

Access to Core Course Materials Project

The Dutch Study Pack Experiment Report

Final version

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April 2001

Summary: This report details the development of an interactive study pack for the Dutch department. The work formed part of the Access to Core Course Materials Project, which seeks to explore the possibility of providing course materials in electronic format. Dutch required assistance with developing a pilot interactive study pack that could be used in a bid for further funding. The Project Officer designed a basic version of the pack, which was then developed by Media Resources. This report outlines the developmental process, the problems and challenges that it presented and an indication of the likely costs involved in offering such a service. An interactive study pack lies at the more sophisticated end of what the Access project hoped to achieve; consequently the actual service that will be offered may be less complex than the model outlined in this report. This document replaces the report that was produced in November 2000 to include details about the evaluation work that was undertaken in March 2001.

1 Introduction and background

Prior to the launch of the Access to Core Course Materials Project, the Dutch Department approached Education and Professional Development (EPD) and asked for assistance to develop an interactive study pack for their students. Dutch were in the process of compiling a bid for funding from the Language Union based in The Hague to develop interactive learning material. In developing a pilot version of the study pack, they hoped to strengthen their chances of obtaining funding. The call for proposals closed on 1st October 2000 and Dutch wanted students to be able to test the pilot pack during the Autumn Term of 2000. These two factors led to a very tight deadline for the work which eventually had to be extended.

The Access to Core Course Materials Project was launched at UCL in July 2000 as a joint project between Library Services and EPD. The Project seeks to examine the potential of providing course materials in a digital format and is interested in any additional features that electronic materials could include, such as multimedia. The pack envisaged by the Dutch department fell into the more sophisticated end of the spectrum of what the Access Project was hoping to achieve and ideally a less sophisticated model would have been pursued first. However, given the overlap of interest and the enthusiasm from the Dutch department; the experiment was incorporated into the Project. The work was undertaken over the summer of 2000 given the Dutch department's deadline of 1st October and it was decided the less sophisticated model could be developed afterwards.

"The Dutch experiment", as it was referred to, was intended to be exploratory work to demonstrate full potential of providing course materials in a digital format. The second, less sophisticated experiment would digitise a selection of readings from the teaching collection and make this available to students for a trial period. This work, known as Teaching Collection Experiment will involve a second department. Staff and students in the selected departments will test both experimental systems and evaluation work will be undertaken. The pilot service launched as part of the Access Project will then be designed using the real-life experiences of these two experimental systems, in conjunction with the results from the needs analysis of departments across

UCL. The service offered to departments during 2001 is likely to incorporate elements from both the Dutch Experiment and the Teaching Collection Experiment.

2 Aims and Objectives

The Dutch department required a working interactive study pack to demonstrate the type of system they hoped to develop if further funding could be obtained. It was decided to base the pack around a 17th century poem, avoiding the need for copyright permission for the material. From the Project's perspective the experiment sought to explore the potentials benefits and problems associated with developing multimedia material. Therefore the Dutch Experiment had the following aims:

- To enable Project staff to learn more about the issues involved in developing interactive, multi-media material;
- To explore the resources currently available within the different departments of EISD, to establish where work might be most successfully undertaken;
- To act as a model for further work that the Dutch department might undertake if their bid for funding is successful;
- To act as a model for the pilot system that the Project would establish.

The aims of the Experiment would be achieved through the following objectives:

- To develop a self-contained study pack that would enable students to improve their understanding of the poem without requiring any further readings, or any guidance from the tutor;
- To incorporate material in different formats, such as text, image and sound;
- To make the pack available to students and staff within the Dutch department and undertake an evaluation of its success.

3 Devising the pack

The Access Project sought to explore the possibilities of co-operation between the four departments that make up Education and Information Support Division (EISD). Therefore, both Information Systems and Media Resources were invited to participate in the Dutch experiment and asked for advice. Before the pack could be devised several key decisions had to be made, most importantly about the format of the material. Consultations with key individuals were undertaken and a meeting arranged with an academic at The School of Library, Archive and Information Studies (SLAIS)

at UCL, who had developed a similar system. Given the timescale of this work, which coincided with the start of term, Information Systems were unable to provide any assistance at this stage. The short time scale in which to complete the work also meant that only a limited amount of assistance was available from other departments and most of the work was undertaken by the Project Officer.

