kind that, on occasions, are obvious right from the start of the course.

With regards to this matter, and remembering one of the questions formulated about whether we could work with curricular content to deal with real problems, we believe that in this regard students have expressed positive opinions, and indeed they have indicated and used concepts worked on throughout the different experiences in order to understand and propose action strategies in their daily practical context. In the final conclusions that they outlined in their last blog entries, they indicate the relevance of the content worked on and the connection to their interests, along with the denomination not only of the course but also of the master’s degree. They suggest transferring the 2nd year course to the 1st term of the master’s degree, making it compulsory rather than elective. In this regard we can state that, following the master’s degree coordination meetings held with teachers and students, the distribution of the courses has been modified and is now scheduled, as suggested by students, for the first term, although it will remain an elective subject as with the other subjects which make up the master’s degree.

“As I have said a few times in class, I found the work method we followed in the module very interesting. The possibility of knowing other methodologies from a truly practical point of view was wonderful.Personally I would highlight:

• The accelerated schools. I cannot stop thinking about the project that Encarna recounted with regards to the trip to the Antarctic. Marvellous. The working of the meetings with the changing roles. Incredibly useful. The enthusiasm of an entire educational community to carry out a common project. Hugely encouraging.

• The learning communities. The volunteers who help in the classroom. The dream panel on the school gate. The dialogue discussions.

• The school of Miss Olga. The fieldwork books full of watercolours. The dances. The visits of all types of intellectuals. Freedom. The grandiosity of simplicity.

• The new university. The interdisciplinary work of the teachers. New spaces. New timetables. New work groups. New assessments. From my point of view, a utopia for Spanish universities.”
Finally I must thank Encarna and Mª José. Your work has been closely related to the training and development needs of teachers, which we are very grateful for, since experts often expound their expertise before teachers in order to remain in a position of power and leave the teachers as simple executors of their messages, maintaining them in a position of complete dependence. In this case you have been by our side, in equal conditions, meeting our demands and helping us to respond to the complexity of the situations involved in educational tasks. Thank you”
(Portfolio of a student).

• Another of the focuses of the course, THE INTERDISCIPLINARY CHARACTER OF THE INNOVATION PROCESSES, has been largely dealt with in the different experiences analysed. The increase in perspectives has allowed them to play down the innovation possibilities, but also, as they themselves indicate, the interdisciplinary analysis carried out on the experiences of their colleagues has allowed them, from the potential of a closer context, to review their theories-in-use. In this regard, the study of these proposals, both personal and official, has helped them, as they themselves have indicated, to reconsider the innovation possibilities in their own contexts, the need to be in permanent contact with the reality which affects them, and, above all, the need for permanent research into their action strategy; in some ways action research is a potentially useful tool for their professional development.

• With regards to the COOPERATIVE AND PARTICIPATORY NATURE OF THE COURSE, the debates held and the social network established, Ning has created a climate of exchange and cooperation that they have highlighted and welcomed on different occasions. In this sense they have declared their wish to continue constructing this learning community that started with the course developed, with the final reflection in the portfolio showing this in a generalised manner. They have understood the need to work cooperatively and to avoid isolation in innovation processes. Some have declared, unlike what they thought at the beginning of the course, their wish to form an inter-centre workgroup where they can mutually support each other in the different processes started up.

• With regards to HOW WE CAN PROMOTE THE ANALYSIS, REFLECTION AND DEVELOPMENT OF ACTION PROJECTS by students, we believe that the process we have followed for research into our own practice in the university context, which they have been informed of, along with the content of the course, which dealt with action research and participatory action research, plus the Lesson Studies and debates, as models of educational exchange and innovation, has allowed them not only to understand these experiences but also to draw up personal action proposals. Innovative proposals of educational character generally require conditions beyond their working contexts. Solitude and indifference amongst colleagues at the school often makes innovating a long and complex task. Since in the debates they appear to analyse their possibilities of action from another perspective based on the readings and content worked on and, as indicated in their final proposals, they can no longer see themselves doing as before, we should emphasise that more generalist projects such as those we have seen require support which goes beyond their responsibility, although they are also aware that they can do much more than they generally did or thought they could do.
“I cannot believe we have reached the end of the road. New perspectives and possibilities have opened up, but now we are alone. This is a little frightening. Now it is time for commitment, to get started and take risks. It is time for innovation. Here is my proposal, with a little fine-tuning. I hope my formulations are clear and my proposal precise. I would like to reiterate my gratitude for your company, and look forward to counting on your advice, company and support in the future. We will remain in touch thanks to the magic of Ning” (Portfolio of a student).

• WITH REGARDS TO THE PORTFOLIO, we believe that it is an innovative tool to continue experimenting and developing. We believe that in this edition steps have been taken in procedural aspects. Using the blog, students have progressively incorporated their impressions, reflections or proposals with regards to the experiences developed, and to a greater degree they have incorporated them into their written proposals, although there is still much to improve and develop. Possibly, as we have already commented, the current vital, time and labour dynamics, and even school traditions, do not systematically allow the creation of a space for unhurried reflection on learning, although we hope that by clarifying and balancing the proposals and demands we can continue to advance with this tool. In this sense, with a view to next year, we could value the possibility of requesting an entry in the blog for each of the sessions developed, or perhaps further intensifying our input in our respective profiles by way of proposals, suggestions, stimuli... This year we have done this at a low level. Our presence in the network, along with our presence in the presential environment, must not be overwhelming. Nevertheless, we have taken care to provide feedback on the comments at least once or twice per student.

Finally with regards to Ning, during the assessment session that we held with students they recognised that it was underused and that none of the students had fully exploited the potential of this tool. Greater participation of other teachers in the network was also missed, as was ours.

With regards to the research process:

• Initiating action research processes on one’s own teaching practice is not a simple or straightforward task. Initiating action research processes on shared practice with another teacher is even less simple and straightforward, although it is much more gratifying and enriching than doing it alone. During the last edition of the master’s degree we saw how sharing requires time and dedication, as well as conceding, envisaging, organising and structuring more in advance than when working alone, although we also find reinforcement, encouragement and confirmation of the criteria we are using to design, develop and assess the entire teaching and learning process. In this regard we can understand why isolation and loneliness are two of the most notable trends of the teaching profession, although we do not share the belief that it is the most appropriate. We need spaces of autonomy and responsibility in order to grow, although shared work can also include these spaces and help us to extend them and enrich them with other points of view and other analyses. We need to increase our shared experiences in order to balance and consider opposing views. Designing, debating, observing and drawing up the diaries, etc.,

7 The guest teachers who imparted some of the sessions without assessment responsibility during the course were invited to take part in our social network, although in the end they did not make any entries.
is a slow and painstaking process which must be shared with other teaching responsibilities, research, management, etc., which make up our day-to-day activity.

• The blog tool (Blogger) that we have used for the diaries has been useful and has helped us to duly monitor both space and time. We were both administrators of this private blog and we have been able to comment on each of the sessions, whilst in turn commenting on the reflections of the colleague on the shared practice.

“I have never written a diary on reality whilst another person also works on a diary of this same reality, with it being so easy to access. From the point of view of action/research, sharing the diary of the external observer and of the teacher and researcher is a basic strategy. In this case we are both teachers/researchers and ‘external’ observers. Although we are not truly external, as we are fully involved”

(Encarna’s Diary).

• Finally, with regards to the dual role of teachers and researchers, we believe that what in principle could have been an obstacle is now seen as potential. As we indicated at the beginning with regards to Lesson Studies, collaboration with a same level of responsibility in teaching activity facilitates cooperation, understanding and reconstruction of the theories-in-use. The equality that brings us together is quite different to that which comes about with regards to action research between the teacher/researcher and the external observer/facilitator.

With regards to the dissemination of the experience, we believe that the description of the entire process made in the present report, along with the communication of our experience to our master’s degree colleagues, helps to communicate to the rest of the educational community, both near and far, the good and bad parts of our experience and, above all, our desire to continue reviewing the difficulties found whilst promoting the good points as much as possible in future cycles.
Bibliography


Lesson Studies In a Postgraduate Course: Rethinking Our Practice


ASSESSMENT OF STUDENTS’ PHOTOSHOP PROJECTS THROUGH BLOGS – MOTIVATION FOR LEARNING

Abstract

The report presents one cycle of the action research conducted as a part of the “New Methods of Assessment” distance course offered within the European Ejump 2.0 project. The main idea was to use the new Web 2.0 tools for assessment, in particular blogs, in order to improve the learning process for students in high school. The main goal was to investigate whether blogs can be used to transform assessment of learning into assessment for learning. The experiment was conducted with students in the second year of high school trained to acquire skills in using the Adobe Photoshop software package. The main idea was to publish students’ pictures using blogs and have their colleagues take part in the assessment process. The results show that the motivation and interest in learning, as well as the satisfaction with assessment, increased when compared to the same period last year when the students were assessed by the teacher only, based on a local copy of their work.

Introduction

As stated in [1], assessment of learning is the process of seeking and interpreting evidence by teachers to decide where the learners are in their learning, where they need to go and how best to get there. However, assessment for learning [2] should go beyond this. It should foster motivation, engage learners, improve the learning process and open new horizons for the students. The information and communications technologies introduce new challenges to education. E-assessment is becoming popular and widely used as a generic term to describe the use of computers within the assessment process. It represents a synonym of a myriad of e-tools for assessment such as: e-portfolios, blogs, wikis, testing tools, pictures/photos, slide sharing, movies, virtual worlds and many more. They allow users to create content in a web environment and offer an opportunity to others to read it and place comments. This social software empowers people with ability to communicate at a distance, to connect to each other, and provide space in which they can interact and share ideas, experience and
knowledge. The profound potential of e-tools for assessment has inspired educators in enhancing the learning process through new methods of assessment.

Introducing innovative methods for assessment aiming to stimulate students’ engagement and improve their motivation to learn can be done using the action research approach. According to [3] action research is a “learning by doing” method where educators first identify the problem, do something to resolve it, see how successful their efforts were, and if not satisfied, try again. Gerald Susman [4] distinguishes five phases within each action research cycle. The first one is focused on identification of the problem. This is followed by suggesting a possible solution and creating a plan of action to be implemented. The third phase consists of the actual implementation. It is accompanied by collecting data that could be later analysed and used for evaluating the action taken. In the next phase thorough analysis of the data is performed and the consequences from the action taken are studied. Finally, the findings are interpreted in the light of how successful the action has been and the problem is re-assessed. At this point the first cycle ends and the process begins another cycle. This process continues until the problem is resolved.

According to [5], action research examines a single case and a sample population, for instance, the classroom or the school. Therefore it was perfectly suited for experimentation using the new Web 2.0 for assessment for several classes within a school. This report presents one cycle of the action research conducted to solve the problem of students not being motivated enough with their work on Photoshop projects. All five phases are described in a separate subsection, followed by conclusions.

Problem Identification

Mirkce Acev High School in Prilep, the Republic of Macedonia, is the most prestigious secondary school in Prilep, accommodating students with great potential and capacity. In many competitions on the national and international levels they almost always place in the top three. Many of them have got scholarships from the most recognised companies, for example General Electric. I have the privilege of teaching courses in information technology at this high school.

The curriculum recommended by the Ministry of Education requires students in their second year to acquire skills in using different applicative software programs, such as Corel Draw, Adobe Photoshop, Adobe Page Maker and others. For this type of course I use the constructive learning strategy. Students are assigned different kinds of assignments where they can exercise a myriad of skills in order to accomplish what is required. Assessment of their work is performed in a traditional way. The teacher is the only one who evaluates students’ work, usually sent by e-mail or presented in class, and assigns grades based on previously specified criteria.

When teaching the students how to use the Photoshop software package I try to give engaging assignments and provide them with the opportunity to experiment, master their skills and develop strategies to solve problems. One of the assignments is modifying a given picture or a photograph. Each student gets a different picture and is asked to use a certain number of features built in to the software to modify the picture in his/her own way and obtain a new version. Assessment of this assignment usually takes a lot of my time and concentration although it is a marvellous experience, unique to the work with Photoshop. I try to evaluate both students’ abilities to use the software as well as artistic talent.

The aforementioned method of assessment does not include students in the process of evaluation. Instead of improving their learning through collaboration, they are passive observers. Their competitive and creative minds are not fully used. Furthermore, no additional value can be added to the teacher-student relationship, which is a factor in acquiring knowledge that should not be neglected.
Action Research Planning

The “New Assessment Methods” course within the E-jump 2.0 project suggested the use of blogs in assessment [7] and various ways the Web 2.0 tool can be used in education. It served as an inspiration to introduce changes in the method I am using for assessment. The idea was to extend the assignment on Photoshop by asking students to place their work using blogs and create a gallery of pictures to be freely accessible via the Internet. The fact that their friends, relatives and colleagues will be able to see the pictures would be the motivating factor for learning. Even more, students could use the same blogs to leave comments or in any other way get involved in the assessment process. The overall aim with these changes was to improve students’ motivation in creating better pictures and transform the assessment of learning into assessment for learning.

To put the idea to work the following development goals were to be achieved:

- Increase student interest in working with Photoshop by assigning projects in which they can develop their skills in creating and processing pictures;
- Motivate students’ creativity in producing better pictures by informing them about using blogs as a new assessment method;
- Increase interest for the gallery of pictures presented on students blogs;
- Stimulate posting of comments and evaluation of pictures.

At the beginning students will have a few lessons on how to work with Photoshop, where the topics in the book for this course [8] will be covered. During the first lesson a presentation method will be used to teach them how to use tools, filters and layers. Then the hands-on-experience collaborative method will be used to help them become comfortable with different ways of picture processing. Students will work in pairs.

After the main techniques for picture processing are mastered, project work will be assigned. Each student will get a picture with a task of using different tools for modifying it and creating a better one. In addition they will be informed about the final phase of the project in which 24 students will publish their pictures (the original and the modified) using blogs available at [9].

Students from the other classes will take part in the assessment. They will be able to look at the original and the modified pictures. Their task will be to assign a grade based on the number of tools their colleagues have used to modify the picture. The following criteria will apply:

- if 4-6 groups of tools are used, then grade 2 is assigned;
- if 7-9 groups of tools are used, then grade 3 is assigned;
- if 10-12 groups of tools are used, then grade 4 is assigned;
- if 13-15 groups of tools are used, then grade 5 is assigned.

The role of the teacher will be to repeat the assessment using the same criteria and make a comparative analysis.

To record student opinions on the new method of assessment a survey evaluating the success of the experiment will be carried out. Students will be asked how the new method of assessment has improved their motivation for learning and what their opinion about the new assessment process is. Informal conversation with the students will be also used to discover how
they feel about the whole experiment and whether it should be repeated next year.

**RESEARCH ETHICS:** The identities of the students posting their work on the blog will be kept hidden to prevent biased grading. Before the start of the assessment process I will emphasise to the students that they should be positive and anonymous in their comments and evaluations. However, in case comments with insulting content appear they will be deleted and will not be considered in the process of evaluation.

### Implementation

The implementation started in January 2009 and went according to plan. Students followed a few lessons on hints and tips when working with Photoshop. I taught them how to use tools, filters and layers, stressing that they can all be divided into 15 groups. Then the hands-on-experience collaborative method was used to help them become comfortable with different ways of picture processing. Students worked in pairs practicing what they had learned two hours per week. In the second half of January and the whole of February they worked on simple and more complicated exercises created to develop their skills in using Photoshop.

After the main techniques for picture processing had been mastered a project was assigned. Each student got a picture with a task of using different tools for modifying it and creating a better one. In addition they were informed about the final phase of the project in which 24 students should publish their pictures (the original and the modified) using blogs available at [9].

By the end of March the gallery of the picture was created at [http://informatika2.edublogs.org/2009/01/16/galerija-so-sliki/](http://informatika2.edublogs.org/2009/01/16/galerija-so-sliki/).

