EXTENDING EXISTING MEETING PLACES INTO ARENAS FOR FLEXIBLE LEARNING

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Abstract *— This paper is based mainly on experiences from a 2 credit course in GIS given to 24 students during autumn 2000. The course was arranged as an extension to the well-established NIF GIS conference in the Mjøsa region. "ClassFronter" was used as learning management system and as an electronic classroom on the WWW.*
One of the most challenging issues in flexible learning, is to ensure that the flexibility is not used to let the courses loose in the daily fight for priority. The paper presents the way we tried to handle this, and our experiences.

Index Terms — Flexible learning, cooperative programs

INTRODUCTION

The paper describes the experience we have in a co-operative project where a university college and actors from the application field participated. In this project, a course named FluGIS (Norwegian abbreviation for "Flexible education in GIS) was created and offered to students as an extension to a well-established conference arranged by *The Norwegian Society of Chartered Engineers* (NIF) every second year since early 90's. The course is repeated during spring 2001, and additional experiences from this second round is included in the paper.

The main topic of the course (Geographical Information Specification and Management) is a quite new area, and is little covered in the literature. The experience of transforming oral lecture-based teaching into net-based learning is discussed.

The FluGIS course was arranged cooperatively by a professional association of engineers *(NIF*), *Gjøvik University College* and two organisations working at the national level in Norway in the GIS field: GEOLOK and AREALIS.

Gjøvik University College (HiG) is one of 26 University Colleges in Norway giving education on a higher level. HiG has about 1400 students and has since the early -90s been working with different technologies for flexible learning. Most experiences are from videoconference systems. Gjøvik University College also offers a 10 credit flexible study "Byggesaksskolen" [1] where the first group of 45 students ended their studies December 2000. The conclusions in this paper are to some degree also based on experience from this study.

The Norwegian Society of Chartered Engineers, (NIF), has about 34 000 members. Professional development and updating is given high priority by the NIF members. The NIF Study Centre organises a large number of conferences, courses and seminars each year, covering mainly the technical/engineering fields [4]. In addition, the local departments of NIF on their own give courses. Local courses are mainly organised through a special Planning Committee, in Norwegian called "Fagråd". In the Mjøsa region the three local departments of NIF (Lillehammer, Gjøvik and Hedmark) have a common Planning Committee. This Planning Committee, among other activities, has arranged a GIS conference every second year. This conference usually gathers 60 - 100 participants, and has become one of the main meeting place for GIS users in the Mjøsa region.

*The AREALIS projec*t [5] is a national initiative for establishing a nation-wide Geographical Information System making environmental data and land use information available. The AREALIS project is a cooperation between several public organisations. The secretariat is located at the Norwegian Mapping Authority.

GEOLOK [3] is membership-based organisation focusing on the use of geographical information by local authorities.

The AREALIS project and GEOLOK contributed to the course with their expertise.

In the following sections, we will briefly explain the pedagogic platform, give a more detailed description of the course and contain our experiences with the project. The paper ends with conclusions and future plans.

PEDAGOGIC PLATFORM

When designing the course, we tried to focus on pedagogy and different elements in the learning process for the students. We wanted to use E-learning technology to make the course as flexible as possible. The technology, however, is only a tool for more effectively establishing learning processes for users. By use of technology the student should become better motivated to go through with learning. In the learning process new means using the E-learning technology should be included. According to this, E-learning is an

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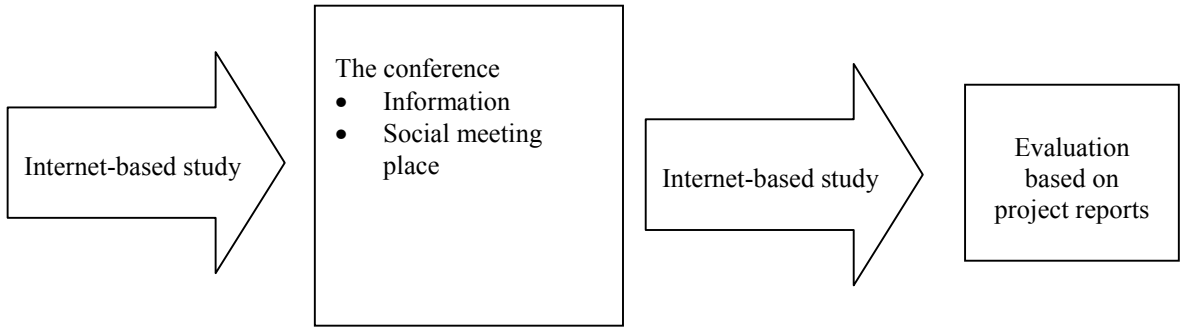

FIGURE 1. THE FLUGIS MODEL

integrated part of a complete learning process. This complete *learning process* should also include different *learning elements* e.g. different arenas for direct communication as physical meetings.