A web-based system that could be viewed through browser software appeared to be the most suitable format in which to produce the pack. This would be the most straightforward to develop, particularly as the Project Officer had some experience of HTML. Using a web-based system it would also be relatively easy to mount the pages on the university web site and allow UCL staff and students to view the pages. Given the pilot nature of this service it would also be useful to allow individuals outside the College to view the material, to provide feedback. It was however, recognised that a future service might have to be password controlled. HTML would allow material to be updated as required. CD-ROM was the alternative method suggested, although this would have been more expensive to develop and less easy to update. Given the time and the level of resources available, it was decided this approach would not be pursued.

Media Resources provided invaluable assistance in the design of the site. They also have facilities to produce digital images and sound recordings, which the Dutch department were particularly keen to include in the pack. In the event, it was not possible to produce the sound file in time for the launch of the pilot pack, although space was made available, so it could be subsequently added. The Project Officer liaised with the Dutch department over the organisation and navigation of the site. The files were then passed to a web-page designer in Media Resources who improved the appearance of the site. Media Resources agreed to undertake this work as a good will gesture, although their funding structure is such that any further work would have to be paid for.

The following stages were undertaken to devise the study pack:

1. Proposal from Dutch department submitted to project staff and meeting held to discuss feasibility.

2. Text files created by Dutch department and map of the pack devised to show how files relate to each other.
3. Consultation with key individuals over format and design of site (Media Resources and SLAIS)
4. Media Resources digitise image (and sound file if time)
5. Basic web-page design undertaken by JS
6. Consultation with library IT staff to create an interactive image and improve site
7. Consultation with EPD web-page designer to learn new web-page design skills to improve site. Evaluation form included to obtain feedback when site is launched
8. Web searching to locate free images and clip art to make site more attractive
9. Consultation with Dutch and reworking of pack following suggestions
10. Media Resources improve overall appearance of pack
11. Consultation with Information Systems about CGI for evaluation form
12. Site launched from Dutch Department web site
13. Evaluation work undertaken

4 The Pack: an overview

The study pack is based around a 17th century poem entitled "Sonnet", written by the famous Dutch poet and author, PC Hooft. The idea is that students begin by reading the poem in its original form. They can then link to other versions of the poem, for example the poem in modern Dutch, in prose paraphrase and various English translations. A working version of the poem is also available, where each word of the poem is linked to a dictionary. There are also links to the author's biography and a bibliography of further readings. The poem's structure is examined and students can view an interactive visual representation of time that is similar to the poem. The pack aims to improve the students' understanding of the poem, by allowing them to read different translations of the poem and other related material. By including multimedia material, it seeks to make the learning process more enjoyable and effective.

5 Costs: staff time

Each of the stages outlined above has been costed in terms of staff time used. The following chart shows the cost of each stage and an estimated overall cost in terms of staff time. Resources are not included in this analysis:

Stage of Research	Details	Staff involved	Estimated staff time	Total time
1	Idea from Dutch dept and preliminary meeting with project staff	TH, MR, MO, JS	1.5 hours (x4)	6 hours
2	Text files and map of site created by Dutch	TH	10 hours	16 hours
3	Basic web-page construction from text files and map	JS	10 hours	26 hours
4	Consultation over site and digitisation of image	Media Resources	1 hour	27 hours
5	Creation of interactive image	JS / RD	3 hours (x2)	33 hours
6	More complex web-page design undertaken	JS	10 hours	43 hours
7	Clip art and other features added to pack	JS	2 hours	45 hours
8	Meeting with Dutch for feedback on current version of site	JS / TH	1 hour (x2)	47 hours
9	Revisions to pack undertaken	Media Resources	24 hours	71 hours
10	Copyright clearance for images / any text	JS	1 day*	
11	Proof reading of pack	JS	1 hour	72 hours
12	Pack launched on Dutch web site	JS / Dutch Administrator	1 hour	73 hours
13	Evaluation of the Dutch study pack	JS / TH	2 hours	75
Total staff time				75 hours

* It took a day to receive a response from the two web sites owners who granted permission for the images to be used free of charge. However, it would be very difficult to generalise about the time taken to obtain copyright permissions for any future service. It would also be unwise to assume that copyright owners would always grant permission free of charge.