During the month of April colleagues from other classes took part in the assessment. They assigned a grade for each modified picture based on the number of tools used, as explained in the Action Research Plan. Once the process of implementation was over the survey for evaluating the new method of assessment was posted on the same blog site. The following questions were asked:

1. How much does publishing your picture using blogs motivate you in creating a better picture?
   - a) Not at all
   - b) Very much
   - c) Moderately

2. Did the new method of assessment increase your interest in learning more tools for processing pictures in Photoshop?
   - a) Yes
   - b) No

### Results

The analyses and the summary of the results were made during the end of April and the beginning of May. According to the answers obtained to the first question, the majority of the 150 students who were involved in the experiment were motivated to implement almost all the possibilities Photoshop offers. Their goal was to impress those that will visit the blog gallery with pictures. The exact distribution of the answers is shown in Figure 1. In informal conversation with the students I found out that the main driving force behind their efforts was the fact that colleagues from another class would examine their work.
When I made a comparison of the quality of the work done this year and last I was pleased to notice that the pictures created this year were much better.

61% of the responses to the second question were positive. The pie chart presented in Figure 2 indicates that the new assessment method was an inspiring factor for learning, too. Keeping in mind that this year the number of Photoshop tools students were taught was larger than the previous year, perhaps a real estimate of the impact the new assessment method had on improving the motivation for learning cannot be made.

In analysing the assessment made by students, as well as their comments, I estimated that about 95% of them were capable of identifying the tools used for processing pictures. This is an indication that the students doing the assessment were also motivated to learn more tools in Photoshop. They were inspired by being given the role of teacher. The assessment I did myself differed very little (about 5%) from the marks assigned by the students.

In analysing the assessment made by students, as well as their comments, I estimated that about 95% of them were capable of identifying the tools used for processing pictures. This is an indication that the students doing the assessment were also motivated to learn more tools in Photoshop. They were inspired by being given the role of teacher. The assessment I did myself differed very little (about 5%) from the marks assigned by the students.

Reflections

The blogging phenomenon has been around for more than five years. Its original name – web log – suggests its main use as being a personal web page where diary entries are usually placed in chronological order [10]. It allows easy creation, which makes it viable for classroom use. More than thirty different ways for using blogs in students’ activities are suggested in [11]. My action research project combines several of them to promote a new one. Namely the blog is used for two purposes
at the same time, first to make students’ art public, and second to involve students in assessment. Both of these activities have a single goal: **TO IMPROVE LEARNING**.

The survey carried out was very simple, containing only two questions. The intention was to get a feeling of whether the approach made would be accepted and have a positive influence on the students. However, in order to make a more sound evaluation of the experiment the survey should be extended. A subtler inquiry will contribute towards the discovery of students’ feelings and the reasons for some of them not experiencing blogs as a stimulant for their work. In addition the survey needs to be enriched with more questions about the novelties in the assessment methods. The new survey with at least twenty questions will be constructed for the next action research cycle, which is planned for the next year.

The informal conversation with the students showed that the main goal was achieved. The motivation for grappling as much as possible from the possibilities Photoshop offers was greatly increased. Hence, better use of the tools was presented and more appealing pictures were created. The new assessment method was not praised, although 61% of the students answered that they liked it better than the old one. This was their first experience with peer assessment. When this issue was discussed after the experiment I found out that the students needed more time to get used to this new way of evaluation. I believe that once they practice it many times, the students will probably accept it as a valid method of assessment.

Through creating the on-line gallery the class has actually formed an on-line community where they could see and compare their work with that of others, learn from somebody else’s work, and discover which tools they were not capable of grasping and what they needed to improve. Perhaps collaboration was not directly visible, but it was present at all times. By working in pairs, publishing the pictures and participating in assessment, students are in a subtle way helping each other.

Improving the learning process and inducing cooperation were not the only issues. The new approach to assessment changed the student-student and teacher-student relationships. Students became more competitive and inventive, yet still respectful and fair to each other. They have also become friendlier and more open with me as a teacher, willing to discuss the problems they have encountered when working with Photoshop. In addition they have helped me since assigning grades for their work has become much easier than the year before.

Having a positive experience from the first cycle of the action research, the next one could introduce another value. The idea is to keep the current gallery of pictures as an aid to future students in mastering their skills in using Photoshop. I am also thinking of creating a database with pictures created by students, which can be extended every year.

I sincerely hope to be able to share my findings in this experiment with others. I know that the action research approach requires exchange of ideas and that better results can be achieved by working with others. Hence my future work will be more about presenting my work to by colleagues in Mirche Acev High School and inspiring them to incorporate my assessment method into their courses, too. I also hope that many of them will join me in the effort to make better use of Web 2.0 tools for learning, either through using it in assessment or in any other context related to learning.
References


FROM TECHNICAL TOY TO PEDAGOGICAL TOOL: IMPROVING STAFF DEVELOPMENT SESSIONS ON LEARNING TECHNOLOGIES USING ACTION RESEARCH

Abstract

Staff development training on using technology for e-learning and e-assessment in higher education is usually performed by Learning Technologist. Hence, the emphasis is placed more on the technical aspects and not enough attention is given to educational issues. The following article presents the action research approach towards enhancement of workshops through description of the research, actions and reflections done to improve the quality of staff development sessions on wikis.

1. Introduction

Staff development workshops on e-learning and e-assessments have traditionally been focused on e-learning technology tools. Trainings sessions to familiarise staff with a Virtual Learning Environment (VLE), for example Blackboard, involves many technical aspects. In order to successfully use the VLE, lecturers need to learn numerous settings and functionalities, for example uploading documents, customisation of their modules and using the grade centre.

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8 Hendrik van der Sluis is an Academic E-Learning Developer at Kingston University London. His role concerns the development and support of e-learning, e-assessment, and classroom technology for the staff of Kingston University. Address for correspondence: Hendrik van der Sluis, Kingston University, Academic Development Centre, Millennium House, 21 Eden Street, Kingston upon Thames, KT1 1BL. Email: HvanderSluis@kingston.ac.uk.
Most staff must be considered as what Prensky coined in 2001: digital immigrants, meaning not being raised in a surrounding of technology. For this reason, the main aim of staff development sessions is closing this gap by offering workshops on different technologies. Most of the time in these workshops is spent on familiarising staff with the tools. Education is less stressed in these sessions, which does not always lead to successful implementation of different learning technologies. For that reason D. Kirkpatrick advises in her conclusion on academic staff development familiarising staff with technologies “maintaining a focus on teaching and learning rather than technology” (Kirkpatrick, D. 2001).

Alongside a lot of other recommendations M. Bell and W. Bell in their analysis of the successful implementation of a VLE at Northumbria University conclude that staff development “must be pedagogical as well as technical”, because a purely instructional approach generates poor results (Bell & Bell 2005). Others like G. Salmon underline the need for pedagogical advice during training sessions as well. Encouraging e-learning by academics to post some notices or PowerPoint slides on a VLE without a broader understanding could result in “loss of quality and much frustration” (Salmon 2005).

Meanwhile opportunities for teaching and learning have gone beyond a VLE, Web 2.0 (read/write web) technologies as coined by Tim O’Reilly in 2005, offering new opportunities to engage with students. But although staff are aware of the educational rationale of wikis, blogs, social bookmarking, etc., H. Ajjan and R. Harshorne concluded in their study “that training is an important mechanism to influence Web 2.0 usage, while facility conditions in terms of resources and technology are not as important in determining usage [...] of Web 2.0 applications” (Ajjan & Harshorne 2008).

Kingston University’s Academic Development Centre offers basic Blackboard introductions to familiarise staff with the functionalities of the VLE. Beside this basic training, workshops are offered on more extensive technologies like wikis and blogs in the VLE. These workshops contain a pedagogical and a technical part but generally less weight is put on the pedagogical aspects of the learning technologies.

This paper presents the efforts made for improving the wiki workshop using the action research approach. In addition to the identification of the problem, it includes comprehensive research on actions to be undertaken, collaboration with colleagues and reflection on what has been learned. The latter is used as a basis for a new cycle of the action research process. Due to lack of time only a single cycle of the action research process was carried out. Putting more emphasis on pedagogy to improve staff development sessions was chosen as the most appropriate commission for this first cycle.

2. Background

As an Academic e-Learning Developer, I provide support and advice on e-learning, e-assessments and mobile classroom technology to the lecturers and staff of Kingston University.

Kingston University is a provider of higher education in south-west London; it has approximately 20,000 students and about 2,100 staff members. It has four campuses in and around Kingston upon the Thames. The university has 7 faculties, which are divided in different schools. It offers a comprehensive range of courses in the areas of Art & Design, Social Sciences, Business & Law, Engineering, Health and Social Care, and Science. As a polytechnic it has a 110-year history, going back to 1899 when the Kingston Technical Institute opened. In 1992 Kingston became a so-called ‘new’ university.

Support for blended learning, e-learning and e-assessment are part of a central department: the Academic Development Centre (ADC). The main aim of the department is to support staff in all aspects of quality enhancement in the relationship with teaching and learning.

Providing support and advice on learning technologies to the lecturers and staff of the university is done in different ways. One favoured way is delivering workshops. A brief overview of the kind of workshops offered is given below:
• E-assessment, using Questionmark Perception or Blackboard;
• Electronic voting systems;
• Wiki and blog;
• One Community (Social Network using ELGG).

The workshops are normally on a once-per-term basis, but lecturers can have individual or group requests, too. All workshops are delivered face to face, and last around two hours.

Most of the workshops have two objectives. The main part is making the staff members familiar with the software/hardware so they can use it. The second is pedagogical advice and the best practice of the different tools. It is the latter, as we have seen in the introduction, that should be improved to foster the overall quality of the staff development sessions on technology.

The main source of information for the action research cycle in this study was NEFSTEM, as well as the readings and video casts provided by Professor Brian Hudson during the Action Research online course (E-Jump 2.0 project), complete with readings found on the Internet.

3. Methodology: action research cycle

Action research is a flexible spiral process, which allows action and research to be achieved at the same time” (Dick 2002). It is a “reflective process of progressive problem solving [...], to improve the way they address issues and solve problems.” Reflection on changes is an important part of action research for the reason that “it can also be called a form of self-reflective practice” (McNiff 2002) and will be part of this paper.

The action research cycle described by NEFSTEM consists of four short steps: preparation, creation of the plan, action and result. In the subparagraphs below brief descriptions of the activities taken in each step are given.

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3.1 Preparation, problem identification

The old version of the wiki workshop had the following layout (see the exemplary layout in the textbox on the right):

1. An introduction to wikis: with examples of the famous Wikipedia, third-party wikis like Wikipedia, PBwiki and our VLE Blackboard wiki. Furthermore the difference between blogs and wikis is pointed out. It also contains a few examples on how a wiki can be used in the classroom, mentioning the collaboration qualities of a wiki. This normally takes around twenty minutes.

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION LAYOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:00</td>
<td>Introduction to Wikis</td>
</tr>
<tr>
<td>14:20</td>
<td>What a wiki is, examples</td>
</tr>
<tr>
<td></td>
<td>Educational examples</td>
</tr>
<tr>
<td>14:20</td>
<td>Hands-on, Set up a Wiki in Blackboard</td>
</tr>
<tr>
<td>14:30</td>
<td>Options</td>
</tr>
<tr>
<td></td>
<td>Using a wiki</td>
</tr>
<tr>
<td>14:40</td>
<td>Edit page</td>
</tr>
<tr>
<td>14:50</td>
<td>Add a new page</td>
</tr>
<tr>
<td>15:00</td>
<td>Link function</td>
</tr>
<tr>
<td></td>
<td>History</td>
</tr>
<tr>
<td></td>
<td>Configure course wiki tool</td>
</tr>
<tr>
<td></td>
<td>Access wiki</td>
</tr>
<tr>
<td></td>
<td>User participation report for wiki</td>
</tr>
<tr>
<td>15:30</td>
<td>Questions/discussion</td>
</tr>
<tr>
<td>16:00</td>
<td>Using the One Community wiki</td>
</tr>
</tbody>
</table>

Based on the good practice of *TEACH WHAT YOU PREACH* and on the suggestions from some authors on wikis like Parker & Chao (2007) a wiki was used as a presentation medium in the introduction of this exemplary workshop. It allowed me to show the different functionalities of a wiki live before the hands-on part of the workshop. A screen clipping from two slides of the old presentation is provided in appendix 1.

Elements that were missing in the Introduction are examples on how to use wikis in the classroom, student experience and behaviour using a wiki, how to assess a wiki, a pedagogical model on why to use wikis in the classroom and a brief discussion on lecturers’ own ideas for using a wiki in their modules.

3.2 Planning

Literature presented in the introduction, my previous experiences delivering the wiki workshop and the preparation phase led towards an action plan for improvement. It contains the wish to broaden my background knowledge of the use of wikis in the classroom and changes in the workshop’s Introduction by putting more emphasis on pedagogy.

The following actions were intended.

1. To develop a more fundamental understanding of the use and pedagogy of wikis in the classroom, literature was researched and reviewed and emphasis was placed on the following:
   - Finding appropriate examples for using wikis as an educational tool
   - Distinguishing differences and/or similarities with other tools, especially with blogs
• Finding pedagogical aspects of using a wiki
• Exemplifying student experiences and behaviour using a wiki
• Finding indicators that help lecturers to assess a wiki assignment

2. Changing the introductory part of the workshop based on my broader understanding of the pedagogy of wikis in a classroom. The following changes are anticipated:

• Changing the delivery mode from a wiki to PowerPoint. During the workshop delivered in December 2008 I realised that I was not satisfied with the wiki presentation mode and decided afterwards to change this as part of the action research plan. The principle of teach what you preach is a valued principle for the kind of workshops I deliver. It is important to show staff technologies in real action so they can experience it as learners. On the other hand, using the wiki with all its site banners distracts too much from the content I want to present. As Mason & Rennie say, “The choice of media needs to reflect the learning objectives of the course/module, not dictate the objectives” [Mason & Rennie 2008]. A wiki’s main strength is on collaboration and not on presentation. PowerPoint will enable me to focus more on the content of the presentation. It will allow me to take more time for the Introduction and be less tempted to show the different functionalities of a wiki, which will be a main element in the hands-on part of the workshop. It will help to make a clearer distinction between the Introduction and the hands-on part of the workshop.

• Revision of the Introduction content. Based on a better understanding of wikis I will revise the Introduction by rewriting some slides, replacing others and adding some new slides to the presentation to improve the Introduction.

3. To measure the improvements a small survey was introduced to the participants at the end of a workshop. One sample was taken in December 2008 with the delivery of an old version of the wiki workshop. Another sample was taken in April 2009 after the literature was collected, read and reviewed and changes in the Introduction were made. A one-minute paper was also added to the survey to collect suggestions and reflections of the lecturers that could be used for further reflection on the workshop. The survey was delivered using a Google form, with the help of Google Docs. For more details on the survey questions and outcome see appendix 3: Survey.

4. Self-reflections on the actions, research and two workshops’ deliveries will be taken and could be used to reassess if the changes made had any influence on the enhancement of the workshop.

3.3 Ethical implications

Staff development sessions on technology at Kingston University are not part of the official accreditations, like the Post Graduate Certificate (PGCert), or Personal Development Plan (PDP), nor do they have a relationship with an awarding body. The sessions are attended voluntarily by members of staff who want to learn more about learning technologies and this does not result in certifications.

Changes in the sessions are an attempt to raise standards and are part of providing good quality support. It will have no influence or impact on participants’ official careers.
The survey offered to the participant has no additional research intention than for this paper. Therefore, the distribution of a consent form to the participants is not necessary. Nevertheless, the participants will be orally informed about the relationship between the survey and the aim of the action research plan. The survey will be offered completely voluntarily and will be handled anonymously.

During this project I will share my ideas with students from the E-jump 2.0 project, the workshop participants, my AR mentor and my colleagues, and if I mention their ideas I will comply to the ethical code and refer to the original author or source. In this document other articles and sources will be referred as appropriated according to academic standards.

3.4 Action

The following subsections present the actions taken accordingly with AR planning as described in the previous paragraph.

3.4.1 Review of the articles on wikis

The following summary is a brief description of the things learned and the results for the Introduction presentation.

