Developing a process-orientated web tutoral in information literacy for students

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Imagine that you are a student who has just started studying at a university or college. You may be just out of school or you may be a mature student with several years of working experience but it's a long time since you last sat in a classroom or a lecture hall. There is so much to you have to find out about of a practical and organisational nature in order to get through your studies, including study techniques, finding and using information, and writing papers and project reports.

This is the setting for our web tutorial in information literacy. We have tried to place ourselves in the students' shoes and see things from their point of view.

Why have we chosen this approach? Teaching methods such as group work, problem-based learning (PBL) and project work require that the student is competent in the acquisition and use of relevant information. Our experience was that our traditional library and information searching education/instruction had little effect. The students were often just as helpless shortly after the courses as before. At first we thought it was because of our shortcomings as teachers, but this was only part of the picture. A survey of the literature produced a Danish study which came to the same conclusion (Poulsen, 2002).

Why is this so? Motivation is the driving force in adult learning. It is not easy to motivate adult to learn something that they do not immediately see a use for (Knowles, 1990). In many cases, library education is something in addition to the curriculum rather than an integrated part. Many students do not give priority to attending these classes or to learning library skills. Adults also learn better if they have a picture of the whole before they start learning the parts (Marton, 1997). Much library instruction places the emphasis on learning the parts; on teaching the students practical skills – **how to** – how to search the catalogue, how to use a database, how to form a search strategy – rather than placing it in a context of the whole: teaching them a process which will facilitate them in their studies, that is, the process of information finding, selection, evaluation and use.

We saw the need to change the emphasis of our user education from task-orientated to process-orientated. We also saw the need for a web tutorial or guide which could supplement our teaching and also be a "stand alone" help for the increasing number of distance learning and part-time students. This led to a cooperation with Stord/Haugesund University College on a joint project.

The institutions

Telemark University College is the 5th largest university college in Norway with 4,500 students and 450 staff members. It is on 4 sites within the county of Telemark, in the south-east of Norway. Each campus has a library with ½ to 6 staff, 15 posts in all. Stord/Haugesund University College on the south-west coast of Norway, has 2,200 students and 250 staff members. The college has two campuses with libraries on both sites. It has a staff of 9. Both colleges offer a range of studies at bachelor and masters level, including

nursing and other health and social welfare studies. As you see, these institutions are small by international standards.

The project

The libraries of Telemark University College and Stord/Haugesund College made a successful application to the Norwegian Archive, Library and Museum Authority for funding in 2003. The project ran from October 2003 to December 2004.
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It was steered by a project group. The project leader (PF) was engaged in a 50% post and a project worker (JH) used nominally 10% of his worktime on the project (in practice it was considerably more). An additional worker was involved in the last 4-5 months of the project. We also had a consultative reference group made up of librarians and academics from our own and other institutions.

The aim

The aim of the project was to create a web tutorial and guide in information literacy. It should be possible to use it in a process-orientated user education. It should also be suitable for self-instruction so that students can use it in their own time and at their own pace. It should be suitable for undergraduate students, and especially new students. It should be in modules, and it should be freely available on the Internet.

The process

The entire process was well-documented throughout the project via the project's website http://www2.hit.no/bib/webveil/ and through a weblog.

Communication within the project group was by email, telephone, video conferencing and the occasional physical meeting.
[Slide 8]
- Phase 1
    - Project plan and time schedule
    - Literature study
        - Learning theories
        - Information literacy education
        - Web-based learning
        - Web design
        - Information design
    - Evaluation of existing web tutorials/guide
    - Choice of educational approach
- Phase 2
    - Specification for content and form
    - Manuscript
    - Specification for the web designer and illustrator
- Phase 3
    - Construction and adjustment
    - Testing via observation and focus groups
- Phase 4
    - Publication and presentation

Information literacy

The term 'information literacy' can be interpreted in many ways. It is often used as a synonym for library skills, information skills and computer skills. We have chosen to adopt the description formulated by the American Library Association in 1989:

> "To be information literate, a person must be able to recognise when information is needed and have the ability to locate, evaluate, and use effectively the needed information."

This description forms the basis for information literacy standards in higher education in USA (ACRL 2000) and Australia (CAUL 2001).

Choice of educational approach

The literature survey confirmed our assumption that we should aim for an approach that would stimulate the student to active participation, problem-solving and reflection, that is, that it should be based on a constructivistic theory of learning.

There are a vast number of tutorials in information literacy available on the web, mostly in English. Our first thought was to find one that would fit our requirements and to ask for permission to translate it into Norwegian. But in our review of tutorials in English and the Scandinavian languages, we found only one that fully fitted our criterion of being process-orientated. This was the Danish SWIM tutorial (Streaming Web-based Information Modules) http://www.aub.auc.dk/portal/js_pane/forside/action/ChangeLanguage/newLanguage/en;jsessionid=010DA969999A1EB3A82

SWIM uses streaming video sequences to show a role play where students are engaged in a project. The user at the computer is the fourth member of the group and is required to take decisions along the way that will influence the outcome. In this way, the user is guided in taking the most suitable route to finding and using relevant information for the project.