Total cost in staff time to develop the Dutch study pack is estimated at 75 hours. This figure does not include the time taken for copyright clearance. However, it gives an indication of the amount of work involved in developing interactive materials.

6 Problems developing the pack

The pack was scheduled to be completed on 1st October 2000 given the funding application deadline. It was finally completed in mid November due to a number of unforeseen difficulties. This section outlines the problems that were encountered and considerations for developing any similar study packs.

The pack was passed to Media Resources in mid-September where a web page designer was assigned to work on it. He estimated that the work required would take approximately 4 hours of his time. In the event, 24 hours of his time were taken and the pack was delayed by over a month. This section attempts to catalogue the problems that were experienced and assess the likelihood of these problems being inherent in the production of any future electronic resources.

The Audio File

Placing a sound file of a reading of the poem in the pack was likely to be problematic, because sound cards are disabled in all College Managed PCs and students would have to use the file outside College. There are also no facilities available in college to make sound recordings and so this part of the work was undertaken by a Dutch lecturer using his home PC and software downloaded from the internet. Producing the file was relatively unproblematic, however the file was extremely large in size. It therefore proved problematic transferring the file onto the web site. In the event the study pack was launched without the sound file being available and it was decided this would be resolved at a later date. Attempts were being made to compress the file. Once the file was linked to the study pack it also needed to have full instructions for using explaining they could not use in on a College machine and that it would take a considerable amount of time to download.

Time available to Media Resources staff to work on project

The developmental work for the Dutch study pack was not a high priority for Media Resources, given that they were working on the pack as a goodwill gesture. Consequently, this meant that when other deadlines approached, the pack was sidelined and the other work took precedence. Throughout the period that Media Resources were working on the pack the designer frequently could not complete the work he had agreed before the next meeting due to commitments for other projects. This was problematic for the Project Officer and the Dutch department, as it often

meant they would attend a meeting to find the work they expected had not been completed. The problem was partly caused by the funding structure in Media Resources, which meant the designer was partly paid on a commission basis. It was also caused by the fact the work was being undertaken as a goodwill gesture and the Project Officer could not really use any leverage to speed up the work. If a formal agreement with Media Resources to undertake developmental work for study packs was costed into a future service these delays could be avoided. Therefore, delays of this nature were not an indication of an inherent problem in developing electronic resources.

Liasing with academic to edit material

Liasing with the lecturer from Dutch was an important part of the developmental work for the pack. It was also very time-consuming and a constant revision process. Meetings were scheduled where the pack was viewed by the academic and suggestions for changes made. A further meeting was then organised to view the changes. The subsequent meeting often resulted in further amendments. Throughout these meetings the Project Officer was present so that problems could be documented and she could adopt an arbitration role if required.

During the course of the meetings to discuss the content of the site, several points of interest were noted by the Project Officer. For instance, although the web page designer had the skills to produce the site from a technical point of view, close consultation with the Academic was required, primarily because of the need for subject knowledge. This was further complicated given that the pack was in both English and Dutch. The poem that was the focus of the pack had a very specific layout which needed to be maintained and special characters were needed to add accents and other punctuation to the text. Many of these problems were specific to designing material for a language course, and they demonstrated the importance of constant liaison between the Academic and the pack designer.

The editing process also revealed another problem with the design of complex learning materials. The designer included several sophisticated features into the site, such as a 'roll-over banner', to navigate through the site and various pieces of text incorporated images. This meant that when, at a relatively late stage, the academic

suggested what he considered to be minor changes to the navigation banner, these could not be completed. Certain features took a considerable amount of time to develop and changes to the text in a roll-over banner was not something that could be changed simply. At this stage the Project Officer acted as an arbiter between the academic and the designer, and it was agreed that certain amendments could not be made at such a late stage, without requiring an inordinate amount of effort. This indicated that certain decisions about navigational features and page headings need to be made fairly early on in the design stage. It stresses the importance of having a well thought out conceptual map for a study pack for it may not be possible to make changes of this nature at a later date.