INTRODUCTIONS ON WIKIS

Almost all articles provide an introduction to wikis and give reasons to use them in the classroom. Wikis seem to be an ideal tool to provide collaboration. An article which I will recommend to lecturers is written by Parker, K.R. & Chao, J.T. (2007). It summarises several articles on wikis, gives examples of wiki assignments and provides useful information on using wikis in education.

EXAMPLES OF USING A WIKI AS AN EDUCATIONAL TOOL


The examples are collected and organised around the student skills they can support viewed from the social constructive model of teaching and learning. The slide “Examples of assignments and assessments” is thoroughly revised.

DIFFERENCE AND/OR SIMILARITIES WITH OTHER TOOLS

Wikis are mentioned mainly as a collaboration tool. Blogs and wikis are often mentioned together. Both are Web 2.0 tools and provide the possibility for peer review. The main difference between them is that blogs are timely organised entries while wikis are topic-structured web entries (Ramos, M. & Piper, P.S. 2006, Mason, R. & Rennie, F. 2008, Parker, K.R. & Chao, J.T. 2007).

Most interesting is the JISC report Great Expectations of ICT, as it gives a clear overview of students’ familiarity with different learning technologies. A diagram from this report is added to my presentation as a new slide, “Student expectations”, because it clearly shows that students are neither familiar nor comfortable with wikis, and this diagram could help to start a small discussion.
To deal with large student numbers and to keep up to date with posting blogs and wikis Ramos, M. & Piper, P.S. (2006) mention different search engines. This, along with RSS feed functionalities, is worth mentioning, because classes are often large at Kingston University. This information is added to the slide “What is a wiki?” where I discuss the difference between a wiki and a blog. An extra slide, “Third-party wikis; wikis with and without walls”, is added to the Introduction to review different third-party wikis and their differences in relation with the educational benefits.

**PEDAGOGICAL ASPECT OF USING A WIKI**

Wikis seem to fit well in the social constructive model of teaching and learning, because they allow active, reflective, authentic and collaborative assignments or assessments (Ferris, S. & Wilder, H. 2006, Mason, R. & Rennie, F. 2008 and Parker, K.R. & Chao, J.T. 2007).

The social constructive framework of Parker, K.R. & Chao, J.T. (2007) is used to rearrange the practical examples of using a wiki. This makes the examples more relevant and resulted in a strong revision of the slide “Examples of assignments and assessments”.

Wikis in, for example, the Wikipedia have a fluid and changing nature (Dohn, N.B. 2009, Mason, R. & Rennie, F. 2008 and Davies, J. & Merchant, G. 2009 forthcoming). The permanent state of flux of a wiki text has consequences for its ownership and identification of the authors and this makes it difficult for lecturers to assess, an issue that will be addressed in the new slide “Assessing a Wiki”.

Some articles conclude that using a wiki supports deeper learning and stimulates further interaction (Gao, F. & Wong, D. 2008, Chen, H.L. et al 2006). The unseen audience stimulates better writing and improves the quality of assignments (Wheeler, S., Yeomans, P. & Wheeler, D. 2008, De Pedro et al 2006). Dohn, N.B. (2009) and McLuckie, J. & Topping, K. J. (2004) describe several skills and competences teachers/lecturers implicitly expect from students when using a wiki. Students need to be reflective, collaborative and able to give proper feedback in order to use a wiki to its full potential. This could be an issue with exposing wikis to first-year students. These competences are worth discussing and will be added to the slide “Why using it/Considerations”.

**STUDENT EXPERIENCE AND BEHAVIOUR USING A WIKI**

It is not completely clear how students handle the wiki interface. Cubric, M. (2007) mentioned that students did not find using a wiki difficult, while De Pedro et al (2006) and Wheeler, S., Yeomans, P. & Wheeler, D. (2008) observed that students needed to be familiarised with its functionalities to take full advantage of a wiki. This suggests that not only lecturers need to be trained using a wiki but most students as well. This could be discussed using a diagram from the JISC report, Ipsos (2007).

Interestingly Peacock, T., Fellows, G. & Eustace, K. (2007) found that students did not always made use of the wiki editor and that students, for example, copy and paste it from other office editors like Word. This has consequences for history functionality and its ability to assess a wiki and will be mentioned in the added slide, “Assessing a Wiki”.

Although wikis are praised for the opportunity to enable peer review, students are not very keen on interfering with others’ work or that their work is revised by others. Students tend to read only the pages they contributed to and do not read others’ work (Peacock, T., Fellows, G. & Eustace, K. 2007), Wheeler, S., Yeomans, P. & Wheeler, D. 2008).

**INDICATORS TO ASSESSING A WIKI ASSESSMENT OR ASSIGNMENT**

Most of the articles are not explicit about how to assess a wiki. Using some findings in Parker, K.R. & Chao, J.T. (2007), I created a new slide, “Assessing a Wiki”, with a matrix that contains indicators like participation, interaction, reflection and presentation to illustrate the different aspects of how wikis could be assessed.
3.4.2 Summary of the changes

The following changes were made to the Introduction presentation:

- Replacing the wiki within Blackboard with PowerPoint as the medium for the presentation;
- Reducing the overall amount of text in the presentation;
- Improving the comparison slide “What is a wiki”, where the differences to a blog are mentioned more clearly;
- Reordering the examples in the slide “Examples of assignments and assessments” around the social constructive model of teaching and learning, to give it more structure and leaving out the most obvious examples;
- Adding a new slide, “Student expectations”, to the presentation, illustrating students’ familiarity with technology using a graph from the JISC report Great Expectations of ICT;
- Revising and elaborating the slide “Why using it/Considerations” to address students’ behaviour using a wiki;
- A new slide, “Third-party wikis; wikis with and without walls”, was added to the presentation to make lecturers aware of other third-party wikis;
- Inserting a new slide, “Assessing a Wiki”, with a suggestion on how a wiki can be assessed to extend a discussion on why using a wiki;
- Revising the slide “Suggested Literature”.

Two slides of the new presentation are provided in appendix 1, as a comparison with the old presentation.

3.4.3 Presentation delivery

After reading, summarising and writing about wikis for the literature review my general understanding of wikis is much better established. Along with the revised presentation I felt much more confident speaking about the pedagogy that surrounds wikis in the new version of the workshop in April 2009. The workshop went smoothly and without any significant problems or technical hiccups.

4. Findings & reflections

The subsections below describe the findings from the analysis made after comparing the impact of the old and the new versions of the workshop, as well as evaluation and reflections of the action research process.

4.1 Findings

Usually the wiki workshop is exceptionally popular but in December 2008 as well as in April 2009 only two participants joined the workshop. In both cases more participants signed up, but stayed away due to illness and other responsibilities.
All participants of the workshop participated in the survey, but in all, the number of participants is too small to make any reliable interpretations. See appendix 3b.

There is not much difference in the overall satisfaction of the two deliveries of the workshop. In both cases the participants found the overall qualities of the session very good, as well as handouts and the organisation of the workshop.

In informal conversations after the December workshop the two participants were really satisfied and one of them already had a concrete plan using wikis in his module.

In April 2009 both of the participants found the workshop very pleasant and useful and saw immediate possible application of wikis in their teaching.

4.2 Evaluation and reflection

Changing the delivery mode of the Introduction from a wiki to PowerPoint was a good choice as I found out in April 2009. It was less distracting and I was not that tempted to show the functionalities of a wiki on the fly, which kept the focus more on the content I was talking about.

The literature review and writing about wikis have enhanced my understanding of their use in the classroom. This became evident in the time normally used for the presentation. The time used to present and discuss pedagogies using wikis increased from around 15 minutes in December 2008 to more as 30 minutes in April 2009. I had the impression that there was a better recognition between the examples I gave and the consequences for their teaching and learning. Some were striking and clearly inspiring for the participants. My improved understanding of the problems using wikis in the classroom was very helpful. The participants found the discussion around “Student expectations” very interesting and helped them to put the tool in context. They took notice of the slide “Why using it/Considerations” for over haste implementations without some written guidelines in their assignments. I could much more clearly explain the difference between wikis and blogs in the slide “What is a wiki?”. In addition to feeling more confident with delivering the Introduction, the deeper understanding also helped to give more structure to the hands-on part of the workshop. During the hands-on part I made connections with the slide “Assessing a Wiki”, which gave the two workshop parts more coherence and a stronger focus on pedagogy.

5. Conclusion

It would be difficult based solely on the participants’ satisfaction to say whether the quality of the staff development session has improved. The number of participants was not sufficient in either sample to impartially measure any improvement.

Nonetheless, in my opinion a better grounding and deeper knowledge in the pedagogy of wikis, the clearer focus in the Introduction with more emphasis on pedagogy, supported by a clear distinction between the Introduction and hands-on part and informal participants’ feedback led to an improvement of the staff development session. Overall, the whole staff development session did become clearer with a focus on teaching and learning, and less on technology as authors like D. Kirkpatrick, H. Ajjan and M. Bell and W. Bell advise for staff development sessions on learning technologies.
6. Further development

Action research is a spiral of steps to make changes and improvements. In this paper action research was used to improve staff development sessions on e-learning technology by putting more emphasis on pedagogy as advised by authors on staff development as we have seen in the introduction. Some of the authors also advise developing “best practices” models “to further facilitate the adoption of these emerging technologies as tools for improving teaching and learning in higher education” (Ajjan & Harshorne 2008), as well as providing working models on how it can be achieved (Kirkpatrick 2001).

Offering follow-up sessions and collecting best practice examples on how wikis are used at Kingston University by academic staff and students could be an interesting second cycle for an action research project to improve staff development sessions on learning technologies.

7. References


Bell, M. & Bell, W. (2005), It’s installed... now get on with it! Looking beyond the software to the cultural change. British Journal of Educational Technology; 36(4):643-656.


Appendix

1. Screen clipping of the Introduction using a wiki

Using a wiki as a presentation tool is possible but a wiki surrounding, as you can see below, distracts strongly from the content itself.

Secondly, presenting pedagogies is less favourable with a wiki because it results in showing the functionalities instead of discussing the pedagogies in a shortening of the Introduction.

1a. Example “What is a wiki?”

1b. Example “Assignments with a wiki”
2. Screen clipping of the wiki Introduction using PowerPoint

Screen clipping of a couple of slides from the PowerPoint presentation that is used in the Introduction of wikis.

The new presentation is available online as a Google Doc, see: http://docs.google.com/Presentation?id=dd7wtrr3_85ffh95fg. See the “Speaker notes” in “Actions” for a summary of the talk.

2A. SLIDE “WHAT IS A WIKI”

WHAT IS A WIKI

A WIKI CAN BE A BLOG, BUT A BLOG DOES NOT HAVE TO BE A WIKI. MATTISON (2003)

A wiki is a web page or collection of web pages designed to enable anyone who accesses it to contribute or modify content. Ward Cunningham, developer of the first wiki software, WikiWikiWeb, originally described it as ‘the simplest online database that could possibly work.’

A blog is a website, usually maintained by an individual with regular entries of commentary, descriptions of events, or other material such as graphics or video.

2B. SLIDE “EXAMPLES OF ASSIGNMENTS OF ASSESSMENTS”

EXAMPLES OF ASSIGNMENTS AND ASSESSMENTS

CONSTRUCTIVIST LEARNING SHOULD ENGAGE STUDENTS IN MEANINGFUL LEARNING AND THE ... CRITICAL FEATURES ARE THAT THE LEARNING SHOULD BE ...

<table>
<thead>
<tr>
<th>EXAMPLES OF ASSIGNMENTS/ASSESSMENT WITH A WIKI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active and manipulative, engaging students in interaction and explorations</td>
</tr>
<tr>
<td>Constructive and reflective</td>
</tr>
<tr>
<td>Intentional, providing their own learning goals and monitor their achievements</td>
</tr>
<tr>
<td>Authentic, challenging and real-live</td>
</tr>
<tr>
<td>Cooperative, collaborative and conversational</td>
</tr>
</tbody>
</table>
# 3. Survey

The following survey was conducted twice among the participants who joined the workshop in December 2008 with the old version and among the participants who received the new version in April 2009.

Every question – except the last one – in the questioner is a five-level Likert item from 1 to 5.

## 3A. WORKSHOP SURVEY

---

**PLEASE LEAVE SOME FEEDBACK ON MY WORKSHOP. IT WILL HELP TO IMPROVE MY WORK.**

THANK YOU IN ADVANCE, HENDRIK

---

1. Was there any prior technical knowledge assumed?
   - too much 1. 5. little

2. What was the degree of difficulty for the session?
   - too much 1. 5. little

3. Overall, how would you rate the session content?
   - too much 1. 5. little
   
   | Pedagogical Introduction, presentation materials, hand-on examples, handouts |

4. Overall, how would you rate the organisation of the session?
   - too much 1. 5. little

5. Overall, how would you rate the quality of the teaching?
   - too much 1. 5. little

6. Overall, how would you rate this session?
   - too much 1. 5. little

---

One-minute paper.
[Other comments, points for improvement, tips, etc.]
38. SURVEY OUTCOME

Except for the first row, each row represents the outcome of one participant. 16 December 09 is the delivery of the old version of the workshop and 17 March 09 the delivery of the new one.

The numbers in the rows relate to the five-level likert scale chosen by the participant, for example row No. 4, 17-Mar-09 question 6 = 1, correspondent with ‘very good’.

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16-Dec-08</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>Very user friendly</td>
</tr>
<tr>
<td>16-Dec-08</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>17-Mar-09</td>
<td>3</td>
<td>5</td>
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<td>17-Mar-09</td>
<td>5</td>
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</tbody>
</table>

In general the participants were very satisfied with the overall workshop materials, organisation and quality of teaching. Secondly there is not much difference in experience between the two versions of delivery.
1. Introduction

The report presents a description of the action research project (ARP) conducted by the author on the basis of the Up BA Course (fourth-year students) in Business Communication delivered in one of the technical universities of Ukraine for winter-spring 2009.

The collaborative activity within e-Learning 2.0 provides THE KEY OBJECT FOR ARP, THE RESEARCH SUBJECT is to examine gender peculiarities in collaborative project activity online with the use of Web 2.0 technologies.

THE MAIN ARP OBJECTIVE is to fix and depict assumed gender peculiarities in online collaboration and try to evaluate them in relation to the effectiveness of e-Learning 2.0 and the development of a gender-friendly model of learning within the local context.

THE PROJECT’S NOVELTY is in the combination of gender and collaborative e-Learning 2.0 activity research within the community of practice theoretic model. There are no data found about gender impacts on e-Learning 2.0 practices, particularly in the local educational paradigm. A collaboration approach is also rendered as an effective facilitating tool to make e-Learning 2.0 and learning generally more gender-friendly. In this ARP the virtual community of practice formed through collaborative e-Learning 2.0 activities is coined as CLASS 2.0.

The data obtained through the course’s teaching with the help of online free association tests, online questionnaires and students’ working (learning) group projects’ evaluations are used as an ARP RESEARCH BASE to trace and depict gender peculiarities in collaboration online.

THE MAIN RESEARCH HYPOTHESIS is formulated as the following: since all intrinsic characteristics of Web 2.0 and originated from it – e-learning 2.0 (like collaboration, interactivity, openness and connectivity) simultaneously present the most important features for gender-friendly learning surrounding intrinsically. Hence namely the e-Learning 2.0 format of education must be a more gender-friendly model of learning. Its implementation could promote gender equality in education and enhance the learning effectiveness for both genders, especially in the local tertiary.
KEY ARP DEVELOPMENTAL GOALS are to promote gender equality in teaching and learning and facilitate the integration of local tertiary into the Bologna Educational Space, which can be rendered as more gender-friendly than the local one.

KEY ARP QUESTIONS cover the following:

- How intensively and in what way does gender connect and impact e-Learning 2.0 and vice versa?
- How does gender impact collaborative learning activities online?
- Does e-Learning 2.0 promote gender equality in tertiary or not?

