

## **OVERCOMING THE 'NOT INVENTED HERE' SYNDROME – EXPERIENCE WITH SOURCING EDUCATIONAL MULTIMEDIA DEVELOPED ELSEWHERE**

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### **ABSTRACT**

*Universities are increasingly turning to multimedia to assist teaching and learning to improve productivity of learning and to improve the quality of learning. Often the initial response is to create an original product regardless of the fact that many other institutions are doing or have created something very similar. There are now steadily growing but disparate repositories of multimedia educational products developed elsewhere on the market with potential adaptability and use within university subjects.*

*Given the considerations surrounding cost effectiveness involved in the development of a new multimedia educational product for universities it is essential that developers do not “re-invent the wheel” and create a new product when there might already be a product in existence developed elsewhere that meets the required goals of the intended multimedia teaching and learning experience or is very close to those goals. The process of reviewing existing multimedia resources in the relevant content area is also a current needs analysis requirement when making an application for a National Teaching Development Grant (which proposes a significant software development such as multimedia) from the Committee for University Teaching and Staff Development.*

*This paper is based on the two and a half years of experience that the author has had in the role of Information Officer at the Institute for Interactive Multimedia, UTS assisting academic staff to locate existing educational multimedia resources suitable for use and adoption to varying subject area needs as a first stage in the multimedia development process. It will discuss the challenges of conducting a thorough search investigation for educational multimedia in liaison with academic staff (often determined by specific criteria such as academic level, content scope, learning objectives, delivery options and hardware/software requirements). A suggested methodology for carrying out a search using a range of online and print resources both local and international and some lessons learnt in this process will also be proposed.*

*Using examples of actual search requests from UTS academic staff some problems encountered such as obtaining demonstration versions of software for preview and evaluation will be highlighted. An overview of varying responses and actions that resulted from individual educational multimedia resource reviews will be given which indicate the extent to which the ‘not invented here syndrome’ is being overcome by some university academic staff interested in adopting educational multimedia.*

### **KEYWORDS**

Courseware, educational, multimedia, products, software, searching, sourcing, resources.

## **1. INTRODUCTION**

Universities are increasingly turning to multimedia to assist teaching and learning, to improve productivity of learning and to improve the quality of learning. Here in Australia, many universities are also implementing and encouraging the use of multimedia as one of many flexible learning strategies.

There is also an increased level of educational multimedia products being produced in Australian universities to be used for teaching and learning applications. Often there is greater enthusiasm for developing a new multimedia product tailor made for the teaching and learning requirements than adopting an educational multimedia product developed elsewhere that may meet the same (or close to the same) objectives.

Often the initial response is to create an original product regardless of the fact that many other institutions are doing so or have created something very similar. There are now steadily growing but disparate repositories of multimedia educational products developed elsewhere on the market with potential adaptability and use within university subjects.

Given the increasing requirements for accountability in terms of the costs involved in the development of a new multimedia educational product for universities it is essential that developers do not 're-invent the wheel' and create a new product when there might already be a product in existence developed elsewhere that meets the required goals of the intended multimedia teaching and learning experience or is very close to those goals.

The process of reviewing existing multimedia resources in the relevant content area is a current needs analysis requirement when making an application for a National Teaching Development Grant (which proposes a significant software development such as multimedia) from the Committee for University Teaching and Staff Development.

It is expected that applicants for National Teaching Development Grants in this area produce the results of their review of existing resources in their content area. In the past academics have frequently reported the difficulties in finding and obtaining what has already been produced by others.

## **2. SOURCING PRODUCTS DEVELOPED ELSEWHERE**

For the last two and a half years I have been working in a unique position at the Institute for Interactive Multimedia, UTS employed as Information Officer, assisting academic staff from various faculties to locate multimedia products suitable for use in their teaching and curriculum.

The process initially involves a period of liaison with academic staff members to discuss their multimedia needs, to establish the nature of the subject matter and determine why they wish to use multimedia in teaching and learning (this information later informs the searching process). Often the initial meeting also involves someone experienced in the use of multimedia in teaching and learning who can advise on appropriate aspects of multimedia to 'look out for' that would be suitable to the teaching and learning needs of the academic and their students.

Establishing the nature and scope of the subject matter is perhaps one of the most vital and difficult information gathering tasks of this role. Developing a thorough understanding of the desired subject matter to be covered in the multimedia product is essential to extracting keywords that enable the search process. Ascertaining what an academic actually means by a term can also be a challenge particularly if you are totally unfamiliar with the subject matter.