Publishing the pages on the Dutch department site

Publishing the study pack on the Dutch department web site proved to be more difficult than anticipated. It was decided the pages would be linked to the departmental pages. However, this revealed that the UCL policy for maintaining web sites is not conducive to a number of people working on the site. Within a department only one person is given the web account and password. In the case of Dutch, this was the administrator, who left during the period of the project. This meant that a new password and account had to be acquired for the new administrator. It also meant that the web page designer could not put material on the web site himself and the work had to be done by the departmental administrator. Web-Support, a section of Information Systems, were contacted for assistance in this area and publishing the pages on a departmental site proved to be a learning process for both the web page designer and the Project Officer. A new link on the departmental pages was created to access the study pack. This process took slightly longer than anticipated because the departmental pages had been created by the former administrator and the new administrator was not familiar with the process.

Display problems

Once the pack was linked to the Dutch department web site a number of problems were noted when it was viewed under different platforms. The College is currently operating on Windows 3.1, although it is also possible to access a Windows NT environment if an individual has a special account. Although Media Resources had taken every care to ensure the site was compatible with a variety of different browsers within different platforms, the layout of the site was altered under Windows NT. To

rectify this problem it was necessary to decrease the font size twice and to refresh the pages. Certain small headings were still displaying incorrectly though. Students would be recommended to view the site using College Managed PCs in a Windows 3.1 environment to avoid these problems. It was decided some advice should be included in the pack to optimise its appearance.

7 Evaluation of the study pack

Evaluation formed a key stage in this experiment. The attitudes of staff who had developed the pack and students who had used it were gathered to assess the effectiveness of the pack in meeting its objectives. Given the small number of students in the Dutch department, a focus group interview was arranged to explore student's attitudes towards the pack and its success or otherwise as a learning package. To collect information from a wider sample of users an online evaluation form was placed at the end of the study pack. Responses would be e-mailed to the Project Officer for the period when the pack was live. Unfortunately the form proved to be an ineffective evaluation method and yielded a low number of responses. Therefore, all the information from students was gathered during the focus group. An evaluation meeting was also held for all staff who had been involved in the developmental process for the pack.

The Student's response

The focus group was held with a small group of fourth year students in the Dutch Department. Students were given a brief demonstration of the study pack to refresh their memories and then they were asked to discuss the various features of the study pack. The interview was guided by the Project Officer who compiled a series of questions as prompts.

General Impressions

The group conclusively stated that they liked the study pack. They found the lay-out lucid and the structure of the pack well guided. Features such as the working version of the poem and the sound file were commented on as being particularly impressive. The students were however, curious about why a poem by PC Hooft had been chosen for the pack. It was pointed out this poem is part of a Renaissance Literature Course which is currently not available. Students felt that the pack would be particularly useful when viewed in context and offered in conjunction with the relevant course and

perhaps other electronic study packs. Given that they had not taken the relevant course, they did not feel it was possible to compare the pack with a similar paper-based exercise.

Two of the students had used the pack in college cluster rooms. The third student had used the pack from home and consequently had been able to listen to the audio file. The students reported at having spent 15-45 minutes using the pack, although they thought to study it thoroughly you would need to spend a greater amount of time.

Design of the pack

All the students felt that the pack was suitable for self-study. They found the design to be simple and comprehensive and the banner down the left hand side of the screen made it easy to navigate. The structure of the pack helped them to understand the poem, although one student felt that the three prose translation section and the prose paraphrase were rather repetitive.

The earlier design for the pack that guided the user through the pack by a specific route were discussed with the students. Although a more prescribed route might clarify the relationship between the different versions of the poem, the students thought it would make the pack more hierarchical and less flexible. This would also increase the time it would take to load the pack and also make it more difficult to locate particular pages. The flatter structure that the pack designers had chosen was agreed to be the most suitable.