2. Theoretic Background

T. Cochrane declares that “…teaching and learning innovations are best implemented when informed by learning theory” (Cochrane 2007: 31). The social constructionist approach towards viewing gender and learning provides the theoretical foundation for this ARP project. Within this ARP one can assume that gender, learning and cyberspace are social constructs. Additionally notions of community of practice (Wenger), virtual community of practice (Brown), e-Learning 2.0 (Downes), and gender-friendly online class (Blum) are exploited in this research as key terms.

2.1 E-Learning 2.0

New social-constructivist pedagogy social software (interactive collaborative software) is one of the key features of what has been coined as Web 2.0 according to its creator, T. O’Reilly (2005). This social software includes blogs, social networks, wikis, RSS, instant messaging, podcasting, social book marking, etc. Under the deep influence of these Web 2.0 services e-Learning starts drastically transforming into a new educational model based on the principles of the Web 2.0 technological model. This new format is coined as e-learning 2.0, similarly to the term Web 2.0, that initiates this new learning format (Downes 2005). It is characterised by such features as interactivity, openness, connectivity and collaborative nature that constitute a pedagogical foundation for e-Learning 2.0. Thus e-Learning 2.0 greatly inherits all the basic features of Web 2.0, and the e-learning 2.0 pedagogical model focuses on enhancing interactivity, networking and collaboration online. To be effective this model must also be student-centred, knowledge-centred, assessment-centred and community-centred as a number of scholars argue (Sharples, Taylor, Vavoula 2005). One can consider that the same principles are applied to the gender-friendly model of education (Blum 1999; Bender 2003; Statham et al 1991; Yates 2001; Hongbo 2006), increasing the “gender-friendlessness” of learning in itself.

2.2 Collaboration in e-Learning 2.0

It is also a collaborative approach in pedagogy that provides the basic requirements for e-Learning 2.0. Collaborative learning in this research is viewed within the framework of Panitz’s approach where the principles of delegating authority, acceptance of responsibility, and consensus-building through cooperation by group members provide an effective foundation for learning (Panitz 1996: 7). One can consider collaborative learning as an inseparable, intrinsic, conceptually inbuilt part of e-Learning 2.0. Without collaboration it is impossible to effectively use this format of education. However for our local tertiary education this collaborative approach has been implemented into the educational system only recently since Ukrainian education from the Soviet time possesses a number of features that are in conflict with the learner-centred model of education. The local educational system is characterised by a teacher-centred model of learning, lecturing format of delivery...
information, low technical support of learning including ICT, etc. Additionally teamwork activities based on collaboration in learning are neither used nor encouraged in Ukrainian tertiary. Therefore one can argue that the implementation of e-Learning 2.0 into the local educational tertiary will facilitate its transformation with the following integration into the common European educational space (Bologna Process), and step by step put into practice a gender-friendly model of education since strong patriarchal stereotypes are dominant in Ukrainian education (Bystydzienski 2003; Goroshko 2008).

2.3 Virtual Communities of Practice (VCoP)

One can mention that collaborative principles provide the foundation not only for e-Learning 2.0 but also for VCoP functioning. The term Virtual Communities of Practice (VCoP) has been coined in this century. It describes communities of practice functioning through the Internet (Brown 2005). Usually this term VCoP describes a community based on collaborative human co-shared online and offline activities of any kind. Etienne Wenger argues that “communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavour” (Wenger 1998: 87, 2002). Brown applies this term to virtual reality keeping all the basic principles of the CoP notion structure. A share, or a concern, or a passion for something that people intend to do or learn how to do provides the basis for the community of practice functioning. And “learning can be the reason for the community”, as P. Brown declares (Brown 2005: 1). Not all groups, but just the special groups, can be identified as a community of practice. There are three key notions that define this type of union (group): domain, community and practice. Thus the functioning of VCoP is based on co-sharing activity, and commitment to the same principles, interests and ideas. VCoP produces a shared set (repertoire) of knowledge, experiences, stories, tools, ways of thinking, etc., or — in short a shared practice as Brown defines. Hence, a collaborative online class or Class 2.0 can be viewed as a VCoP, since it meets all the requirements specified above: its members are engaged in common shared activities and practice offline and online, and are committed to the same shared goals, ideas and interests through a substantive period of time. They regularly reproduce practically the same activity.

2.4 VCoP and Gender

The notion of gender and gender-friendly learning environment can also be viewed through the VCoP model. Thus, V. Bergvall declares that the CoP approach in gender and communication research concentrates on the constructive practices of a group – especially mutual engagement of learning as a jointly negotiated practice of gender (Bergvall 1999: 273; Holmes, Meyerhoff 1999). Rather than taking gender differences for granted (gender determinism), this approach specifies the learning and mutability-gendered displays across groups or communities. This approach naturalises intrinsic group variations, not marking them as deviant (Holmes & Meyerhoff 1999; Eckert & McConell-Ginet 1999). One can consider this approach rather effective in studying gender peculiarities online and offline.

2.5 Gender and Gender Learning Online and Offline

One can mention metaphorically speaking that there are three dominant approaches surrounding gender issues on the Internet: The demographic agora, the male mystique, and the female frontier. Thus, Kirsteen Monteith argues that research data concerning the impact of gender on the Internet to date can be divided into three major theories:

- The first theory maintains that the Internet is gender neutral, and that women and men can use or participate online on equal bases;
• The second theory considers the virtual realm as a reflection of the offline world where men and women operate on unequal terms, and men are dominant (Monteith 2002; King 2000: 2);
• The third theory suggests that the Internet may be seen as a female domain less as a superhighway and more as a cozy village square, where people meet, talk and learn, a meeting point, a place “where women are making and moving into a digital lifestyle that was previously perceived as a men’s club” (Spender 2000; Monteith 2002: 16).

A review of the literature concerning gender and CMC testifies that men’s and women’s communication differs but it is not a mirror of FtF differences (Peddle 1997; Brown 1998).

Simultaneously one of the most widespread approaches towards viewing gender in education is based on considering gender as the social and cultural construction of sex (Maher, Tetrault 1994; Meßmer, Schmitz 2004; Kuhlen 2006).

Gender mainstreaming in e-learning considers the gender perspective for all aspects and processes of e-learning (Kuhlen 2006). Gender mainstreaming in e-learning thus aims as Kuhlen emphasises “at establishing equal opportunities for men and women not by ignoring differences between the sexes but by taking into account the distinctive features which have been developed over time and under social and culture-related circumstances” (Ibid: 1).

The basic prerequisite for the gender-friendly model of education is the concept of potential (developed by Metz-Göckel and Roloff 1995). According their assumption both genders (females and males) have the same potential for a great number of aspects in development at their disposal. However the realisation of these potentials socially and culturally stipulated as gender in itself depends on social circumstances and culture-dependent value systems. Therefore genderspecific behaviour in e-learning (such as taking initiatives in group processes or having preferences for specific domain-specific knowledge and programs) is mainly not sex-related, but is permanently constructed in social interaction” (Kuhlen 2006: 1).

Rainer Kuhlen delineates a number of principal research questions addressed in the emerging problem-area of gendered e-learning:

• “What are some of the differences in communication styles between men and women in online environments?
• Men and women have different ways of ‘knowing’ and learning. How does this translate in an online environment?
• Does an online environment facilitate or hinder women’s way of learning?
• Is gender important in online learning?
• How do we manage our identity online?
• What motivates women to learn online? Are these the same things that motivate men?
• What are the characteristics of women who are successful as online learners? Are success factors different between men and women?” (Ibid: 7).

The literature analysis shows there are a lot of gender differences with respect to ICT and e-learning generally (Blum 1999; Monteith 2002; Hongbo 2006; Goroshko 2008). Some findings from research testify the following: there are a lot of discrepancies between male and female perspectives and visions of e-learning (Blum 1999; Hongbo 2006).
One can observe differences in self-assessment of ICT competence, self-confidence, commitment towards computer science, general attitudes towards computers and professional ICT training (Derichs-Kunstmann/Auszra 1999; Dickhäuser 2001; Beyer et al 2003; Henderson 2005). Some scholars talk about gender biases in the culture of learning (Derichs-Kunstmann/Auszra 1999; Blum 1999; Bender 2003). Thus male learning culture is characterised as: Tendency to dominant behaviour in educational situations, more frequent take-over of monitoring discourse, longer and more frequent contributions in discourse. Men are more often involved in the development of enforcement strategies and elaboration and maintenance of competitive relations. They are inclined to competitive behaviour and desire to impress others.

Female learning culture is depicted by such features as the tendency to demonstrate cooperative behaviour and orientation, preference for group work, willingness to be responsible for ongoing discourse and to discuss topics, supportive of others. Their contributions in discourse are shorter. Women are more open for the proposals of other people and for cooperative work in general. They also care for a just distribution of learning tasks.

Certain peculiarities are fixed between individual vs. group learning activities (Brenda 2003; Henderson 2005; Ella et al 2007). Additionally, a lot of differences are found in male and female e-learning and ICT experiences, students’ motivation and learning cultures (Blum 1999; Kirkup 2004; Kuhlen 2006; Goroshko 2008).

### 2.6 Gender and Collaboration Online and Offline

As for gender aspects of collaborative learning one can mention that there are many gender peculiarities in collaborative activity offline but there is very scarce research and data concerning gendered collaboration online especially within the learning setting. Thus, namely online gendered collaboration class activity is chosen for ARP study owing to the lack of relevant scientific data within the local context. The results obtained through English-speaking learning communities are also scarce. They indicate that gender really influences motivation, participation and successful completion of the online project (Ditto 2004; Vermeulen 2008; Hsu & Wang 2003). In a number of studies it is revealed that gender really influences learning motivation, computer skills, learning behaviour, and the level of participation in online class (Maher & Tetrault, 1994; Savicki 1996; Yates 2001). It is shown also that the duration of the study, the nature of the task involved, and, cultural effects or the combination of those factors may be connected with gender variable (Hsu & Wang 2003: 34). The study conducted by Ella, Roberta and Andrea testifies that gender composition of online group influences the effectiveness of e-Learning (Ella et al 2007: 33). Blum (1999) says that females are more empathetic and collaborative, rather than competitive, unlike males. However, it is necessary to stress there are no studies conducted on a regular basis, especially across cultures, about the influence of gender on collaborative learning online, to say nothing about e-learning 2.0.

The main summary of gender impact on CMC and online learning can be formulated as women and men interact in different ways in e-learning. Bender also declares “that if one can observe the same features on F2F and e-classes it can be inferred that e-Learning possesses a collaborative potential, this can be made enormous use of by female learners who enjoy interaction and sharing as their primary learning style. Any women who were initially hampered by low confidence levels in their academic and technical abilities might benefit from having an online mentor or student partner to help them over the hurdles”. The online tutor, teacher or instructor has the job of encouraging the collaboration between women and stimulating the independent work of male learners. However, this suggestion by Bender presupposes gender differences as a starting point. One can declare it must be more comprehensively augmented and not such an essentialist approach towards gender online without presupposition of existing gender biases as sui generis.
3. Research Design

An empirical basis for this research is formed through Class 2.0 collaborating online learning practices over group projects. The task facing the students is to prepare online projects concerning the basic communicative skills such as: effective presentation, negotiating, meeting, time-management or interviewing skills, etc., within the managerial business context using Web 2.0 technologies (wiki, Google Doc [online presentations], e-portfolio, Ning Social Network) as a platform for project realisation. These activities are run through teaching classes in Business Communication for students majoring in Finances and International Management. The attitudes towards ICT realities, including Web 2.0 tools, online collaboration and e-Learning 2.0, are traced, depicted and analysed through gender lenses. Also students’ opinions of online class activities and students’ course evaluations are used to evaluate the data obtained. All class activities are coordinated through the Moodle Learning Space located at http://web2.kpi.kharkov.ua.

The data are collected twice – before (input data) and after completion the course (output data). For the ARP's ethical reasons all questionnaires are conducted on a voluntary basis. Only the anonymous course evaluation is a must for all students registered for the class (133 persons (50 males and 83 females)). There are five input and two output questionnaires, and one course evaluation conducted in the course. The five input questionnaires (before the course) cover issues concerning Internet access and use, Internet, motivations to use the Internet, knowledge and personal attitudes towards ICT, collaborative activity and gender aspects of computer-mediated communication (CMC).

4. AR Ethics

The present study renders all levels of cyberspace (e-learning 2.0 environments and learning discourse through it) as a “private” domain. As a result the consent of oral participants is obtained before AR.

As for personal data privacy our Class 2.0 platform retains no information identifying computer addresses or browser profiles. There are also no “cookies” used to store users’ information. The questions concerning the anonymity of informants (if they want), and consent to locate all project materials as an open-source in the public domain on the Internet are received from learners before the ARP’s implementation. No permission from university authorities for ARP conduction is required in this country.

5. ARP Data Discussion

After the end of Class 2.0 all data are arranged, processed and analysed according to three criteria: period of learning (input/output), gender (male/female), attitude towards format of learning (collaboration), and knowledge of Web 2.0 services for ARP objectives.

On a voluntary basis 70 females and 35 males participate in all surveys and project preparation. 18 females and 15 males only receive credit and go through the final course evaluation. The total number of students registered for this class comprises 133 persons (83 women and 50 men).

The input questionnaire about the collaboration shows that “Web 2.0” was only known before the course by 3 males and 7 females. As for Web 2.0 services, blogs, wikis, IM and social networks were used by students rather intensively before our class. Social bookmarking (Del.icious) and photo services (Flicker), and LMS (e.g. Moodle) were practically unknown to my students. The questionnaire also indicates that males more than females wanted to expand their knowledge about Web 2.0 and its services.
After the course the attitude towards Web 2.0 technologies has changed drastically. The output questionnaire reveals that females rate 4.7 and males 4.3 (the Likert scale from 5 (very positive) to 1 (very negative) is applied in this ARP). Blogging, social networks, Google Office, Flicker, Moodle, and YouTube services are rated uppermost. There are no gender differences in the results obtained. Only males change their evaluation of podcasting – from rather negative to more positive (the Likert 5-rating scale). However, due to the number of learners it is impossible to conduct quantitative analysis and additional research is required. Thus namely the sample volume of participants selected only on a voluntary basis becomes the biggest limitation for this research.

In one of the ARP questionnaires students are asked to define Web 2.0 verbally. (Verbal responses are obtained through free association tests.) Students define this term as modern, useful, helpful, simple, it is communication and speed, it is share of knowledge, it is useful, terrific, fantastic, progressive, etc. There are no negative responses at all registered in students’ definitions of this term. As for gender peculiarities female characteristics are more diverse and specific. Males render Web 2.0 more stereotypically and define it not so metaphorically. One can suppose that namely female students perceive Web 2.0 technologies in learning more emotionally and enthusiastically.

Concerning collaboration activity as a part of Class 2.0 and an inseparable part of e-Learning 2.0 input, data show there is no deep gender gap in students’ preliminary attitudes towards collaboration and teamwork online. The mean score for females is 3.9 and for males 4.4 (the Likert 5-rating scale). After the course these indicators change to 4.4 for females and 4.3 for males. The data show that the male attitude towards collaboration and teamwork activity becomes a little more negative. Simultaneously women render collaboration more positively.

Almost there is practically no difference in teamwork experience before the course for either gender. Almost half of sample students have possessed this experience before and more than half have additional experience in developing projects with the help of ICT. In addition before the course female students wanted to work on a same-sex team more than on a mixed one. As for male students they preferred to work with women much more than with men. Only for 3 males and 10 females is there no difference in what kind of team (according to sex composition) to collaborate.

Output data reveals that there is practically no difference in male and female attitudes towards participation and collaboration in online projects.

Concerning the role of distribution in project management males indicate that they help in project preparation (15 persons); present and participate in projects (4 persons); research information for projects (4 persons); and consult project members (1 person). 10 males mention that they keep watch over the project. Females evaluate their participation in projects more specifically and diversely. They specify that first of all they must be multitaskers in project collaboration. They indicate that they are project leaders (seven persons) since all seven projects are headed by females, presenters (six persons), 22 persons researched project information, 21 participated in project preparation, seven – in project concept development, four – in project idea generation, three – in project recording, one female provided logistics to the project and one – moral and psychological support. Data shows that female roles in project management are more active and diverse. They combine roles through all stages of project realisation more often than males. They also play more specific roles within the project’s management, providing logistics and psychological assistance to the project team. However the most important ARP finding is that namely females, not males, coordinate and head project activity or organise collaboration online. This finding is of critical importance for our research namely in the local context since a patriarchal culture and traditionalistic views alas still prevail in the Ukrainian educational system.

