

User Centred Information Literacy Education - Application of Multimedia in E-learning and Blended Learning

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ABSTRACT

This case study presents the application of multimedia in an E-learning and blended learning product which aims at developing students' information literacy. The paper will elaborate on our development concept. Especially, on how we have applied our main principle; to create user focused e-learning. This means that we have aimed at taking the user's perspective and taken into account that we are going to facilitate virtual rooms for reflection, where the learner can create new knowledge. We have applied a problem oriented approach to learning because we wanted the learner to become motivated and personally engaged.

Keywords: Application of simulation in Training and Education, Integrating e-learning and Classroom Learning, Web-Based Training, Distance Learning, Organisational Learning, Learning to Learn.

INTRODUCTION

Aalborg University Library, Denmark, has developed a multimedia system called SWIM (Streaming Webbased Information Modules). We have applied interactive video sequences in the product creating a social simulation where the user is an active communicating member of a "project group". The effects of using this product have been positive and have created a basis for understanding and elaboration of issues regarding the integration of information searching processes in the learning process.

SWIM has been developed to be used in the information literacy education of students. The focus of the programme is the student's own learning process in which information searching is an integrated activity. This focus is based on our view that we must meet the learner where she is, according to her learning qualifications, and provide courses which can give students a new view of information search processes. A view that presents these processes as integral – not isolated – activities in the learning process.

BACKGROUND: WHY DID WE DEVELOP SWIM?

In accordance with the overall change of society as a whole and the structural change in the libraries' information resources, we aim at moving from our traditional library instruction to Information Literacy education. In this

process, we focus on the individual's ability to navigate through life in a society that is hyper complex. In order to cope with everyday problems, in professional as well as in private life, each individual needs competencies to be able to focus in what Danish theorist Lars Qvortrup terms a poly optic society [2]. This means that each individual needs to adjust his or her qualifications strategically, towards what is required in a given situation at a given time. The individual needs to possess competencies which she can use to identify which qualifications are required to develop in a strategic way. We need to facilitate students' learning processes in a way that will assure that they achieve these necessary competencies.

Our understanding of learning processes has implications for the choice of pedagogical methods applied in educating candidates and lifelong learners as a whole. When viewing learning as a process of construction in which learners question knowledge acquired earlier, opposing it with information that may shed light upon a topic and contribute to a new understanding of the topic, information is seen as a means of bridging a gap between existing knowledge and a problem to be solved. In this process of construction, learners actively take part in their learning processes and goals. Reflection is at the core of the learning process, and it is the result of the learner's motivation and engagement. With this view upon learning the learner is in focus and the role of the teacher is primarily seen as a facilitator, not as an instructor. The teacher's role should be to guide the learner; to help him or her ask the right questions, in order to create new knowledge that may bridge the aforementioned gap.

We perceive the acquisition of information as an integrated activity in the learning process. As opposed to those who regard information searching an isolated activity, which is merely result-oriented rather than process-oriented. When we look at information searching processes as integrated in the learning process, there is an overlap between methods that can be applied. E.g. identifying information gaps may consist of activities that are similar to identifying the core of the problem to be solved in the learning process.

The above provides the basics of an understanding of learning and information searching processes, which has

implications for the choice of pedagogical methods in the actual meeting with and counselling of learners whether it is a physical or virtual meeting.

In the development of our virtual services, as well as in the courses we provide, we aim at establishing a framework that facilitates learners' reflection on their prior experiences of learning and information searching processes. When creating e-learning programmes, we emphasize that facilitating the user's learning process is the crux of the matter. It is not the development and application of multimedia in itself that is interesting - i.e. 'e-' is merely a tool that we can use as a pedagogical means of achieving motivation and engagement.

THE CORE OF THE CONCEPT

SWIM is a multimedia programme based on interactive video sequences representing a social simulation. The user has to reflect on and make decisions on information searching strategies in different dilemmas. The user of SWIM is placed in a narrative, where she becomes an active and communicating member of a project group. The narrative is structured in such a way that the user's choices are decisive and creates the conditions for a final examination, where the supervisor of the project group and the censor provide constructive feedback on the information searching strategy chosen by the user and the project group. After the evaluation where feedback has been provided, the user can move on to other elements of the programme to elaborate on specific issues.

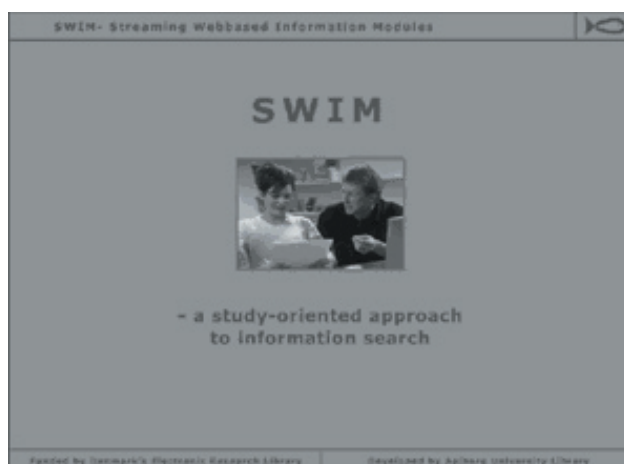


Figure 1: User interface in the social simulation SWIM.