The level of graphics and text was thought to be appropriate. The students stated that given the intellectual nature of the exercise it was important not to overload the pack with graphics. These would also make the site slower to download. One student suggested that a graphic-free option might be offered to speed up the transfer time. It was agreed that some of the fonts are a little small, but that font size could be altered depending on the settings of a browser.

Students particularly liked the way they could follow up areas of interest within the pack or just dip into areas they found less interesting. They thought this made the pack more versatile and suitable for a wider audience. The group felt there could be more links to other web sites outside the pack as these allowed students to go off at a

tangent and explore issues that interested them. For example, one student was particularly interested in learning more details about the poet's wife whom the poem was written about.

Criticisms of the pack

There were relatively few criticisms of the design of the pack, although students did comment that the font size made it difficult to read some of the text. They also felt that the pack could be made more interactive, so they were not simply consuming information. It was also suggested that the links to external websites should open in a new window to make navigation more straightforward.

Students commented that at several points in the pack they were unclear as to whether they were supposed to undertake specific exercises. For example after the three verse translation it is suggested that students might like to try to translate the poem themselves. They felt these sections should either be part of a more formal assessment process or not included at all.

Comments on particular areas of the pack

Two of the three students had not been able to hear the sound file as they were using college PCs. However one student used the pack at home and had been able to listen to the reading of the poem. He thought it was an excellent feature aside from the slight echo on the recording which was slightly distracting.

All the students agreed that the working version of the poem was well designed but also a valuable learning experience. Similarly the visual representation was felt to be attractive and helped their understanding of poem. They particularly liked the 'roll over' function in both these pages that allowed the relevant text to be displayed as the cursor was moved over the screen.

The students found that having the poem available in several different versions, for example in modern Dutch and with an English translation was particularly useful. The three verse translation was slightly confusing, as students were not sure if one definition was supposed to be better than the others, given that they were numbered from one to three.

Suggestions for the future

Students suggested several areas where they thought the pack could be developed. One suggestion would be to link full-text articles in the bibliography to the study pack so they could be read alongside the poem. The students felt this would be useful and would offer further scope for exploration if someone was particularly interested. The Project Officer was particularly heartened to hear this point, given the wider remit of the Access project.

Students were keen for the pack to include an element of assessment and possibly some tasks that they had to undertake. The inclusion of some multiple choice questions at the end of a section was suggested. However, in addition to more formal assessment, one student thought that it would be useful to have a narrative, rather like the lecturer's voice, that would guide the reader through the pack. This narrative could also be used to alert the reader to specific ideas and focus attention on particular aspects of the pack. The student thought this would make the pack more similar to a lesson where a lecturer wouldn't simply give you a presentation on Hooft, but would ask questions and draw out the right answers at the start.

Finally students thought it would be useful to link the pack to a greater range of resources on external websites, such as additional information about the poet or the genre. A link to resources in the UCL electronic library would also be useful, but they recognised that this might not be technically feasible, given the current set up of this system. Students pointed out that in creating a greater number of hypertext links, the pack would need to be updated more regularly to ensure the links still worked. Linking to the websites of other academic departments and similarly reputable sites was therefore suggested.

Conclusion

It was difficult for students compare the study pack to a paper based exercise that might be undertaken given that they had not taken the Renaissance Literature course. However, students felt there was an added novelty to having an electronic pack which grasped their interest initially. They also agreed that the pack had been well designed and included a number of interesting features. They had a number of useful suggestions as to how the pack could be improved and developed further, including

making it more interactive and have a greater element of narrative. It was agreed that the evaluation session had been useful for all the project staff.

Staff evaluation

Project staff also held an evaluation session where all members of the team provided feedback about their experiences of developing the study pack. Comments from the web page designer in Media Resources the Dutch lecturer and the Project Officer were particularly useful.

The Web-Page Designer

The web-page designer recognised that many of the technical problems he encountered were related to being relatively new to web-page design; his background is actually print design. Nevertheless, both personally and for Media Resources he had found it useful to be involved in the project because it broadened their range of experiences. For example, it was the first time the Department had created audio files and made them available from a site to download. The designer felt that scaling up the project would require a member/s of staff with a broad range of technical skills, including web page design, knowledge about databases on the web, knowledge about different file formats and creating audio files. It was also clear that the person would need to have a set amount of time to work on such projects. It emerged from the discussions that a team in Media Resources had been working on the website, supporting the designer.

