

The present abstract wishes to contribute to following

- Theme and issues addressed: Developing key competencies – practice: challenges and successes in the development of key skills in education, the world of work and the community: Personal and continuing professional development, personal assets management and career planning.

Professional competencies – what competencies are required by learning professionals?

- Applying new methodologies and practices related to learning, competence development and knowledge management
- Innovative practice in assessment
- Learners' rights and responsibilities in assessment

1. **Case study: with presentation / Work-in-progress**

2. **Boosting Collaborative Learning in Engineering Education with Team-E-Portfolio;** Good practice case study

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BOOSTING COLLABORATIVE LEARNING IN ENGINEERING EDUCATION WITH TEAM-E-PORTFOLIOS

Background and context of the study

The study was initiated in 2002 with the suggestion of the Head of the School of IT that the English teachers of the Language Centre should integrate the language courses more closely into the professional studies of the IT engineering students. Thus, the motivation of the students towards mandatory language studies was expected to improve and the actual study of the professional substance to become easier with students reading the same texts in two courses but with different points of view: the professional as well as the English language. The texts discussed in classes were to be of the professional field of the students, e.g. software engineering, automation, electronics, media engineering and data network technology.

The study started with a group of data network technology students as a 3-ECTS-credit professional English course with 45 participating students, the amount of contact lessons being 20. Additionally, the students selected courses in professional subjects and prepared two oral presentations to be presented in English as well as two written assignments from the professional courses. The form of assessment was decided to be an e-portfolio. All the assignments were to be gathered in an e-portfolio. Next, the e-portfolio was expanded to Business Information Systems students using self-directed mode, the e-portfolio and the learning platform R5Generation as their forum. At the time being, all IT-engineering students (N=120 students per year) complete their professional English course with a team-e-portfolio integrated into their professional studies; the objective thus being among learning professional English for working life situations the boosting of collaborative learning in small teams.

In all courses the students have sent their portfolios with self-assessment per e-mail after course finish and have then been assessed by their teachers. The self-assessment has been given a strong emphasis as the English teachers have wanted to see how the engineering students could reflect on their own and their team's learning – one of the actual purposes of this portfolio experiment. The experiences have all in all been so positive that it has been decided that the e-portfolio combined with face-to-face classes and integrated into the professional subjects of the students would be the mode of teaching professional English in future. Between 2003 and 2007, the model used was varied slightly based on the more than 300 students' feedback, the amount of contact classes being between 10 and 24. The teachers learnt in the process to explain the purpose and uses of e-portfolio in learning and especially the meaning of student reflection. The most important new aspect in year 2006-2007 was to boost learning in teams and it has proved to be a most innovative tool for learning.

Thus, in 2006 - 2007, the scenario was slightly modified: the mandatory assignment to answer the teachers' questionnaire on personal learning results and give feedback on their own success as well as the factors that benefited the success was widened with new tasks involving team work, i.e. a team-e-portfolio in a group of 4 students instead of 4 – 5 individual portfolios was to be compiled and presented to other students.

Objectives

The objective of the pilot study was to find out if the mixed e-portfolio model would be suitable for more integrated language learning for engineering students. One of the aims was also to hear the students' voices in feedback and in reflection of their own learning experiences and results as well as their own assessment: students were also asked to grade themselves with a grade from 1-5 (5 being the best in Finland). Surprisingly, the students and the teachers agreed in about 95% of the cases on the grades and the students were very grateful for getting proper written and oral assessment feedback from the teachers instead of a plain grade. Furthermore, an objective was to study if this mode is more work-intensive for the teacher and the student than the traditional test.

A language course cannot be totally transformed into electronic form in a learning environment;

the students would not accept that but there must be an ideal ratio of contact vs. distant study classes where the student has enough free space to develop his/her skills individually and on the other hand, in social context with other students. The new modified format with a team-e-portfolio was to give a new dimension to learning: working with other students writing and performing in presentations as well as giving feedback to peer students was to boost learning. All this succeeded very well in digital form. Digital storytelling was also encouraged in the portfolio work; however, it was an optional task and needs to be developed for further adaptation next academic year.