Project presentation is organised with the invitation of mass-media representatives and recording of all seven projects. There are 20 females and 8 males agree to deliver projects offline before the TV (see Appendix No. 1).
The data obtained also testify that there are a lot of differences in male and female specifications of main advantages and disadvantages in online collaboration. All specifications are summarised into Table 2 (see Appendix No. 2).

One can emphasise that female students among benefits of collaboration activity mention the importance of leadership skills in teamwork and render both advantages and disadvantages in online collaboration more from the standpoints of the “group perspective” in contrast to male students, who perceive collaboration more from their personal, individualistic positions.

Students also face the question: “Do you want to participate in group online projects in the future and use them for learning?” The results indicate that more males than females want to collaborate online in the future but they don’t differ strikingly. One can suppose that these results go against the other data obtained through the ARP showing more optimistic female views on collaboration activity and participation in it. However, additional research is required to provide more insight on online collaboration and its linkage with gender and Web 2.0 technologies and the effectiveness of e-learning 2.0 overall.

6. Limitations

This research possesses a number of limitations. However, it is the size of sample presenting the main obstacle. To conduct quantitative statistic research it requires increasing the number of participants and diversifying their backgrounds. It might be useful to examine the impact of educational culture and learners’ diverse cultural backgrounds on online collaboration through the use of more qualitative and quantitative approaches based on ethnomethodology and statistical analysis. The research also reveals that longitudinal observations are needed to more deeply examine the situation with gendered Class 2.0 keeping in mind the rapid development of both ICT and educational paradigms in the post-Soviet tertiary.

7. Conclusions and Perspectives

Although the students are quite actively involved in learning, the actual obstacles prevent full effectiveness of online collaboration. They are mainly related not to the collaboration but extra curricula circumstances: the deep digital gap in Ukraine (not only the gender one), lack of a great number of needed literature resources, as well as the difficulties existing in the process of ongoing higher educational reforms in Ukraine.

However male students require the tutor’s attention and assistance in organising collaborative activity online more. They must be more motivated and prepared in this area. Hence the material received in this ARP shows that the local virtual classroom presents more of a female than male domain, being a convenient working place namely for female students. My data practically confirm the results obtained by Monteith in the English-speaking virtual online class (Monteith 2002) which hypothesise that gender must sometimes be a universal and omnipresent factor in online education generally. E-tutors and educators need to develop more serious and warier approaches to accepting the claims of gender-friendly e-learning 2.0.

Additionally more special training in teamwork and leadership skill development must be integrated into local BA and MA university curricula, especially within the managerial context. In addition certain activities related to multitaskers’ skills must be provided through local university curricula in management and MBA programmers. Our ARP data substantially contradict the well-spread opinions and stereotyped views about only female students calling for assistance in e-Learning (Blum 1999; Bender 2003). It is the man, not the woman, who currently needs more of the tutor’s attention and care in the Ukrainian tertiary. The English language of course instruction presents one more serious problem for students’ learning revealed through the students’ course evaluation. The scare testing practices, absence of special training programs both in ICT and gender equality issues, plus a low level of teamwork skill development among students prevailing in the local tertiary also very negatively impact collaboration and project development online.
Overall this ARP project reveals not only the existence of a Gender Digital Divide in Ukraine but indicates that one of the weakest points in the digital gender gap it is the local tertiary. The e-Learning 2.0’s implementation into the local tertiary might be an effective step in narrowing the existing Gender and Digital Divide in Ukraine.

References


Appendix no. 1

TABLE NO. 1: LIST OF PROJECT TITLES WITH INDICATION OF PRESENTERS’ GENDER

<table>
<thead>
<tr>
<th>NO.</th>
<th>PROJECT TITLE WITH WEB 2.0 PLATFORM SERVICE</th>
<th>NUMBER OF FEMALES PRESENTERS</th>
<th>NUMBER OF MALES PRESENTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Teamwork Skills (Ning Social Networking)</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Leadership Skills (Wiki)</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Interviewing Skills (Wiki)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Meeting Skills (Google Online Presentation)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>Time-management Skills (Blog)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>Negotiation Skills (Google Online Presentation)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Presentation Skills (Vcasmo Software Used to Prepare the Movie “How to Present Professionally for Businesses”)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>20</td>
<td>8</td>
</tr>
</tbody>
</table>

Appendix no. 2

TABLE NO. 2 ADVANTAGES AND DISADVANTAGES OF COLLABORATION ONLINE (STUDENTS’ QUESTIONNAIRE DATA)

<table>
<thead>
<tr>
<th>PLUSES IN COLLABORATION ONLINE</th>
<th>MINUSES IN COLLABORATION ONLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
</tr>
<tr>
<td>Possibility of cooperation, discussions, negotiations while working online, generation of more ideas, more proper delegation of activities, faster problem-solving, possibility to view subject from different standpoints; easier to make consensus, more certainty in every team-member, much more possibilities to listen, support, more solidarity; easier to find the proper information, acquire skills very quickly how to work in teams, more coordination, accuracy, increase accuracy, coordination, responsibility, intensify the exchange of opinions.</td>
<td>It is more difficult to meet the project deadline, low understanding among team-members, lack of real leader, discrepancies in delegation of authority, poor logistics (no places for meetings and working in group), not everybody participates in project activities, it is difficult to distribute information properly among team-members; more responsibility for other team-members, differences in individual opinions, difficulties in project coordination and realisation.</td>
</tr>
<tr>
<td>Females</td>
<td></td>
</tr>
<tr>
<td>It is easier to gain goals by mutual efforts, share opinions, more solidarity, listen out for something, mutual decision-making, easier task-delegation, help each other easier and simpler, every opinion is easily expressed and heard by all team members; develop leadership and team-making skills greatly, reduce overload and tension to work in team; feedback, creativity, efficiency, solidarity, the ability to know the opinions of others; two heads are better than one, ability to concede, easier to reach compromise, interesting jolly, it is real fun, collective discussion helps to eliminate errors, develop skills to communicate, more ideas generated in team, acquire more knowledge and information, it is possible to show you as a leader, leadership skills development; it is chance to listen to others, brain-storming, promote cooperation and communication greatly, brilliant networking.</td>
<td>Logistics problems, misunderstanding, low coordination in project development, difficulties in task-delegation, poor time-management; it is difficult to motivate the other team-members, lose of individuality, duplication of information, more active team-members oppress weaker members, passive behaviour of other team members, lack of compromises, consensus, it is difficult to make a mutual decision, it is difficult to select the idea from a great variety of other persons’ ideas, one person does everything – the other one does nothing; low responsibility by other team-members, personal relationships, discrepancies in opinions, low motivation, possible conflicts provoked by differences in opinions and approaches, etc.</td>
</tr>
</tbody>
</table>
Summary

Information and communications technologies are changing the way we work, live, learn and communicate. The tools offering new challenges to education in the last few years are blogs, wikis and various types of social media. Another tool from the same so-called semantic web generation is the e-portfolio. It is an electronic version of the old paradigm known as the portfolio. However, it offers the user many more possibilities in the sense that in addition to text and pictures it can include video and audio files, links and animations. In addition it makes sharing of information and collaborative work possible. This report describes a pilot action research project for using the e-portfolio to increase students’ abilities to reflect on their own learning and at the same time to help teachers to constantly follow their progress and assess their achievements. Pupils from the seventh grade in a secondary school in Prilep were involved in the experiment. The findings showed that it is indeed possible to use e-portfolios with young students since for them it was just another social tool similar to those they have used in Facebook or hi5. This was the first time they were asked not only to present their work, but also to reflect on what they have done. Accepting the new self-evaluation way of assessment will probably require more time than was available this go-around. However, the e-portfolio proved as an interesting tool for evaluation and as an aid to the teacher when performing formative assessment.

1. Introduction

Assessment and evaluation of students are two of the most challenging tasks for teachers especially when it comes to selecting a method that will motivate students and engage them in learning. As shown in (1) teacher’s approaches are very individualistic in nature. Even when using the same guidelines and tools, no two teachers use the same approach towards assessment.

Being a teacher at a secondary school in Prilep for the last ten years and working with 13 to 14-year old students, I have noticed that it is not always easy to obtain evidence about the learning achieved by each pupil and assign a grade that reflects both the efforts and the achievements at the same time. Moreover, when group projects are assessed an additional difficulty is estimating the contribution of each student in the team. Nevertheless, my teacher practice shows that traditional lectures should always be accompanied by project-based learning where students learn through inspiration, experimentation and practice. At the same time they gather collaborative skills, develop different learning styles and discover how to relate school problems to the real world.
In the course "Information technology for personal use", the prevalent work pupils perform is of the "hands-on-experience" type, with many individual and group assignments pupils have to accomplish. The competence-based assessment is the paradigm I would like to implement when evaluating pupils’ work. However, this is more easily stated than put into practice. Competence can be evaluated through constantly monitoring and coaching pupils’ work, dialogues in which students reflect on their actions and evaluate their own performance, and discussions where the whole class recognises the accomplishment of each individual effort. However, the main obstacle in this kind of assessment is the lack of time necessary to dedicate to each and every student.

The new Web 2.0 tools like blogs, wikis and other types of social media offer new opportunities for educators. When coping with assessment e-portfolio seems to be a convenient way for pupils’ personal record-keeping. As stated in (2) this gives them responsibility for adding their work, such as drawings, writings, speeches, skits, and teaches them how to reflect and evaluate their own learning. This report presents a pilot project for introducing e-portfolio for a sample of pupils in the seventh grade with the intention of investigating whether it is an appropriate tool for assessment. The idea is to use it as a teacher’s aid in assigning grades and as an opportunity to engage students in learning through reflection on their own work.

The report first gives an overview of the meaning of the terms “portfolio” and “e-portfolio”, then describes the methodology used for the project and finally presents all steps in conducting the experiment.

2. Portfolio versus e-portfolio

Portfolio in general is a compilation of one’s work during some period of time. The main weaknesses of the classic portfolios are problems with size, once the portfolio grows larger, and the difficulties in changing its structure and including different types of media. The latest developments in information and communications technologies have replaced the classic portfolio with its electronic version. The e-portfolio overcomes the aforementioned problems and offers new possibilities. It can easily grow large and be saved locally or on some distant site. Changing the structure and including video and audio recordings, as well as hyperlinks are only a few features provided by this new type of portfolio.

Although portfolios made on paper can be distinguished from e-portfolio, which is created using various on-line instruments, their purpose remains the same. According to (3) a portfolio is used for personal profiles, records, publications, ideas, reflections, accomplishments, etc., about an individual or institution accumulated over time. If all of this is digitised, it can be considered an e-portfolio.

In the context of education, a portfolio is an interesting collection of a pupil’s papers that indicates the efforts, the progress and the achievements of the pupil in the given field. In (4) a portfolio is defined as a document that contain a student’s best work and possibly includes other types of process information, such as drafts of the student’s work, the student’s self-assessment, and even the parents’ assessment. According to the Wikipedia, (5), e-portfolio can be used as a learning record that provides actual evidence of achievements and in some sense can be identified as a personal learning environment (VLE). It usually displays the educational development of a pupil in a given period of time and represents cumulative evidence of pupils’ work.

Portfolios may be used for evaluation of students’ abilities and improvements. In addition they may include teacher’s evaluation and student’s deduction. According to (6), portfolios can be applied for:

- Monitoring students (without assigning grades), through collecting information about pupil’s learning and engagement to be later used for evaluation.
- Assessing students’ work (with assigning grades), through evaluating pupil reflection and self-assessment
The main aim of the portfolio is to show the best of what the pupil has done and to provide convincing information about the learning outcomes achieved. The portfolio helps teachers and pupils to see the progress in a systematic way and encourages pupils’ development. This can be done efficiently only if the portfolio is systematically planned and applied.

Before choosing portfolios as an assessment tool it is good to reconsider its advantages and disadvantages. The following table shows some of the most important ones.

<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>They can be adjusted to the individual’s needs, interests and capabilities</td>
<td>Both the teacher and the pupils spend a lot of time in creating portfolios</td>
</tr>
<tr>
<td>They document the development and achievement of the pupils, and help in informing parents about the progress of their children</td>
<td>Portfolios are difficult to manage and keep for a longer period of time</td>
</tr>
<tr>
<td>They can motivate self-evaluation of the teacher, with a positive influence on the learning process for the pupils</td>
<td>They have limitations when used for summative evaluation and do not provide clear criteria for formative assessment</td>
</tr>
<tr>
<td>Pupils can consider them as their own property that helps them to take responsibility for making aims and evaluating their personal progress</td>
<td>Often contain inadequate specification of the aims, instructions for creating them or criteria for evaluation by the teacher</td>
</tr>
</tbody>
</table>

When a teacher is faced with using a portfolio as an assessment tool, it is important that the maximum of the advantages be used and the disadvantages minimised. Giving a good structure to this tool, as well as providing effective guidelines for its creation and modification, is another issue to be considered.

E-portfolio offers an option for all of its content to be shared with other students and the teacher making it possible for them to place comments, suggestions and opinions. It is even possible for teachers to select a few of the portfolios as models so that other students can easily follow their structure and create portfolios of their own.

3. Methodology and methods

When looking for the methodology to be used for this pilot project I had to bear in mind that e-portfolio had never been used in my school and I had to be aware that many obstacles and difficulties could occur when I introduced it for the first time. Therefore, I had to anticipate that I would not be able to improve the assessment in a short time. My experiment was to be planned and implemented within eight months, which is not enough bearing in mind that it had to be done in parallel with the rest of my daily work.

According to Dr. Stephen Waters-Adams, (7), action research involves careful monitoring of planned change in practice. At its simplest level it consists of a cycle of planning, action, monitoring and reflection. In general it actually includes at least two or more cycles where the reflection process in the previous cycle identifying what went wrong and can be improved becomes the basis for the planning process in the next cycle. Implementing action research methodology in case of introducing e-portfolio as an assessment tool will probably require several cycles. Because of the limited time available for the experiment a limited version of action research methodology including only a single cycle was selected.

As suggested in (8) I considered using the following methods for collecting data that will help me analyse the outcomes of the project:
• Diaries which will be created by me as a teacher and by the students participating in the project. They will include observations, feelings, interpretations and reflections about how e-portfolio is introduced, what is considered as good and bad in using it for assessment and how certain things can be improved.

• Profiles that will provide data about the development of each pupil over time.

• Carefully prepared questionnaires that will investigate pupils’ familiarity with e-portfolio before and after the experiment and will collect their opinion how suitable this tool is in improving their learning and assessing their achievements.

• Audio recordings of the informal discussions with the pupils about their opinion on various aspects of e-portfolio.

• Photographs of the actual work students have done using e-portfolio.

4. Action Research Pilot Cycle

4.1 Planning

The planning phase consists of several steps: defining the goal, reviewing the literature, collaboration with colleagues, ethical issues, creating activity plan. In the text below each step is elaborated with details.

Defining the goal

At the very beginning the aim was to raise the reflection skills of my students through the use of e-portfolio. However, through a better analysis of this tool I found out that at the same time it can help me in the assessment process. Hence the extended goal was to introduce the e-portfolio to improve the reflection skills of the students and at the same time to provide an assessment tool for the teacher.

Review of the literature

The necessary step in the planning phase was becoming familiar with the e-portfolio as a tool for assessment through studying the literature mainly found using the Internet and the Google search engine, since the library at our school could not offer books or articles about e-portfolio and its use as an assessment tool. Another source of information was the teacher’s manual, in particular the chapter with the title “Portfolio”, which I found very helpful in my attempt to use it as a formative assessment tool, as well as for monitoring the engagement and the progress of the students.