Media Resources were keen to build on this project and the new skills they acquired. The designer estimated that this type of work would take approximately 25 hours of his time. During this time a template of a site with banners and some functionality could be created. Extra time would be needed to include additional features, such as the audio file in the Dutch study pack. If websites for different departments were created these would need to be developed individually. It would be necessary to ensure the material was tested on different browsers and platforms to avoid the display problems that arose with the Dutch site. However, there might be problems if this service was scaled up due to a shortage of people with web page design skills. Additionally there is a conflict in Media Resources in terms of staff time between the bureau work (producing slides, posters etc) and project work such as this. Bureau work often means working to tight deadlines and this means that project work often

has to take a back seat. To scale up the service there would need to be more staff available and they would need protected time for web development. It was estimated that if another member of staff was also employed it would be possible to cope with 15-20 of this type of projects every year. This would assume that demand was spread out throughout the year, which might require ensuring departments gave a certain length of notice to manage work-flows at Media Resources.

The Academic

The academic was on whole very happy with the development of the study pack. He thought the site looked professional, although he was concerned it was too text-based. He had found it difficult to visualise what the pack would look like during the development process and whether it was pitched at the right level. The evaluation work with students helped to settle some of these concerns. However, the lecturer would have preferred the pack to be tested with a small number of people before it was made available on the Dutch department web site.

Another problem that the academic cited was caused by the work being undertaken on a goodwill basis. He was unsure what was reasonable to ask of both the web page designer and the Project Officer and was aware of the pressures they were under from other areas of their work. It was suggested that a future service might need some form of 'Service level agreement' so that each side had an indication of what was expected of them.

The development process meant the lecturer now has a better idea of what is feasible and the technical problems associated with developing this type of material. He thought ideally the study packs would be developed by a team of people based jointly in academic departments and centrally supported services. There would need to be some overall co-ordination to ensure materials looked similar and were linked to each other. The lecturer felt this should be done by someone within a department, given the intellectual content of the packs. However, he also felt that it would be appropriate for central services to have some kind of management role in the process.

The Project Officer

The experiment revealed that the project officer had an important role as a facilitator particularly at the start of the work and also at the evaluation stage. It was nevertheless agreed that too many meetings had taken place during the developmental

stage of the work. Instead of this it might have been better to have a large meeting involving all interested parties at the outset and then to review the development after a set period of time. Additionally the project officer felt that during the middle stage of the work she could contribute very little to editorial decisions. However, it was agreed that this was a learning process and could not have been anticipated beforehand. Other members of the team found it was particularly useful to have the project officer facilitating and co-ordinating their work. The web page designer found it useful because he had someone to bounce ideas off without going directly to the academic. The Project Officer's initial work on the site also meant that he had a rough draft of the pack to work with.

In conclusion, all the staff felt they had benefited from developing the study pack. It enabled them to document the stages of development, the expertise and resources required and the likely problems associated with this type of work. Additionally, the end result was a working interactive study pack which could be tested with students and used for publicity purposes for the department and the Access Project.

8 Conclusions and challenges

This experiment was designed to explore the potential benefits and problems that are involved in developing an interactive study pack. The evaluation was an extremely valuable experience for all involved. Student feedback suggested that despite the financial and time constraints of the project, the end result produced a valuable learning resource. Staff evaluation also revealed that the project had been a useful experience and gave them an insight into the expertise and other necessary requirements for developing these types of resources. This following section considers the resource implications of launching such a service, the problems it might bring and some possible models that the Project team might adopt.

Resource implications and other problems

The Dutch experiment suggested that the resource implications of launching such a service might be considerable. This was because a "concept map" of the topic, provided by the participating academic, largely determined the structure of the initial pack. Consequently, the design of the pack was topic-specific, suggesting that other packs were also likely to be subject specific. It was hoped that this experiment might

provide a model, which could be applied to other departments to develop interactive material. While it might possibly be useful for other Modern Language subject, this experiment concluded that the Dutch model was less likely to be useful for other subjects such as the sciences. The need for constant liaison between the Project Officer and the academic also meant the pack was resource intensive. The experiment suggested that other study packs would have to be devised with close consultation between academic staff and the pack designer.