In all learning the terms information and knowledge are used. To make the goal of learning more clear, we stress the difference between the two terms:

- *Information* is descriptive, and may be distributed to the students in different ways, e.g. by Internet or by CD-ROM bringing text-documents, pictures and videos. The information is stored in catalogues or electronic archives available for the students when the student want to study. Internet itself is a huge information base.
- *Knowledge* does not occur before the student is able to use the information brought to him in solving problems. Thus, knowledge can be viewed as the result of a learning process where the students develop their own acting repertoire (way of acting).

THE FLUGIS PROJECT

The FluGIS model is graphically explained in Figure 1. This model was selected based on the fact that learning is highly connected to social processes, and that the technology can add new dimensions to the learning process. The project was based on the four main elements:

- Physical meeting places for socialisation of the participants
- Internet as an information carrier
- Project work carried out in groups of students as a base for development of knowledge
- Contact between teacher and students based on Internet, both asynchronous and synchronous

The project defined an internet-based study where an already existing conference was included. The conference filled the need for establishing social relations between the students. The remaining challenge was to define a learning part where the conference became a meeting place both to the FluGIS students and the other conference participants.

The conference should fulfil two functions:

- Transfer of information from the lecturer/teacher to the student
- Social meeting place

By establishing a flexible study based on the conference, we hoped to reach the following goals:

- Reach participants otherwise hard to reach in an educational context
- Easier access to experts usually not used in studies
- Establish the starting point for a good learning environment through the conference social activity.

The conference was offered to anyone who wanted to participate. The participants were offered to continue a learning process where the information given at the conference was further handled. The learning process was built on an internet-based model where the students were arranged in groups. The final approval of the course was based on reports written by the groups.

The selection of meeting place

A conference mainly transfers information from the lectures to the participants. There will hardly be any possibilities for reflection and learning processes during a short conference. We wanted to experience the possibility of combining an already existing conference with a formal course using Internet for further studies. In our opinion, this would benefit both the conference participants who could choose further studies based on the information given in the conference and the University College which would reach a new group of adult students.

We also wanted to experience how associations like *The Norwegian Society of Chartered Engineers (NIF)* in co-operation with a University College could increase the value of the service for their members. In our opinion, this model should be attractive because its flexibility.

Lastly we wanted to experience the suitability of using information and communication technology in the learning process to this target group

Due to this fact, an already existing and well-established meeting-place, the GIS conference in the Mjøsa-region was selected. This conference has been arranged every second year since early in the 1990s. The local Planning Committee of NIF arranges the conference.

The target group

In the course, we wanted to reach mainly the same kind of participants as the selected conference: the GIS users in the Mjøsa region.

In [**6**] the students are classified according to sex and age, geographical location and levels of previous education. In addition to these criteria, the level of computer experience should be considered.

We have no statistical data describing the GIS users either in the Mjøsa area or in Norway. However, we expect the group of users to be dominated by men. We also expected the users to be between 20 and 60 years of age, dominated by the lower part of the interval. Regarding levels of previous education the users are quite inhomogeneous varying from only Primary School to long-time university skilled persons. Most of them were expected to have their education connected to technical fields, missing formal GIS education. The GIS conference was mainly offered to GIS users in the Mjøsa region. When advertising FluGIS, we extended this geographic area to cover southern parts of Norway.

The GIS field is a highly computerised field, with highly skilled IT-practitioners. We expected this group to have quite a lot of knowledge and experience using technology in learning processes, and thus easily be able to handle different information and communication techniques. Therefore, we did not expect IT-related problems.

The Learning Management System

In the course, a WWW portal from Fronter.com, ClassFronter [**2**], was used as the Learning Management System. In ClassFronter, administrative information, learning materials, discussion groups, chat and WWW links are combined in one WWW portal.

The learning materials were mainly based on foils prepared for oral presentations. For some of the presentations, the teacher's comments (as video) were available. Further explanations and recommended WWW links were included in the presentations.

OUR EXPERIENCES

In this chapter, our experiences with the course will be discussed, based on responses from the students and from the teachers involved.