Collaboration with colleagues

As emphasised in [4] action research has a limit regarding the potential of individual reflection. As an action researcher it was my understanding that seeking the views of the others will be beneficial for the experiment I was about to perform. Hence, I presented the idea to my colleagues and to the school pedagogue. I explained my intention to use e-portfolio as an assessment tool that will help me in monitoring students’ work on different kinds of projects within the course and evaluating their achievements. I found out that several of them have used some form of classic portfolio for assessment, but
none had experience with e-portfolios. Nevertheless their encouragement to implement the experiment and share with them my experience was a kind of support I really needed. They even admitted that replacing the classical portfolios with new electronic versions would highly simplify their work and add new value to the assessment process. They were aware of how much easier was to manage a portfolio on the Internet than using the pen and paper for this purpose.

I also found the discussion of the e-portfolio group within the “New assessment methods” course that was going on Moodle very valuable. It helped me extend my knowledge about e-portfolio, its use in different settings, its advantages and disadvantages.

**Ethical issues**

There were several ethical issues I had to consider during the planning phase.

1. I had to determine whether the action research project would be performed including all pupils at the seventh grade (about 100 of them), or only volunteers. My final decision was to select only those who showed genuine interest in trying the e-portfolio after my introductory lesson on the topic. Since their participation was on a voluntary basis, parental consent was unnecessary.
2. I planned to use Web 2.0 e-portfolio sites where pupils’ work could be openly exposed. Hence, it was necessary to protect the identities of the pupils, and prevent any undesirable offences. This was addressed by suggesting the pupils to use nicknames instead of their real names and avatars or emotions instead of their photographs.
3. To avoid any inappropriate behaviour, a part of the introductory lecture was dedicated to explaining the ethical norms they had to comply with while using e-portfolios.

**Activity plan**

The activity plan includes the steps to be performed during the action phase, as follows.

1. Introductory lecture on E-portfolio as a tool for self-reflection and formative assessment.
2. Discuss and share ideas of the best way to introduce e-portfolio.
3. Identifying pupils really interested in taking part in the project.
4. Selecting the Web 2.0 site that offers the most appropriate environment for creating e-portfolios.
5. Follow the progress of the pupils and continue with the regular work on ICT projects that are a part of their everyday work at school.
6. Help pupils who have difficulties in writing their e-portfolios and encourage them to help each other.
7. Create a diary to record all activities and reflect on them.
8. Use dialogues to get a feeling of how the students are accepting this new technology.
9. Use the questionnaire before the start and at the end of the implementation for the purpose of evaluation.
4.2 Action

The start of the implementation of the activity plan was on March 9th, 2009 when I delivered a lecture about e-portfolio and its use in education. After explaining the basic facts, I talked about the idea of storing their work not only on the hard disk of the local computer or a CD ROM, but publishing them on the Internet, where every pupil would be able to see them, give comments on the quality of the created projects, and suggestions for their improvements. The pupils liked this idea although for most of them the term “portfolio” was completely new. There were a total of 35 students who were excited to take part in using e-portfolio to present their work on the current projects.

The choice of the type of e-portfolio to be used for the experiment was one of the decisions to be made at the very beginning. I have looked at many web sites that offer e-portfolio and chose the five I considered as most appropriate. The final choice was left to the pupils. Their first task was to explore each of them, reflect on their properties, exchange opinions and find out which of them was the most appropriate. We agreed that the site which offered the easiest way for creating portfolios was the following: http://free-eportfolio.wikispaces.com/. A snapshot of the interface from (9) is shown in the picture below.

Working with the tools available on the site was simple and intuitive for some, but not all 35 students. For those who found it simple, the interface was almost the same as the one the pupils have already used with e-mail, Facebook, hi5 or other Internet services. They felt as if they were working with something familiar although this was the first time they visited this site.

In order to help students who had difficulties in navigating the site, I found it appropriate to organise a separate lecture where one of the best students explained all the details on how to use the e-portfolio and asked another one to prepare a small manual for the same purpose. I considered that pupils of the same age would do a better job in helping their colleagues.

A more difficult task was introducing the concept of self-reflection and explaining ethical norms with which students were asked to comply. It was emphasised that all projects would be available on-line. However, copying each other’s work without giving citation would be considered plagiarism and therefore was not allowed. Students were encouraged to criticise all projects including their own, but to be constructive in their critique with advice and suggestions for improvement.

The first task students performed was uploading the project they made and stored on local computers to the e-portfolio site.
The next step was placing comments on their own work (self-reflection), as well as on the work of their colleagues. To make them feel that the teacher was a part of the group, I have created my own portfolio. It contained useful hints and advice regarding project work, as well as a myriad of files and links they could use while creating their projects.

Once they considered their work as finished a round table for discussing what we had done was organised. We have discussed different issues, for example whether the time spent with computers is overwhelming, how working with e-portfolio improved their learning, and how honest they were when evaluating their own work and the work of the others, whether the ethical norms were obeyed by everyone.

4.3 Monitoring

Monitoring of the project was made by creating a diary where everything concerning the project was noted and commented on.

At the very start of the project I had to be very careful in selecting students to be a part of it. I used a questionnaire asking all the students various questions about their opinion regarding the content of the lecture, their understanding of what a portfolio is, the differences between an ordinary portfolio and electronic portfolio and their experience with different Web 2.0 tools. At the end several questions were asked about using e-portfolio for self-reflection, as a collaborative tool and a part of assessment. The results obtained from the questionnaire have influenced my decision a great deal.

Of a total of 35 students that took part in the project only 8 were familiar with the term portfolio before the lecture they had at school. For the others this was a completely new concept, and this made me sceptical with regards to the outcomes of the whole project.

Monitoring students’ work was done on a daily basis. Advice and help were offered at all times – during school hours or even outside them via e-mail or telephone. Although not used to self-evaluation and assessing the work of their colleagues, I found our pupils’ behaviour to be impeccable. They were honest, ready to accept their colleagues’ suggestions for improvement and eager to cooperate.

While using the e-portfolio for self-reflecting and collaboration, I found out that this tool can at the same time be an excellent tool for assessment.

4.4 Reflection

This pilot cycle of the action research project was performed only with a sample of students (35 of them), but the outcomes achieved are promising. Although it is difficult to predict whether the same results will be obtained if all students participate my feeling is that the next cycle should be performed with all 100 students.

Well-prepared lectures and a written manual created by a student proved to have accomplished their main task. The pupils got the required proficiency in using the selected tool in a very short time and created their portfolios in a few days using the work on the projects they had already done.

The pupils had an opportunity to give a grade (by monitoring only) for the electronic projects presented in the electronic portfolios. There were a lot of useful comments on the given theme. The remarks were always mannered, with carefully chosen words and related to the theme. To my surprise they also proved to be capable of evaluating and reflecting on their own projects.
During the implementation of the activity plan I came to the conclusion that the electronic portfolio would help me a great deal in the summative evaluation of the students (a grade for the course I teach), but also in monitoring pupils’ progress (without grades). The e-portfolios are available on the Internet and I can observe pupils’ work whenever I have an Internet connection. This will help me perceive their mistakes, discover the flaws in their learning and guide their work. At the same time it will save me time when assigning the final grade.

**Conclusion**

This pilot cycle of the action research project proved beneficial in many aspects for me as a teacher. It helped pupils understand what e-portfolio is and how to use it to improve their learning. The pupils could present their work at any time, not waiting for a special class hour dedicated for presentations. The teacher could also examine what they had done at any time and give suggestions for improvements. In addition to this they had an opportunity to compare their own work with that of others, which gave them the chance to come up with ideas to incorporate in their projects.

In addition to this the electronic portfolio helped me with the formative evaluation (with grades) and in evaluating pupils’ work by monitoring their progress (without grades). It saves time, gives opportunities to students to help themselves and is a true aid to the assessment process.

The next cycle of the action research project is planned for the coming autumn with all 100 students included in it.

**References**

- Teaching Instruction Manuel, published by USAID Macedonia.
ABSTRACT: The choice of an eLearning platform to deliver academic online courses is one of the most relevant variables of an academic eLearning strategy.

One year after the release of the new platform – Ariel 2.0 – the CTU (the eLearning Centre of the Università degli Studi di Milano) decided to inaugurate a new research and evaluation methodology with the following aims:

- for the first time all Ariel 2.0 users (teachers and students) have been involved not only as compilers of a questionnaire but also as contributors during all the phases of the research: from the design of the questionnaire to the discussion of the results;
- the testing of the Action Research Methodology as a methodology to manage academic evaluation processes;
- the use of a Web 2.0 tool to manage the collaborative online activities among teachers and among students.

In this report we present the design, the development and the evaluation of the project that is meant first of all to evaluate the eLearning platform in use, defining also the future developments and improvements, and – at the same time – to understand if and how the methodological news of this project could be applied within other academic institutional evaluation settings.
1. Introduction

In this report we will describe a project designed to evaluate the new eLearning Platform, Ariel 2.0, used at the Università degli Studi di Milano.

First we will describe the methodology, the design and the implementation of the project: the adoption of both Action Research and Web 2.0 tools – the wiki – to allow collaboration among the participants to the project: instructional designers, teachers, students of Università degli Studi di Milano.

Then some reflections on the project will be finally presented.

2. Context

Our overall goal is to evaluate Università degli Studi di Milano homemade eLearning Platform after one year from the release. This platform, Ariel 2.0, is currently used for online teaching and learning activities within our university and could be considered as the new release of the previous homemade eLearning Platform, Ariel 1.0, which had been used for the previous seven years.

In 2007 a strategy to evaluate eLearning perception and the eLearning Platform in use for teaching and learning was planned within our University: two questionnaires (eLearning questionnaire perception; Ariel 1.0 questionnaire evaluation) were distributed among the university teachers and also some focus groups to understand teacher needs were organised. Ariel 2.0 was born as an outcome of this evaluation strategy.

3. Planning

3.1 Goals

The planning of the evaluation project we present here is generated from the context described above; the real change is not in the evaluation intent, but could be identified in the approach we decided to adopt to carry on this evaluation process: in fact for the first time, students and teachers alike are involved in the process of improvement of a tool (eLearning Platform) they use daily in their online teaching and learning activities.

The new approach (in our context!) foresees:

- use of AR methodology
  - to develop collaboratively the quantitative research tools (2 questionnaires for quantitative data collection)
  - to analyse and discuss the quantitative data once collected
- first opportunity for Teachers and Students to participate directly to all the evaluation phases:
  - from the construction of the tools (questionnaires)
  - to the discussion of the results.
• use of Web 2.0 tools (wiki) to manage groups of users contributions
  • in order to develop collaboratively tools for quantitative data collection and to manage discussion.

So the overall aim of the project could be split into 2 levels.

1. The first level, the “official” of the entire project, is to evaluate the Università degli Studi di Milano homemade eLearning Platform one year after its release and to identify possible improvements of the functionalities and tools aimed at supporting teaching and learning activities offered by the eLearning platform both from students’ and teachers’ perspectives.

2. The second level, related to the methodological research of the project, is to evaluate a specific methodology (AR in our case) to involve both students and teachers in improving an instrument (eLearning Platform) they use daily in their teaching and learning activities.

3.2 Research Methodology and Methods

Action Research is the chosen framework for the collaborative part of the project and a Web 2.0 tool (wiki) is identified to support such activity.

Teachers and students [in two separate groups: one dedicated to students and one dedicated to teachers] work together online first to the definition of a questionnaire to evaluate Ariel 2.0 (that their colleagues would fill in), than to analyse and reflect on the data collected though the survey and propose improvements to the eLearning Platform and its usage.

Participatory research, collaborative inquiry, emancipatory research, action learning and contextual action research, are synonymous of Action Research. In this report we will use the denomination Action Research as described by Gilmor: “Action Research [...] aims to contribute both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously. Thus, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process” (Gilmor et al 1986).

Relevant authors describe Action Research processes in different steps. For example Stephen Kemmis (MacIsaac 1995) developed a simple model of the cyclical nature of the typical action research process, where each cycle has four steps: plan, act, observe, reflect.

Gerald Susman (1983) gives a more elaborate listing distinguishing five phases to be conducted within each research cycle: Diagnosis, Action planning, Taking action, Evaluating, Specifying learning.

The basic principles of Action Research are (Winter 1987):

- Reflexive critique: this principle ensures that people reflect on issues and processes and make explicit the interpretations, biases, assumptions and concerns upon which judgments are made. In this way, practical accounts can give rise to theoretical considerations.
- Dialectical critique: is required to understand the set of relationships both between the
phenomenon and its context, and between the elements constituting the phenomenon. The key elements to focus attention on are those constituent elements that are unstable, or in opposition to one another. These are the ones that are most likely to create changes.

- **Collaborative Resource**: each person’s ideas are equally significant as potential resources for creating interpretive categories of analysis, negotiated among the participants.
- **Risk**: fears come from the risk to ego stemming from open discussion of one’s interpretations, ideas, and judgments; all participants will be subject to the same process, and whatever the outcome, learning will take place.
- **Plural Structure**: the nature of the research embodies a multiplicity of views, commentaries and critiques, leading to multiple possible actions and interpretations.
- **Theory, Practice, Transformation**: for action researchers, theory informs practice, practice refines theory, in a continuous transformation. In any setting, people’s actions are based on implicitly held assumptions, theories and hypotheses, and with every observed result, theoretical knowledge is enhanced.

Action Research allows for several different research tools to be used as the project is conducted such as: keeping a research journal, document collection and analysis, participant observation recordings, questionnaire surveys, structured and unstructured interviews, and case studies (O’Brien 1998).

### 3.3 Research ethics

Action Research involves close and open communication among the people involved, so close attention to ethical considerations must be paid.

Richard Winter (1996) lists a number of principles concerning Ethics and Action Research:

- Make sure that the relevant persons, committees and authorities have been consulted, and that the principles guiding the work are accepted in advance by all.
- All participants must be allowed to influence the work, and the wishes of those who do not wish to participate must be respected.
- The development of the work must remain visible and open to suggestions from others.
- Permission must be obtained before making observations or examining documents produced for other purposes.
- Descriptions of others’ work and points of view must be negotiated with those concerned before being published.
- The researcher must accept responsibility for maintaining confidentiality.

O’Brien (1998) enhances this list with several more points:

- Decisions made about the direction of the research and the probable outcomes are collective.
Researchers are explicit about the nature of the research process from the beginning, including all personal biases and interests.

There is equal access to information generated by the process for all participants.

The outside researcher and the initial design team must create a process that maximises the opportunities for the involvement of all participants.

Referring to these considerations, the ethical issues in the evaluation project described will be faced on two levels.

First level – through the involvement of the users in the process of building the tools that teachers and students themselves will use to evaluate functionalities of the eLearning Platform of the University of Milan.

- Before taking part in the project all the participants are informed of the primary goals, objectives, deadlines, rhythm, rules, involvement required (project study guide) in order to allow conscious agreement to the participation.
- Participation is on a voluntary basis (call for participation).
- All the information, materials and discussions are always available: website; wiki; blog.
- Researchers / Moderators periodically send reminders through mail: deadlines, biases; expectations.
- Every official document, comment or action is the result of the participants’ agreement.
- The output of each phase has to be gained through the consensus of all the participants.

Second level – by ensuring informed consensus to those who take part in all the phases of the project.

- Before starting the project, the appropriate University Authorities have been asked for their consent to involve teachers and students.
- Before taking part in the project all the participants sign an informed consent declaration.
- Access to each wiki is reserved only for the members of the specific group (students or teachers).
- Each participant is given a username and password to enter the wiki.

Blog and Informative web sites allow public access.