One area that was known to be particularly problematic was copyright clearance. The experiment sought to avoid many of the problems by using 17th century material which was out of copyright. However, it was decided to illustrate the pack with various images, several of which were within copyright as they were taken from the web sites of other organisations / individuals. E-mails were sent to the website administrators to request permission to use the images and in both instances permission was granted within 24 hours and free of charge. Nevertheless, if copyright material is included in study packs it is not always straightforward to get permission to use the material. It can take considerable time to gain copyright clearance for material such as journal articles and chapters from books. This will involve staff time to track down the copyright and will add extra time onto the production while waiting for copyright clearance. Copyright fees will also have to be costed into any future service.

During development work with Media Resources, the web-page designer altered the navigation through the web site. Prior to this the Dutch department had developed a conceptual map that identified a specific route through the pack. The model produced by Media Resources allowed the user to choose their own path through the pack. While this less hierarchical design was preferred by the students, they would welcome more narrative to accompany the pack, which has implications for the time it takes to develop the pack. It took considerably more time to develop the site with a specific route through it, as this had to be devised with close consultation from the academic.

Access to this pack was unrestricted because it did not include copyright material and also given the pilot nature of the work and the need for feedback from interested groups. However, if the service was launched properly and included copyright

materials, it would be necessary to restrict access to only registered students at UCL, and possibly only those students on the particular course that the pack related to. Password controlled access to the site would involve additional developmental time and more administration, as students would have to be allocated passwords. This issue would need to be considered.

A number of the problems outlined in Section 6 were exacerbated by College policies adopted by Information Systems. Clearly there would need to be a high level of negotiation and discussion with this department if an interactive study pack service was to be launched. Issues such as the allocation of departmental web accounts, the provision of multimedia (particularly with regard to sound files) and the Windows 3.1 and NT environments would need to be discussed. It would be important to get support from Information Systems, both in terms of practical assistance and an understanding of the requirements for such a service.

The Nature of the Service

The four departments that make up EISD (Library Services, Education and Professional Development (EPD), Information Systems and Media Resources) could all potentially be involved in developing electronic multi-media learning resources. At this stage it is not necessary to identify in which division the service would be based. However, this section broadly outlines the nature of the possible service and the contributions that each division might make if such a service was launched.

The Project Officer worked with various people in different departments of EISD to produce the pack, given the wide range of skills required. It would not be practical for one person to have all these skills and this Project sought to utilise the expertise currently available in the different departments. This experiment suggested that if an interactive study pack service were developed, there would need to be a dedicated member of staff to develop electronic course materials. However, given that there is existing expertise in the various departments of EISD, their role might be more that of a co-ordinator, to liaise with an established group of contacts. Aside from liaising with departments, the co-ordinator might be required to deal with a range of different departments, such as:

- The Subject Support Unit in Library Services to seek copyright permissions for required works
- Library Services for organisation of information in study packs
- Media Resources for web-page design and digitisation of images / sound
- Information Systems to provide password access and advise on other technical matters
- EPD for advice on pedagogical issues of electronic resources

The Dutch experiment demonstrated that by utilising existing resources and skills available across EISD it would be possible to develop interactive study packs. However, the level of resources required for this type of service would undoubtedly be greater than that required to develop non-interactive material. This type of service would also require a dedicated member of staff to work with departments to develop the study packs and to co-ordinate assistance from other parts of EISD. Introducing copyright material in the packs would cause an additional demand on resources. The Teaching Collection Experiment would involve copyright materials and therefore the additional costs could be best assessed once this next stage of the research is completed.

The level of demand for this type of material is as yet unknown and will become clearer once the needs analysis is completed. Student responses have been highly positive and at this stage, it would be fair to say that the experiment was successful, although given the resource implications and problems identified above, at this stage there are some reservations about offering a full-scale service to produce interactive materials.