In the narrative, the user of SWIM is situated as a student at a higher educational institution, where the students work in groups with a problem oriented pedagogy. The students have to define and work through the problems they are exploring during their learning process. The basic assumption behind this choice of pedagogy in the education of candidates matches the demands of the information society.

When the students have to define their own problems, both result and work process are unknown and characterized by uncertainty. When both the result and process are

unknown, the required information resources are also unknown. Thus, in this situation, the student makes a direct connection between information resources and the problem.

Kuhlthau has characterised user education in information searching [1]. The starting point of user education has traditionally been the retrieval of information from information resources. However, this approach is primarily useful when the problem is known. This traditional paradigm does not take into account that learning is characterised by uncertainty. Therefore Kuhlthau proposes a theory of information searching processes in which the learning process can be characterised by different phases and the corresponding information searching strategy requires that the student applies different information skills and methods. Moreover, different aspects such as the affective level, the behavioural level, the strategic level and the cognitive level are taken into account in this theory. During these different phases of the information searching process and the learning process it is acknowledged that the uncertainty characterising a learning process, can influence the student's choices in the given situation.

We stress that our user education takes the user's situation as its point of departure, and we have applied Kuhlthau's theory as the basis for the development of a narrative that includes the creation of drama and the tension among the students in the social simulator. The latter giving rise to familiar group dynamics.

There are two main reasons why we chose to create a project group in which the user becomes a member. First of all, each of the three members of the project group has their distinct characteristics in terms of social profiles and skills, their specific qualities in academic work and different personalities. We want our users to identify with the characters. However, not to such an extent that their objectivity is blurred. The characteristics of the project group members are somewhat exaggerated, thereby making it easier for the user to distinguish the different possible strategies which can be chosen in each of the phases. This principle is applied in order to facilitate the user's reflection on the characteristics of the situation and the required solution to the dilemmas posed in each of these situations.

The other main reason why we chose to create a project group is that each of the three students represents a strategy which they propose in each of the situations (in our product there are five phases/acts). These strategies are based on a systematics corresponding to the characteristics of the phases, and this systematics is used for the final scoring of the user's choices. This representation of strategies is deliberate, as we have aimed at creating a multimedia product that could be used in *different* learning environments and not merely where problem oriented project pedagogy is applied.

The above mentioned theoretical basis has inspired the fundamental design behind SWIM.

Moreover SWIM was designed on the following decision premises:

- The user's choices must be decisive
- The narrative must be realistic and general (not according to a specific study)
- The scoring principles must be systematic
- When used as a stand alone system, SWIM is supported by standard e-learning modules.
- The standard e-learning modules can be used to elaborate on the different phases of the information searching process corresponding to the user's choices in the social simulator.
- The social simulator and the standard e-learning modules constitute the whole SWIM multimedia programme. It must be flexible in use – both as a stand alone system and as a teacher's supportive material.

IMPLEMENTATION PROCESS

Our process towards integrating SWIM in the library's user education turned out to be a case of organisational learning. In the early stages of the project, we were of the opinion that SWIM was going to be an e-learning programme primarily aimed at students who were set out to do self-directed studies and use our product as a just-in-time user education product. During the development process we made mock-up tests and the following focus group interviews fostered new ideas for the implementation of our product.

We saw that users achieved a positive effect when they were working together on the social simulation (and not just as single users). The users soon identified the three group members as someone they knew (but not exactly themselves) and they also soon recognised the different situations and the problems characterising these situations. This gave rise to vivid discussions and reflection about the dilemmas they were opposed to in the social simulation. In the focus group interviews, following the mock-up tests, we suddenly noticed that there was a basis for understanding and a common ground on which we could elaborate on some of the issues regarding information search processes and e.g. create a new understanding of the concept of information. Hence we added to the concept in the sense that we were going to use SWIM as the basis for our user education in the classrooms, because we actually experienced that we could meet the user at her own premises.

During the project period it became evident that the implementation process required change management. Our librarians and subject specialists (academics) were going to be the ones implementing this in the user education, and there was a widespread demand for competence

development prior to the integration of SWIM. Especially the new role as a facilitator, rather than an instructor, created some challenges which resulted in the provision of courses for our staff in the fields of pedagogy, didactics and learning theory. SWIM has since been employed in user education in various ways. The different models will be elaborated upon in the following.

CURRENT MODELS OF USE – STAND ALONE PRODUCTS AND BLENDED LEARNING

SWIM can be used as a single-user programme. This is in fact one of the scenarios in which SWIM is being used, although we place more emphasis on the use of SWIM in courses.