3.4 Project Design

Four different phases have been identified to actualise Action Research in the present Evaluation Project: a preliminary phase (phase 0) and three phases (phases 1–2–3) through which the AR project develops (table 1).
### TABLE 1 – PROJECT DESIGN MAP

<table>
<thead>
<tr>
<th>PHASES</th>
<th>ACTION RESEARCH</th>
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<tbody>
<tr>
<td><strong>Phase 0</strong> (pre-Plan)</td>
<td><strong>PRE PLAN:</strong></td>
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<tr>
<td></td>
<td>=&gt; Design of AR plan</td>
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<tr>
<td></td>
<td>• Criteria definition to select participants (number; characteristics)</td>
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<tr>
<td></td>
<td>• Select people involved in the project (teachers; students)</td>
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<td></td>
<td>• Definition of the Web 2.0 tool/tools to be used in phase 1 and 3 (structure and supporting tools)</td>
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<td></td>
<td>• Definition of scaffolding level provided by moderators, thus production of activity support material needed</td>
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<td></td>
<td>• Privacy policy definition</td>
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<td></td>
<td>• Survey tool selection</td>
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<td></td>
<td>Analysis; Reflection; Identification of the problem; Planning</td>
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<td></td>
<td>comprehension</td>
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<td><strong>Phase 1</strong> (Tool Building Phase)</td>
<td><strong>Collaboration online</strong></td>
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<tr>
<td></td>
<td>• Students’ group</td>
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<td></td>
<td>• Teachers’ group</td>
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<td></td>
<td>Qualitative research through the use of Web 2.0 tools (wiki)</td>
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<tr>
<td></td>
<td>• definition of the 2 questionnaires to evaluate eLearning Platform Ariel 2.0</td>
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<tr>
<td><strong>Phase 2</strong> (Data Collection Phase)</td>
<td><strong>Online Survey to all the users of the eLearning Platform</strong></td>
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<td>Quantitative research through the use of questionnaires</td>
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<td>• 1 for teachers</td>
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<td>• 1 for students</td>
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<td></td>
<td>Development of the project; Action; Data collection</td>
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<td>monitoring / observation</td>
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<tr>
<td><strong>Phase 3</strong> (Data Evaluation Phase)</td>
<td><strong>Collaboration online</strong></td>
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<td></td>
<td>• Students’ group</td>
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<td>• Teachers’ group</td>
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<td></td>
<td>Qualitative research through the use of Web 2.0 tools (wiki):</td>
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<tr>
<td></td>
<td>• analysis and discussion of the data collected during the previous phase</td>
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<td>• evaluation of the overall experience</td>
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<td>Data analysis; Reflection; Report</td>
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<td>evaluation</td>
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### NEW ACTION PLAN

**PHASE 1 – PLANNING:** the participants discuss within their groups (moderators + students; moderators + teachers) about the eLearning Platform functionalities: do they meet the users needs, both from a technological and methodological perspective? (What works well? What works badly? What should be improved and how?)

Then each group formalises their own reflections and questions on the two questionnaires dedicated to all the users of the platform: one questionnaire for students; one questionnaire for teachers.

**PHASE 2 – DATA COLLECTION:** an online survey (questionnaires designed) is used to collect opinions from all the users of the eLearning Platform (students; teachers).
From an analysis of the literature on academic evaluation experiences of eLearning platform let us identify three different evaluation processes (Cronholm and Goldkuhl 2003):

- Goal-based evaluation
- Goal-free evaluation
- Criteria-based evaluation

Cronholm e Goldkuhl (2003) specify: “… evaluation usually proceeds in an ‘inductive and situationally-driven strategy’, i.e. no preset goals are identified; instead as the evaluation progresses, usually involving a broad number and spread of participants, knowledge of the object of study emerges during the evaluation”.

In our case, the main objective of the evaluation project is the design of an Ariel 2.0 development plan, in the function of users’ needs and preferences. Nevertheless the methodological objectives of the project (detailed in the first part of this chapter) are relevant for the University.

Again Cronholm and Goldkuhl distinguish between two strategies; evaluating:

- “IT system as such.
- Essentially, without the users. (…)
- IT system in use.

*Study the system in a use situation with users interacting with it*”.

Referring to this distinction, our approach to evaluation could be defined as an approach “in use”.

The tool we chose to collect quantitative data in this project is the questionnaire; thanks to its use we will try to investigate technological issues (functionalities of the platform, flexibility and usability) and users’ preferences as well (what they use, what they prefer, what they would like to have).

**PHASE 3 – DATA ANALYSIS AND REFLECTION:** we compare the outcomes of the discussions during phase 1 [among the two selected groups of users] to the answers to the questionnaires given by the users.

Outcomes of this phase could – and should – be suggestions and inputs on how to improve the eLearning Platform from both a technological perspective (tools) and methodological perspective (usage; training; …).

**PHASE 0 – PREPLAN:** the key points addressed in the PrePlan are those outlined in table 1.

Focusing on the criteria definition to select participants, teachers have been selected following a representativeness criterion of all the typologies of teachers – administrators of a web site on Ariel 2.0; students have been selected on a voluntary basis thanks to the use of a call for contribution published on the eLearning platform Portal and on all the websites supported by the platform.

The group size is maximum 30 people to allow manageable collaborative online activities. The next chapter describes online collaboration design and planning and the selection criteria to choose the tool to support it.
4. Online collaborative work

As previously said, phase 1 main intent is to create collaboratively a questionnaire to evaluate Ariel 2.0 eLearning Platform; phase 3’s main intent is to discuss the data collected through the questionnaire in order propose a new action plan to improve the utilities and usage of Ariel 2.0 within our university.

Thus two levels have to be addressed: the methodological level and the technological level.

The methodological level concerns the strategy of actively engaging participants (teachers’ group; students’ group) into successfully carrying out phase 1 and phase 3, shortly how to actualise Action Research principles; the technological level concerns the selection of the most appropriate tool to support and allow such activity.

Referring to the methodological level the chosen strategy is Collaborative Writing (from now hence CW), thus defined by Lowrey (2004): “CW is an iterative and social process that involves a team focused on a common objective that negotiates, coordinates, and communicates during the creation of a common document…”.

CW is a complex and dynamic process that goes beyond the basic act of joint composition to include the pre- and post-task activities, team formation, and planning (the possibility of many different writing strategies, activities, document control approaches, team roles and work modes).

Lowrey and colleagues [Lowrey et al 2004] modelled the overall process for CW and identified 3 main phases:

- **Pre-CW task**: planning, describe goals of CW task, pull together documentation, figure out team composition, select tools for CW task, notify participants;
- **CW task**: team formation, team activity planning, document production (plus support activities), document writing follow-up;
- **Post-CW task**: store all necessary documentation, deliver final document, review task and team issues, review lesson learned, integrate with other task, plan next steps, disband group.

Trentin [2008] identifies two main complexities in CW:

- **Procedural complexity**: the need to coordinate among multiple viewpoints and work efforts and the need to establish consensus on what has been created collaboratively (processes of preparing documents are more multifaceted under collaboration; writing processes generate strong emotions, groups can revise CW documents infinitely, it is challenging for collaborative writers to converge toward a common goal and understanding of a document or even use a common language);
- **Inter – group relationship complexity**: fluctuating group membership, fluctuating commitment (CW group members commonly show great enthusiasm in the brainstorming and planning stages, but their commitment can wane in writing tasks that take place over extended periods), presence of outside conflicting commitments which might differ for every member.

To support participants in order to overtake CW’s own complexities and time constraints of the project (3 weeks – phase 1 – for writing the questionnaire; 3 weeks – phase 3 – for analysing and discussing data collected), moderators provided:
• Rules for participation to CW
• Wiki structure (2 wikis 1 for each group)
• Questionnaires Draft (phase 1):
• Data discussion Draft (phase 3)

Development, discussion, writing and definition of both phases’ final documents are left up to participants.

Another important consideration refers to the choice of the software that allows CW groups to perform activities such as brainstorming, outlining, drafting, reviewing, revising, copyediting, and final wrap-up (Lowrey 2002). We chose the wiki since it was born as a collaborative writing tool and since it allows (Trentin 2008; Mason R e Renne F. 2008):

• final document editing as a responsibility shared by all participants;
• actively contributing to document definition and writing by all participants;
• evaluation on a double basis: quality and quantity of contributions by each participant; quality of the final document as a CW product output (page history, revisions, comments, link; tag; statistics are useful means provided by wikis);
• try out Web 2.0 technology, accessible anywhere through the Internet;
• try and evaluate the ease and appropriateness of wikis for CW among students and among teachers, focusing on evaluation activities [present case evaluation of an eLearning Platform].

4.1 Wiki selection criteria

The criteria used to select the wiki could be considered as a simplification, according to the present context, of those presented by Lowry (Lowry 2002):

• Free to use: no licence fee
• Very easy to be used, clear, simple and self-evident
• Multiple users profiles (admin; writers;…)
• Discussions: area for comments
• Log files: Versions history + Statistics

Five wikis have been analysed:

• Wikiversity: (http://beta.wikiversity.org/wiki/Main_Page);
• Wetpaint (http://www.wetpaint.com/);
• Wikispaces (http://www.wikispaces.org/);
• PBWiki (http://pbwiki.com/);
• Google Docs (http://www.google.com).
PBwiki seemed to be the most user-friendly referring to our participants’ characteristics. Therefore two wikis have been designed within the project: one for teachers’ activities, one for students’.

Training activities and scaffolding actions to support participants and help them into actively taking part in the project have been designed (Mason R e Renne F. 2008; Lowrey et al 2004):

- Ice-breaking exercise: to set rules and style for the wiki and to introduce themselves and create the “group”;
- Two tutorials audio-video on wiki structure and usage (how and where to write);
- Guidelines on how to design a questionnaire;
- Literature review and previous eLearning Platform evaluation analysis;
- Guidelines for the entire project.

4.2 Wiki structure

In order to make CW possible, in phase 1 the wikis are structured as follows:

- the questionnaires are divided into sections
- each section foresees a different number of questions
- a wiki page is dedicated to each question

Participants are invited to write directly on the pages dedicated to each question and not on the pages that work as introductions to each section. Moderators propose a hypothesis both for question text and answer modality (open vs. close; multiple vs. single choice; scales, …): both are under discussion and have to be defined collaboratively.

Any time a participant works in the collaborative area, they are expected to explain their contribution in the comments area.

Wiki structure and interaction organisation are the same along phase 1 and phase 3.

In phase 3 all the data collected are published to allow collaborative data analysis, the questionnaires’ sections upon which the discussion focuses are declared week by week. Each page displays the synthesis of the answers given to that question: participants are invited to comment on or to supply such data with further elaboration.

4.3 Wiki moderation

Moderators’ action develops on two levels:

- Method – motivation level: dead lines reminder, procedures, more relevant contribution highlight (both phase 1 and phase 3);
• Content level: support to the formulation of a question or answers options, highlight improvement or unclear interpretations (phase 1); highlight possible cross relations among questions or interesting data (phase 3).

Moderation depends on the rhythm and intensity of CW.

4.4 Wiki activity evaluation

Trentin (2008) outlines that CW evaluation is based on some key elements:

• Learning level: learning goals achievement
• CW product level: pertinence, relevance, appropriateness
• Procedure level: how participant collaboratively concurred to write the CW product (number of active participants; contributes quality and quantity; rhythm, rule observance, peer support; …)

Since within this project learning evaluation is less relevant than motivation and wiki usage evaluation, or more properly the evaluation of the overall experience of collaboration via Web 2.0 tools, the overall evaluation will focus on:

• motivational level
• wiki usage experience
• CW product level
• procedure level

5. CW activity results

5.1 Participants characteristics

The number of participants to Phase 1 and Phase 3 are available in table 2.

We remind you that teachers have been selected following a representative criterion of all the typologies of teachers – administrators of a web site on Ariel 2.0; students have been selected on a voluntary basis via a call for contribution published on the eLearning platform Portal and on all the websites supported by the platform.

The group size is a maximum of 30 people to allow manageable collaborative online activities.

Numbers are very small, so general assumptions are impossible, but it is remarkable that the majority of the students belong to the Faculty of Social and Political Sciences.
5.2 Participants’ behaviour

Data about participation will be presented in this paragraph: the data are those available in the PBwiki free version. It was not possible to compare data about “page view count”, “last/first visit to this workspace”, because the system crashed and all data were erased. Therefore the data here presented have been collected manually piece by piece.

The number of active teachers decreases through the activities; while the number of students is higher during phase 1.
The discussion trend is similar: both teachers and students are very active in phase 1, while (in proportion) in phase 3 teachers participated more.
A reason could be that some of the teachers active in phase 3 were experts in statistics and mathematics, while students weren’t: anyway in both groups the most active participants in phase 3 differ from those of phase 1.
In both wikis the majority of comments were written in the sections “Personal details” and “Usability & support”.

It is quite remarkable that teachers were more active in phase 3 than in phase 1 in the discussion of the sections “Platform tools competence” and “Final Comments”.

Action Research and Web 2.0 Tools to Support the Evaluation Process of a Homemade Elearning Platform
It is quite remarkable as well that students were more active in the CW area than teachers: the number of pages with revisions is quite higher in students’ wikis than in the teachers’.

<table>
<thead>
<tr>
<th>Final Comments</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>New Platform vs Old Plat</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>Platform tool competence</td>
<td></td>
</tr>
<tr>
<td>Usability &amp; support</td>
<td></td>
</tr>
<tr>
<td>Tech Availabilities</td>
<td></td>
</tr>
</tbody>
</table>

PAGES WITH REVISIONS (TEACHERS)

| d26 (New Plat vs Old Plat) | 6 |
| d25 (New Plat vs Old Plat) | 6 |
| d24 (Commun) | 4 |
| d21 (Commun) | 4 |
| d17 (Usability & support) | 6 |
| d16 (Usability & support) | 6 |
| d14 (Usability & support) | 6 |
| d13 (Usability & support) | 6 |
| d12 (Usability & support) | 6 |
| d11 (Usability & support) | 6 |
| d8 (Tech Availab.) | 6 |
| d7 (Tech Availab.) | 6 |
| d6 (Personal Det.) | 4 |
| d5 (Personal Det.) | 4 |
| d3 (Personal Det.) | 4 |
| d2 (Personal Det.) | 4 |
| d1 (Personal Det.) | 4 |
Therefore it seems there are two different behaviours between students and teachers, both new to wiki usage: teachers seem to prefer to write in the “Comments” area, in order not to modify what was previously written by a colleague and thus favour a peer-to-peer discussion; students write directly in the CW area and use “Comments” only to comment or explain what they have changed or added in the collaborative space.

5.3 Participants’ comments and notes

Teachers’ point of view

Comments and notes expressed by teachers about the overall experience are summarised in the following table.
Comments have been collected via face-to-face interviews or when not possible via e-mail interviews.

1) Best positive element of the overall experience
   • Collaboration in order to develop a final product characterised by general agreement together
   • Peer collaboration beyond faculty boundaries
   • Process innovation: final users’ direct involvement in all the phases of the project

2) Worst negative element of the overall experience
   • To keep up with the pace of the discussion
   • To find an agreement on the final version of the collaborative products respecting the rhythm of the project

3) Unexpected elements
   • Identification of the pros and cons of CW
   • Enthusiasm for and active participation in the collaborative phases of the project

4) Expected elements
   • No previous experience in this kind of project allowed for no particular expectations

5) Suggestions for similar initiatives
   • No general suggestions but specific suggestions to facilitate peer collaboration in particular in the starting and final phases, where a face-to-face meeting could be useful

6) Other possible contexts
   • Didactic context: few students, group activities, specific and well defined aims

7) Conditions of replica
   • Familiarity with the tools is considered as a condition of acceleration of the process
Students’ point of view

This information is not available because students did not express any opinions on the topic, maybe because interviews were carried out during the examination term.

Moderators’ point of view

Moderators’ point of view is based on observation during the overall project and analysis of the data available on the wiki.

Participation in the icebreaking exercise activity has been very intense. Participants also connected to the wiki at night and during the weekend to check for replies or peers’ comments: the first touch with wiki philosophy generated high expectations.

Both teachers and students groups found it hard to move on from the icebreaking exercise game-based activity, to phase 1 purpose-based collaborative writing.

The moderators support at the beginning of phase 1, mainly focused on where and how to contribute to CW (collaborative writing area vs. comments area). Video tutorials and examples have been considered very useful.

Therefore both groups were very active and purposeful during phase 1. Pertinence of contribution has been respected in both groups.