Last term's major target was the exploitation of peer assessment in a more advanced way. The team-e-portfolio has proven useful in this aspect. Furthermore, the students' shyness to present their own work to others disappeared in teams: everyone was working harder and participated more than expected. Of course, the further development of the integrated model is the greatest challenge and with students' constant feedback this is possible. The other huge challenge for engineering education will be the interest from employer side to start using e-portfolio for recruitment purposes as well as getting the professional lecturers more involved in the evaluation process of the e-portfolios. The digital format should make this challenge easier for all parties: the portfolios can be distributed and displayed in all necessary fronts.

Summary of results

The last five years have been a very educative learning process for both students and teachers, even more so for the latter. The instructions on completion of the course, feedback and assessment have improved a great deal since the first pilot project. The students' feedback has continued being overwhelmingly positive and they still encourage the teachers to go on with the e-portfolio mode. They like the responsibility and the ownership of learning, both features important in future employment lifelong. At the first glance, many students claim the e-portfolio is demanding and very time consuming but on the other hand, the freedom and possibility to choose tasks from a variety of possible assignments has been very rewarding for the students. The most difficult tasks are the ones that they learn most of.

Conclusions and recommendations

The lack of a formal written test and the freedom to choose the topics that really interested them have resulted in increased motivation. Instead of test stress and lots of meaningless rote learning, the teams were very motivated to introduce their work to other teams as well in writing as in speech. The first experiment was a mixed mode of contact classes and e-portfolio. It has been a long way from that – the students' estimated work load, which in the pilot was a challenge, has now become more realistic and thus, more motivating for the students. Compared to previous years, this year some of the professional teachers found excellent integration material, and the big picture has now become clearer to all participants.

In their feedback, more than 200 participating students have assessed that most useful and important issues have been information retrieval skills, use of sources and references but none the less important were their new acquired skills to reflect on their own and their team's learning, write down assessments on their own learning results, problems, development targets and an objective grading of their own work. The students were this year given the option to either write a team portfolio or complete the course with classroom activities and a test at the end. Nobody chose the test after hearing that the portfolio will be completed in teams!

Learning to learn, and moreover, learning to learn in teams is an achievement that benefits the students their whole lives. Lifelong learning is one of the spear heads at the School of IT and at the Jyväskylä University of Applied Sciences. The employers are also more satisfied when they hire fresh Bachelors of Engineering with good social skills and a proof of them could be the Team-E-Portfolio that can be shown in a job interview. (1436 words)

(An authentic student testimony illustrates the difference the students felt in studying with the

team-e-portfolio mode:

This English course was different than any other English courses before in this school. We were talking and got information about our own automation field for e.g. machine vision, industrial robots, PLC-systems and many other things which are close to automation. That is a good thing! I learned a lot of new terms and words which may be useful in the future work. One good practice was to demonstrate the meetings and how to behave in those situations. We need that at work, too!

We held the presentation in Quality Systems course about the quality system of Fortum service. That was the biggest job for me for our portfolio because I knew that company from before. I have worked there for over five years and so it was easy for me to get information about their quality system and they were friendly, helping me on this job. Jani and Tero had a big role on this job too because they checked what Risto and I were writing. They did a very good job! We were doing together some e- tasks at school too during English lessons so we didn't have to do everything at home. The other presentation in Automation Systems we also managed pretty well as a team and we did the report together for the webpages.

Now I think I may use my English in everyday life in general level and I understand much more about professional English. These tasks have helped me to find out information and I realize that I may learn if I use my English skills more. Now my English skills are at a good level which I didn't expect after my first English course.)

P.S.The actual abstract contains 1436 words. The citation of a student can be added if there is a possibility to add some words into the abstract, I feel it tells a lot of this experiment.

The writer's information is not included in the 1436 words, nor is the part on the first page before the title.

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