Informatics and e-learning

Teaching as we know it turned upside down…

There are 8,000 students in a variety of disciplines – namely: informatics, technology, health, economy and teacher education – at Sør-Trøndelag University College. In the school of computer science and informatics, we have 600 part-time students studying online as well as 500 full-time campus candidates. Currently, the school offers education in software design with the view of gradually building full-time courses in the use of informatics, communication technology and collaboration theory within learning and organisational development. Two activities within ICT supported collaboration and learning are presented here; 'a redesign of campus learning methods' and the EU project 'Understand IT' that extends these methods to a networked version of the learning environment. Both activities are developed using a concurrent design method as a basis for ICT supported collaboration.

Redesign of campus learning methods

Teaching at higher education institutes is still characterised by the traditional lecture format in which a teacher presents a lecture to a group of attentive students. The traditional lecture has, however, been challenged by the students' increased ownership of digital devices that they introduce into the lecture theatre. These devices are, more than often, a source of distraction rather than an aid that enriches the learning experience.

To address this challenging situation we chose to explore new lines of thought. Our basic idea, in relation to the increased use of digital devices, was to make use of the traditional wisdom that students learn best when they are actively engaged in the learning process. We asked ourselves

whether students' disengagement can be turned around by introducing learning activities that demanded the use of these machines. We set ourselves a challenge to try and improve the traditional education process by increasing the challenge of coursework to a level that demands working in groups and the use of personal computers.

It is very challenging to introduce class-based tasks that require the computational power of personal computers. To address this challenge we envisaged a situation where teaching, as we know it, was turned upside down. In our new strategy, the teacher has the responsibility to plan work sessions where she takes the role of a coach or a supervisor. To complete the given tasks, the students need to work actively in collaborative groups. Furthermore, the nature of the tasks demands the use of personal computers both to solve the problem and to visualise the results to the teacher and the rest of the class. Such work sessions are designed to last for around three hours.

During the design phase, we became aware that restructuring the lecture format will require a learning environment that is different from the lecture theatre. The fusion of the student-teacher dynamics will require the student to be offered a platform to present their findings as if they were the teacher. To create such an environment we built a new education room with the following characteristics:

- The teacher is located in the middle of the room rather than in front of the students;

- The students work in groups of four to eight members seated around a single desk;

- All students have their own personal computers with internet connection;

- Each group of students share a single monitor;

- There are four overhead projectors with screens spread at three walls;

- Using VGA switches both the teacher and the students can easily connect to one or several projectors.

A new room is, however, not a new education method. The change has to be driven by a strategy. Thus each session was based on a predefined activity programme composed of information gathering, the design of tests, brainstorming and the formulation of conclusions and a set of questions to be feed into the next session. The lecture notes, educational videos and links to online resources that the teacher has prepared serve as an integral part of material used by the students to meet the challenges defined in the tasks. As a coach, the teacher oversees the process, arranges the activities, engages in dialogues with the groups, helps with difficult details and offers mini-lectures to address core questions.

The students are asked to present their solutions and document the activities in the room. They are encouraged to co-author the documentation by sharing a single source document. They are also encouraged to make their results visible on one of the many projectors in the room. This transparency opens the door to active participation and cross-group dialogues.

In conclusion, we have described an in-house, interactive educational format that is based on engaging the students in the learning process. In our experience, the new method and the discussion and collaboration platform offered by the new room are useful not just for the students but also for brainstorming within the school's faculty members.

UnderstandIT – a Networked Learning Environment

UnderstandIT – is a project to increase ICT skills and competences of VET (Vocational Education and Training) teachers, trainers, tutors and technical staff.

Aim

The main aim of the project is to increase ICT competences among VET teachers, trainers and tutors. The Leonardo project Vitae has developed a pedagogical model of how to teach VET teachers, trainers and tutors new ICT skills. The overall goal of UnderstandIT is to take the results from the Vitae project further to new institutions, new countries, cultures and languages. Another goal is to develop a generic business model that can be a tool for other European institutions for implementing the Vitae course is a sustainable way.

Target groups
- VET teachers, tutors and trainers;
- Teachers in schools and universities who need to integrate ICT into their;
- Learning activities;
- Net-learning teachers;
- Instructional designers;
- Managers who plan to implement new courses into their course portfolio in a sustainable way.

Methodology for development and research

The Norwegian method Concurrent eLearning Design (CCeD) has been used to further develop the Vitae course and the business plan. The method is very useful when different professional experts are working together to develop a project, like developing a business plan or an online or campus course. In UnderstandIT we have two expert groups, one for the business plan and one for the Vitae course. The work is organised in four online sessions: the situation analyses; the study of possibilities; the selection of solutions and at last the final product presentation. Sessions takes place in a concurrent design room where all the experts have access to PCs and software tools that are important for their work. In the room there are great possibilities to share screens, display results on large monitors etc. As part of the UnderstandIT project we have enlarged the working space to include experts situated in different countries collaborating with experts in the CCD room, and the method is turned into distributed concurrent design. For the work we have chosen Google docs as a common software tool, and Adobe connect as a platform for synchronous communication during the sessions. Research data from the sessions are collected and presented in evaluation reports. As part of the dissemination from UnderstandIT several research papers have been published.

Results

The Vitae approach is based on social constructivist principles and relies on the sharing of skills between peers. In UnderstandIT the Vitae course is further developed, using coaching. The aim of the course is for VET teachers to be able to select net-based recourses that are suitable for their learning activities and to integrate ICT tools in those activities where appropriate. The course is adapted to learning cultures and languages in Norway, Lithuania, Italy and Portugal. A community of practice is developed where teachers and tutors can exchange ideas and learning resources. Based on experiences from running Vitae courses, a generic business model is developed. The model can then be used to adapt and run Vitae courses in institutions all over Europe.

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