During phase 1, participation was very high and intense in the sections “Personal details” and “Usability & support”.

During Phase 3 teachers where very active in the sections “Platform tools competence” and “Final Comments”: they were surprised by behavioural evidence and different perspectives shown by the data collected.

Both groups were able to respect the topic and pace of the discussion, always keeping in mind the deadlines of the project. Therefore moderation was soft and needed only for occasional clarification or to underline ambiguous formulations of questions or answers.

In both groups participation decreased during phase 3 and this was mainly due to:

- Keeping up motivation
- High level of attention requested (more then expected)
- Overall length of the project (4 weeks + 3 weeks + 6 weeks)
- 3 weeks break (phase 2) between phase 1 and phase 3

A final observation concerns the fact that the most active participants of both groups during phase 3 were different from those of phase 1 and belonged to the scientific area. In detail, teachers to: Veterinary Medicine, Agriculture, Mathematical, Physical and Natural Sciences; students to School of Medicine and Mathematical, Physical and Natural Sciences.

Thus participation during phase 3 could be referred not only to motivation but also and maybe mainly to competence.
6. Observations and notes on the chosen methodological approach

Evaluation of the methodological approach could be split into 2 different sub-levels:

- possibility to adopt Action Research as one of the methodologies that CTU could apply in evaluation settings that refers to usage and development of eLearning tools and functionalities, in order to design a development plan taking into account final users’ points of views.
- possibility to adopt Action Research as one of the institutional evaluation methodologies of the Università degli Studi di Milano (not only referring to the eLearning field).

This evaluation is of course connected to the cost variable, mainly in terms of human and time resources. These kinds of costs have to be considered taking into account the overall quality of the final results (mainly reliability of the results).

In the experience presented here the cost of human resources has been high.

On the one hand moderators and participants have been involved for a long and intense period of time (but maybe part of the cost could be reduced considering the fact that this was the first experience of usage of this methodology and these tools).

On the other hand the satisfaction level expressed by participants in the Collaborative Writing activity is very high and also the questionnaire response rate has been the highest ever reached among this kind of survey.

Final decisions concerning if, when and how to adopt this methodology are up to the Academic Institutional Level.

Last but not least, some notes have to be dedicated to the usage of Web 2.0 tools, which in this experience have been used as a support tool for Collaborative Writing.

The use of wikis could be considered a kind of informative and promotional action among teachers and students.

On the teachers’ side a measure of success could be the adoption of the wiki as a tool to manage their online teaching activities.

On the students’ side Web 2.0 tools could be used as communications tools between students and institutions to facilitate the communications process itself.

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A PERSONAL LEARNING ENVIRONMENT FOR TEACHING STATISTICS

Abstract

Life Long Learning needs an active role from students. Personal learning is needed to support this new paradigm (Wison et al 2007). Personal Learning Environments – PLE – based on Web 2.0 technology are easy to use.

In this work we propose implementing a PLE in an introductory subject of statistics at the University of Vigo. We suggest the construction of a PLE from a combination of a Learning Management System – LMS – and different Google tools by means of iGoogle as a Top Page.

The use of social tools from Web 2.0 let us enhance active and collaborative learning. We also need an e-portfolio for assessment purposes of personal work based on evidence. The e-portfolio is useful as it facilitates self-regulation and a survey of the learning as a whole.

1. Introduction

“Today’s statistics classes may be taught in a classroom with a computer projected on a screen, or may take place in a laboratory with students working at their own computers. Students commonly own a calculator more powerful than the computers of 20 years ago. Others may use a portable computer (laptop) at school, home and on the move. An ever-growing format of teaching today is one over the Internet, in the form of a Web-based course with videotaped lectures, interactive discussions, collaborative projects, and electronic test and assessment materials. The technology revolution has had a great impact on the teaching of statistics, perhaps more so than may other disciplines” (Garfield & Ben-Zvi 2008).
Technological tools are now being designed to support statistics learning mainly in the following ways:

- The students’ active construction of knowledge.
- Opportunities for students to reflect on observed phenomena and easy access to real data.
- The development of students’ meta-cognitive capabilities; that is, knowledge about their own learning and thought processes, self-regulation.
- More intensive and continuous feedback, reflection and revision.

**Background and previous.**

At the University of Vigo we deal with an introductory course on Statistics in Public Management and Administration at the Faculty of Social Sciences and Communications (Faculdade de Ciencias Sociais e da Comunicacion). We have two different student profiles: students just arrived from secondary schools and workers in Public Administration.

They are different in age, ambitions and certainly in attitudes. All of them have no proper habits of study. Therefore, we must personalise the process.

During the 2003-2004 course we had begun to use technology in class in order to help standardise the teaching-learning process. The degree on how it was applied resulted in a gradual process and was performed in a way such that the activities traditionally proposed in presentational-based learning were incorporated in a virtual environment: Learning Management System – LMS – Claroline.

In the following courses we have implemented learning activities either in class or homework through the LMS. These learning process include tutoring and continuous assessment. Establishing a structure by modules in which the material is provided to the students online. In each module specific tasks are set: need resources, online tutoring, continuous assessment through questionnaires and an e-portfolio.

The E-portfolio is a new element in this evaluation process. It is meta-learning, allowing an effective assessment method (Barberá, Bautista, Espasa, & Guasch 2006). A learning portfolio is a selection of works done by the student where they reflectively state their own progress in class and which objectives were achieved in the entire teaching-learning process. This selection of works is centred in the decisions and reflections performed by the student with regard to the context of the module and the documents presented to the student in the assessment process. This allows the teacher to be able to guide the student in their learning process by evaluating the adequacy of the student’s work in each module of the course and establishing the student’s strong and weak points. The e-portfolio is a reflective activity, improving the quality of learning at the end of each module. By considering students’ own work and supervising students’ progress in a continuous way through LMS, we manage to retain students longer and obtain passing marks in the course.

Some problems were emerging as we could observe from the students’ e-portfolios:

- Statistic package SPSS was not easy to use at home due to copyright and the specific learning of this program.
- Different word processors were used depending on the student choosing.
- There was no possibility to access specific software for constructing surveys.
- Students were not so active in constructing their own learning into the LMS. They could only follow instructions.
Some steps were taken during the 2007 - 2008 course. We focused on the related problems:

- Using Microsoft Excel instead of SPSS.
- Some Web 2.0 tools were introduced. We created a blog, http://www.estatmin.blogspot.com/ and some activities were implemented in order to let the students be active. Hopeful results showed us that there was a significant change in attitudes towards statistics by students and these Web 2.0 tools were accessible and easy to use.

Still we had some problems: changing versions of MS Office and constructing surveys where not possible yet.

On the other hand the ease-to-use Web 2.0 tools allowed the social construction of the learning and a personal use suited to the student’s needs:

- Why don’t we combine these tools to create a Personal Learning Environment?
- Maybe this PLE will constitute a basis for Life Long Learning?
- Are these tools suited for teaching and learning Statistics?

To determine the effects of the ongoing strategies we need to research about our actions. Quantitative and qualitative methods will be used. “This Action Research project will expand the previous efforts and focus on the challenging issues of sustainability and impact on students” (NEFSTEM 2009).

Review of the literature

Social Statistics based on Web 2.0 is a two-way process, allowing the Internet to be used for creating and sharing statistical information and knowledge, rather than merely accessing external artifacts. Fostering active learning our students can use social tools for creating and sharing Statistical thinking, reasoning and literacy. Connecting Research and Teaching Practice let us improve students’ learning (Garfield & Ben-Zvi 2008).

As may be viewed in Atwell (Atwell 2007):

“The idea of a Personal Learning Environment recognises that learning is ongoing and seeks to provide tools to support that learning”. It also recognises the role of the individual in organising his or her own learning. Moreover, the pressures for a PLE are based on the idea that learning will take place in different contexts and situations and will not be provided by a single learning provider. Linked to this is an increasing recognition of the importance of informal learning” (Atwell 2007).

A Personal Learning environment is not an application (Delgado 2007). A PLE is comprised of all the different tools we use in our everyday lives for learning.
We are coming to realise that we cannot simply reproduce previous forms of learning, the classroom or the university, embodied in software. Instead, we have to look at the new opportunities for learning afforded by emerging technologies (Muñoz De la Peña Castrillo & Cabanillas Núñez 2008).

We will consider how PLE might be developed through the aggregation of different services.

Some issues are behind the PLEs:

- Life Long Learning
- Informal Learning
- Different Styles of Learning: A PLE could allow a learner to suit and enable their own style of learning.
- New approaches to assessment: The e-portfolio

At the present course 2008-2009 we have thought on the implementation of a PLE by combining the LMS and Web 2.0 tools (Delgado 2007):

PLE = LMS + WEB 2.0

In this work we have focused on two main questions:

- What tools must we select?
- How must we adopt the Instructional Design?

2. Material

We saw that Social Statistics based on Web 2.0 is a two-way process, allowing the Internet to be used for creating and sharing statistical information and knowledge, rather than merely accessing external artifacts as it was done with the LMS.

We will consider how Personal Learning Environments might be developed through the aggregation of different services. A PLE is not an application. A PLE is comprised of all the different tools we use in our everyday lives for learning. Some of the tools are:

- Blogs
- Wikis
- RSS (Sharp Reader, NetNewsWire, Akregator, Google Reader …) and Syndication
- Collaboration suites, integrating: mail, calendar, contacts … (Lotus Notes, Microsoft Outlook, Google gadgets…)
- E-mail services (Mozilla Thunderbird, Eudora, Microsoft Outlook)
- Social Bookmarking
- Media Sharing (YouTube, Slideshare, …)
- Top Pages (Netvibes, iGoogle, ELGG, …)
• Social Networks (LinkedIn, ELGG, Orkut, Facebook, Ning, Tuenti, etc.)
• Audio blogging and Podcasting

From this great amount of tools we have chosen those based on Google. Our proposed PLEs have used Google Tools and LMS Claroline in the following terms:

• The LMS was used as it was being used as a “central point” of the learning process.
• iGoogle as a Personal Top Page was suited to the needs of every student
• Google Docs gave the students free software on different documents.

3. Method

Ethical issues

Considering that this research involves young people older than 18 we need to pay attention mainly to informed consent, anonymity and confidentiality.

The participation in this research was optional for every student so that we could maintain informed consent. At the beginning of the course the students were informed about the possibility of using two types of learning.

• The classical one consisted of presential classes, laboratory practices and a final exam. All of this was stated in the internal rules of the University of Vigo.
• The alternative was a learning using a PLE taking into account every task in a continuous assessment with the possibility to use a final exam just in case they are needed.

Anonymity and confidentiality in Claroline was maintained for every student as stated in the rules of the University. And so was it at the personal top page in iGoogle as it was done by the students themselves. In order to maintain anonymity and confidentiality on the results we used aggregative information and anonymous enquires in the LME.

Methodology

Every learning activity was practiced in class by illustrating the use of the different tools from LMS and iGoogle – learning by doing – through active and collaborative work. Thus we could use them gradually as we need each tool in both theoretical and practical lessons.

The plan of introducing the different tools goes as follows:

• Every lesson different activities are proposed and all this work done by the students was taken into account as part of a continuous assessment as it was referenced in the e-portfolio.
Activities of the Learning Sequence

- Documentation about basic concepts and methods on statistics.
- Constructing test quizzes according to Bloom’s Taxonomy
- Problem-solving related with statistical procedures
- Self-assessment questionnaires
- Personal work to give the student to personalise their learning using Web 2.0 tools at their own PLE: Videos, searching for web information and peer assessment between groups.
- E-portfolio. It may be viewed as an opportunity to gather evidence and reflect on the achieved learning. Every student was given a formative-summative assessment with personalised feedback (V Novegil 2008).
- Introduction to iGoogle (Waters 2008). iGoogle is useful for a Top Page where the students may organise some interesting and customised tools. Different pages in iGoogle (see Picture 1) were set up for different personal learning purposes, including sharing pages among the students.
- We have introduced the use of different Gadgets with iGoogle: dictionaries, Google Scholar, Mister Wong, Notes, Slideshare, etc.
- We have adopted some special laboratory practices using Google Forms in order to perform online surveys.
- Presentations with Google Docs were also made in class.

![Picture 1. General overview of the iGoogle interface](image-url)
Special attention was paid to adopting activities to perform the personal work of every lesson. This was the central core in using the PLE. As in Picture 2: Example 1 we proposed personal activities in a collaborative way constructing video casts about some statistical issues.

The methodology for making the video consisted of the following steps:

- Select of the issue.
- Create and public the video in YouTube.
- Peer assessment, using rubrics given in appendix 1. The rubric was constructed following the steps recommended by Mueller (Mueller, J. 2008).
4. Results and future research

This experience gave us the opportunity to construct a Personal Learning Environment based upon the Learning Management System Claroline plus the use of Web 2.0 tools as we can see in Figure 1.
An anonymous survey was conducted about the PLE in order to get more information about the main uses and pitfalls.

The choice of iGoogle tools was made due to its ease of use by students (85.71%) and the flexibility in personalising it (80%) (Picture 4).

Google Docs has statistical tools suited to an introductory course in statistics, namely: Google Forms and Google Worksheet. They could be shared facilitating collaborative working. Google Docs is ease to use (85%). All the students (100%) were confident in the usefulness of Google Forms.

This iGoogle Top Page was used in other subjects (28.57%), not only in statistics (Picture 5). The main optional gadgets are: RAE dictionary, sports, weather forecasting, music, Wikipedia, Wordreference, horoscope and everyday news.

Picture 4: iGoogle is flexible and easy to use

Picture 5: Using iGoogle in other subjects
How must we adopt the Instructional Design?

Videocasting was a useful activity in order to enhance their learning (75%) and improve social relations within the students (80%) (Picture 6).

The students confirm that it was very easy for them to use rubrics in order to assess the work from other student (95.24%). It was very successful to introduce group peer assessment. 100% of the students were in favour of taking into account every task they do for their learning.

Personal working activities gave the students the opportunity to be responsible for their learning (95.24%). All the students (100%) think they must have responsibility for their learning (Picture 7).

Future Research

It should be focused on more varied personal activities to be performed by students, including peer assessment through rubrics.

Some other tools may be of interest: Google groups, Social Networking, Citation Management System.

A multipurposed e-portfolio based on Google Sites so that feedback from a wide audience is possible.
5. References


## APPENDIX 1

### Rubrics for video assessment

Watch at the blog the video placed immediately before that of your group. Exceptionally the first group must watch the last video.

Use the rubric bellow in order to assess the video. Give marks for every task and calculate the mean.

AT THE BLOG, write a comment on the assessed video giving them feedback: why and improvements to be.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PROVEN EXPERTISE</td>
<td>The podcast demonstrates a deep knowing about the presented issue. There are no mistakes or ambiguities</td>
<td>The podcast demonstrates a good knowing about the presented issue. There are some ambiguities</td>
<td>The podcast demonstrates some knowing about the presented issue. There are some mistakes</td>
<td>The podcast does not demonstrate any knowing about the presented issue. It has serious mistakes on definitions and examples.</td>
</tr>
<tr>
<td>EXAMPLES SHOWN</td>
<td>Following the presented examples everybody would solve the related problem.</td>
<td>The podcast demonstrates a deep issue through a clear example. Some improvements would be needed in order to achieve better comprehension.</td>
<td>It proposes an example which is not very clear in the data or the results or the steps that are fast.</td>
<td>There is no example or there aren’t any parts that are understood. Some of the parts are very fast. There is a lack of indications in some of them.</td>
</tr>
<tr>
<td>CREATIVE AUDIOVISUAL</td>
<td>Innovative use of visual or auditory. It requires focus on the realisation of the problem. There is excellent organisation.</td>
<td>There is a use of visual or auditory elements that attract attention in the realisation of the problem. The organisation is good.</td>
<td>There is a classic use of visual or auditory. Sometimes you lose focus on completing the problem.</td>
<td>There is a use of distracting elements. Not displaying or not listening well. It diverts attention with visual or auditory.</td>
</tr>
</tbody>
</table>

**TOTAL**

Calculate the mean of the three marks.