SWIM is based on Carol Kuhlthau's Information Search Process (ISP) (Kuhlthau 1993).We found this model for information searching interesting. It places more emphasis on the early stages of the research process than many other models. It has six phases: task initiation, topic selection and prefocus formulation, focus formulation, information collection and search closure, which includes writing the paper.

Kulhthau has combined learning theories and psychological theories in her model. She concludes that information seeking is not just a cognitive process. Our actions are also influenced by emotions. Thereby, each phase in the process has thoughts, feelings and mood in addition to actions and strategies. We can all recognise this process when we attempt to learn something new. We can be uncertain, confused, and even anxious in the beginning. This can give way to enthusiasm and optimism as we see that we are coping with the problem and perhaps finding a solution.

råd&VINK (Advice and tips)

We decided to base our tutorial on Kuhlthau's model and to use SWIM as our inspiration.We saw the need for a process-orientated tutorial covering the complete research process from the time the student receives the assignment to the completion of the paper. At the same time, the student should be able to find specific information on information literacy skills.

The process-orientated part of the tutorial consists of a series of situations consistent with Kuhlthau's six phases. The situations are presented in the form of an animated comic strip showing a group of students who are doing a project. Here we try to express the mood and feelings associated with each phase.

After each sequence, the user is presented with a choice of actions and strategies which will help them further in the information seeking process. By clicking on the button, the user gets immediate feedback on his/her choice and is able to click on links to further information if required.

This additional information is also available in the "toolbox" which contains guides in information searching techniques and strategies, search guides to specific databases and catalogues, evaluation techniques, study techniques and writing techniques. There is a short quiz after each section where the student gets immediate feedback.
The toolbox also functions as a reference work, where the user can pick and choose from the toolbox according to his or her needs.

Web design and information design

It is important to design a website or a tutorial in such a way that it appeals to the user and holds the user's attention. This is not always easy.

According to Nancy Dewald (Dewald 2000), it is possible to motivate the user to use a tutorial through:
- Interactivity
- Realistic scenarios
- Evaluation along the way
- Steered and self-steered routes
- Good navigation
- Overall views of the content

The general principles of information design are also paramount. Information design is not necessarily synonymous with graphic design. Information design has to do with usability.
> "If we find the website too difficult to use, or if we can't find what we are looking for, we leave". (Nielsen, 2003).

For example, a correct use of typeface, layout and graphics enhances the readability of a web page and encourages the user to continue to the next page.

- Typeface and type size which is easy to read
- Suitable contrast between the text and the background
- Short texts (10-12 words pr line)
- Short paragraphs
- Headings
- Lists
- Minimum of scrolling

   Graphics and illustrations that emphasize the message in the text enhance learning.

Information presented as a "3-stage rocket" is more likely to be read than detailed information. The user can choose to go deeper into the information through hyperlinks if he is interested.

We have attempted to follow these principles in making our tutorial.

Testing

In the last stages of the project, we tested out the tutorial on groups of students and academic staff. We used a combination of observation and focus groups as a method. Comments and actions during the observation tests were noted down and the discussions in the focus groups were tape recorded. The transcriptions from these formed the basis for adjustments and changes in the tutorial.

Publication

The tutorial was finally made public in January 2005. Several other educational institutions in Norway have linked it to their home page.

User education

At Telemark University College we are now working on the improvement of our user education and trying to see how we can incorporate the web tutorial in this. We are updating our teaching skills.   We are planning courses where we will teach information literacy as a process. This is not easy – we are, after all, only librarians not professional teachers. But it is essential that we dare to leave the safety of the passive transmission of knowledge – and cast ourselves out into a cognitive/constructivistic approach and let the students participate actively in problem solving and reflection.

Conclusion

Our conclusion is that it is possible for small institutions with limited resources to initiate and complete a project of this kind. It is important to:
- Release the project workers from ordinary duties
- Define your goals
- Decide on an educational approach
- Match the web tutorial to the library's teaching methods (or vice versa!)
- Follow principles for good information design and web design
- Have a good portion of enthusiasm

We do not yet know if we have succeeded in our attempt to make a tutorial that stimulates learning in information literacy. Time will tell. But it has been an interesting and valuable learning experience for we who have been involved in the project. I can recommend it!

Literature

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Links

Stord/Haugesund University Library
http://www.hsh.no/biblioteket/om_biblioteket/in_english.htm

Telemark University College Library http://www.hit.no/english/content/view/full/613

råd&VINK: Veiledning i informasjonskompetanse for studenter (Advice & Tips: Guide to information literacy for students) http://vink.hit.no/

The project's website http://www2.hit.no/bib/webveil/

SWIM (information in English)
http://www.aub.auc.dk/portal/js_pane/forside/action/ChangeLanguage/newLanguage/en;jsessionid=010DA969999A1EB3A82