When using SWIM in courses in a blended learning environment, we have basically two scenarios where we use SWIM. In the first scenario, the library offers courses for our various study programmes held by our librarians or subject specialists. They are usually provided at the library, but also in the relevant learning environments where the individual study programmes are situated throughout campus. As mentioned above, the focus group interviews indicated that we could create a blended learning scenario. Our preferred model is a mixture of student led activities, dialog based elaboration of problems and concepts in the information searching process integrated in the learning process, and finally hands-on exercises. The starting point is the user led activities, where users are placed two or three persons together playing the role-playing game and discussing the different situations and possible choices, hence forcing them to reflect upon these issues. This provides the basis for the following dialogues and hands-on exercises.

In the second scenario SWIM is used as a basis for a course in methodology and information searching for distance learners. This model is different in the sense that teaching and counselling is a collaboration between faculty staff and library staff and also that the integration and employment of SWIM is spread over a longer period of time. Hence the various parts of the learning content in SWIM can be elaborated upon and in fact be used as a basis for creating a structure and choices of methods throughout the project work in that course. It also incorporates the concept applied in the first blended learning scenario. This is possible because the distance learners meet at weekend seminars, where we occasionally have had the opportunity to make courses for them.

FUTURE DEVELOPMENT AND DISSEMINATION OF THE CONCEPT

Libraries and library associations (Nordinfo and NordinfoLit among others) have shown significant interest in the SWIM project¹ and the product. We have had a

¹ The SWIM project has been funded by the Danish Electronic Research Library Association and Aalborg University Library.

number of visits from other libraries where staff has been curious about the concept and wanting to integrate SWIM, or to gain inspiration for similar concepts in their own user education and in the creation of e-learning programmes. We have also been invited to give presentations at conferences on several occasions and this has offered a great opportunity to create new network relationships. At present, we collaborate with university libraries as well as other educational institutions in Denmark, Sweden, Norway and the U.S.. Because of the flexibility in the concept and the technological platform, SWIM has been customised and integrated into other libraries' user education. SWIM is available from our website and free to use for everyone who wishes to use it in e.g. a course (the only condition we ask people to comply to is our copyright to the production). However, there is one disadvantage for the dissemination of the programme: It is produced in Danish. We have a subtitled version of the product that we have used for presentations so far. The production of the subtitled version was made with the intention of creating interest in the concept. We saw that it would be necessary to be able to present the concept (in the product as such) before we could create the necessary conditions to engage in further collaborative work.

We are at present initiating a new project in collaboration with other libraries. In the new project the aim is to translate the product into English (and perhaps customizing it to accommodate special needs that might be relevant) to ensure that the concept in SWIM can be disseminated and integrated in user education where libraries and educational institutions find it relevant. Part of the project's aim is to disseminate knowledge about the SWIM concept and collaborate internationally with relevant partners who can contribute to a further refinement of the conceptual framework. The theoretical background will be further qualified in the revised version of the product.

Another refinement is based on the second model of our user education mentioned above. The aim is to create a Learning Objects Web which will be available for students throughout their studies. This will place information literacy education in the context of the learning process and our new product will then be a virtual facilitator which we hope will be able to change students' habits and attitudes towards information searching, and hopefully provide for a general perception of information searching processes as an integral part of learning – the other side of the coin.

An extension of the programme which can be used in the dissemination of the concept to library staff and faculty staff as well is under consideration. This seems to be necessary to take into account when we move into the implementation phase of the project, and the actual idea is to create a version of the social simulation which can be used to create a reflection about the roles of the mediators. In this case it means that we would like to create a social simulation that places e.g. the librarian/information

specialist in a situation where he or she has to decide how to intervene in the student's information searching process. This role would be different for faculty staff and therefore the social simulation would be comprised of different dilemmas to reflect upon and solve in their own learning process about how to intervene in a group's project work and the corresponding information searching process. Given the costs of production this idea will not be feasible at present.

CONCLUSION

We have developed E-learning for our user education for a considerable time now, and we have moved a long way from experimenting with E-learning, to viewing E-learning as a means in the pedagogical development of our blended learning environment. Further development of our concept concerns aspects arising from the implementation of multimedia programmes in user education as mentioned above. The most important strategy in the ongoing development is our focus on bringing our products closer to our users i.e. in this case information literacy education. This rather challenging task is important because we want to bring library service closer to the user i.e. we want to integrate our concept in the virtual learning environment where the student works in her daily life. This requires that our concept is supported by a professional organisation, marketing and liaisons with faculty.

LINKS:

Start SWIM (social simulation of group work in a project):

http://www.aub.aau.dk/swim/swim_uk/adsl/splashintro.html

Find all the content of the SWIM products:

<http://www.aub.aau.dk/go/128>

(Change dialogue language to English)

Use module 3 for an English sample of our information modules:

<http://www.aub.aau.dk/go/modul3.html>

More information can be found at the project website:

<http://www.swiminfo.dk>

REFERENCES:

- [1] C.C. Kuhlthau, **Seeking Meaning: a process approach to library and information services**, Westport, Connecticut: Ablex Publishing, 1993.
- [2] L. Qvortrup, **Det lærende samfund : Hyperkompleksitet og viden**, København: Nordisk Forlag A/S, 2001.