The student group

The FluGIS course was announced in the local newspapers, through direct mailing to the NIF`s local members (about 800) in the Mjøsa region and also via email to GEOLOK member organisations. Two options existed: the full FluGIS course or only the conference. Because this conference was arranged last year, and ordinarily would not be arranged until next year, we did not expect many "only-conference"-participants. The most important thing was to test the FluGIS model.

24 students participated the course, 16 men and 8 women, age 30 – 50, 22 of them employed, sponsored and encouraged by their employers, and 2 unemployed. Almost all the students had experience in using email and web surfing. Only a very few of them had E-learning experience. In addition to these, about 20 persons attended the conference only.

The students evaluation

This evaluation is based on replies from 19 students, 16 of these students are in full-time jobs relevant to the content of the course. The students were generally content with the learning process. They were particularly content with meetings/conference, exercises and report writing. There were no significant differences in the evaluation of meetings just for the course students and participation in an open conference.

Communication with the teacher through electronic media also worked well, but there was obviously a problem to cooperate with other students without having the opportunity of direct oral communication. Several students reported that project work should be initiated at the first meeting having the possibility to start the cooperation the traditional way.

The information was presented on the web using overheads and text-documents (to download), videos and links to relevant web sites. Several students reported that the videos were crucial in the learning process, but the quality was poor on a slow Internet connection. A better approach is probably to distribute the videos on CD's.

About 50% of students expected to use 3-6 hours a week on the course, the average time spent a week was approximately 3 hours. It was interesting to note the time spent on the course was given second priority, and about half of the students had experienced unexpected problems to use sufficient time studying. The students were asked what they considered an ideal time-schedule. The answers varied quite a lot, but the majority would like to work continuously with the course for 2-4 hours may be once or twice a week. Some would have preferred to work a short period (30 minutes – 1 hour) every day.

The teachers experience

A teacher giving lectures in front of a class, can see whether the students are present or not. This is not the case in E-

learning. Leading "the invisible" E-learning students to become visible, by leaving footprints, is one of the great challenges in E-learning. This can be done by passive logging of the activity in a virtual classroom or by "forcing" the students to give (active) response to the course activity. The learning management system used lacks possibilities for logging and statistics regarding logins and downloads of course materials. Subscriptions to discussion groups and (in the latest version) also reading/downloading the contribution to discussion groups is logged. However, a major part of the FluGIS students remained invisible.

To help students on an individual level requires communication between every student and the teacher. Quite a lot of the students were not (and during the course did not become) comfortable with communicating via Internet. Due to this, individual help to students was not easy. This was to some degree compensated by organising local study groups. These groups mainly were organised based on geographical criteria. In the groups, the skills varied a lot, and resource persons within the group answered the questions usually directed to the teacher.

Technical experiences

The GIS field depends heavily on computers, and all the students spend a lot of time at work using computers. However, very few of the students had experienced net-based education. Many students had problems with the connections from their office computer to the Internet, both due to the capacity of the connections and also due to implemented security systems. The use of chat channels suffered heavily from lack of permissions in the organisation's firewalls. This should be considered when scheduling chat meeting. Evening chat meeting using personal computers at home should be considered.

All the information was distributed to the students via WWW. The videos were available as streaming resources. Some students experienced problems by downloading information.

CONCLUSION AND FUTURE PLANS

Based on the experience in this course, the following can be concluded:

A learning management system in needed for all Internet based courses. Although we have only experiences using one system, we are quite sure that the systems available today need further development to fit the needs of tomorrow. As the experience with this kind of learning increases, the quality of the learning management systems will follow.

The communication between teacher and students and also between students themselves is important for the learning process. The majority of the FluGIS students were not comfortable with internet-based (written) communication, and we expect this to be representative for the target group. Establishing proper communication channels where all the students feel safe is one of the great challenges in internet-based learning.

Combining an already existing conference with a formal course using the Internet platform seems to be relevant both to the conference owner and the University College. The conference owner may in this way offer the participants a further learning area which can lead to a formal exam given by an University College. For some conference participants this seems to be of importance.

A new course is scheduled autumn 2002, combined with the 2002 NIF/GIS conference.

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REFERENCES

[1] http://bs.hig.no

[2] http://fronter.com

[3] http://www.geolok.no

[4] http://www.nif.no

[5] http://www.statkart.no/arealis

[6] Sentralorganet for fleksibel læring i høgere utdanning, 2000: "Fjernundervisningsprosjekt på universitets- og høgskolenivå støttet av SOFF". *SOFF-rapport nr 3/2000. In Norwegian.* Available from http://www.soff.unit.no.