It is also imperative to establish the academic level required or the scope of the subject to be explored in the multimedia product. This is often difficult to determine, particularly when looking at products developed outside Australia with different curriculum levels. (One will often become aware when searching the internet for educational multimedia that there are many more published projects available for primary/secondary levels than there are for tertiary levels particularly by commercial publishers. The majority of commercially-published titles are usually designed for first year level). Ascertaining what an academic actually means can also be a challenge particularly if you are totally unfamiliar with the subject matter.

The type of learning designs used in multimedia educational products are often something that the academic will often see as of paramount importance when trying to implement a product developed elsewhere within their curriculum. The value in using a multimedia product within the teaching and learning objectives may be to widen the learning activities or experiences through simulations, animations or interactivity. There may also be specific features needed or desired in a product that enable it to be customised by academic, where perhaps new material can be added such as questions, activities, quizzes, images or sounds. Many products are now offering these added features that may become another consideration for the search selection of a suitable product.

There are also other more practical criteria that need to be formulated before the search for an appropriate multimedia product may be undertaken. Important questions need to be answered such as:

- What hardware and software will the educational multimedia products be expected to run on, or more simply, what resources or minimum/maximum configurations are available?
- Will the delivery method be CD-ROM or web-based and what platforms are available?
- Can the product run over a network or be used by multiple users and if so will it slow down too much? (as is often the case with many products using audio and video).

Cost is also a major factor when evaluating an educational multimedia product to be adopted by an institution, although this criteria is more than often less specified by academics at the liaison period, which could suggest that they are more interested in seeing exactly what is out there before worrying about how to pay for it.

Once the criteria for the most suitable product have been established an investigation may begin. In my role as Information Officer I have developed a specific methodology for searching for educational multimedia resources that not only draws on past experience but has been informed by a gradual level of exposure to new resource repositories and the collection or resource 'starting points'. My work has not been largely influenced by any established theory or methodology of information or resource gathering. I have instead concentrated on what works for this medium. This work also is largely influenced by what is available as a resource through the internet which also includes the location and ordering of print catalogues and resources that are not available as a direct information source on the world wide web.

## **2.1 THE METHODOLOGY EXPLAINED – MULTIPLE STARTING POINTS**

It is important to note that the exact nature or method of a search strategy is greatly influenced by the criteria that informs the search. Generally speaking a search usually combines various different information sources/methods including for example: Hard print catalogues; online databases; postings on relevant online discussion groups. The main reason for using a range of information sources is that there is no one exhaustive catalogue of educational multimedia products available. Therefore you must 'cast your nets wide' to feel confident that you've made a thorough investigation.

Steps to take:

- Search existing databases and clearinghouses of educational multimedia and start locally. You need a knowledge of these in the first place, e.g., the Australian Uniserve Clearinghouses, CTI (Computers and Teaching Initiative ) online and print project catalogues, Educational multimedia review websites, Courseware and educational multimedia developer organisations online course databases such as the members course databases at WWWDEV (World Wide Web Courseware Developers) and Maricopa Center for Learning and Instruction (MCLI) websites.

- Check through the latest and previous publications of awarded National Teaching Development Grant Projects administered by the Committee for University Teaching and Staff Development (even if the project isn't available yet it may be of use to you in the future and you will know that something is being developed in that area).
- Use commercial academic and other publishers of multimedia titles online catalogues. (These are increasing in number and often include a separate multimedia catalogue, such as McGraw Hill and Interactive Prentice-Hall and Amazon.com).
- Investigate print catalogues for educational audio visual materials and Australian multimedia print catalogues (these are also available online) e.g., Educational Multimedia Australia's 1997-98 Tertiary Audio Visual Catalogue and the Australian Film Commission's Multimedia Catalogue.
- Use available online discussion groups/lists & newsgroups relevant to educational multimedia and the subject. These are valuable tools as you can spread your investigation wide and use other people's evaluation and experience with the educational multimedia product as a step in evaluation. There are lists dedicated to educational multimedia courseware such as 'WWW Courseware Development' and 'ITFORUM' as well as many lists available to individual academic subjects. You can find them by searching a discussion list directory such as 'Liszt: Searchable Directory of email Discussion Groups' or 'Tile.Net'. These are some of the most useful resources I have had experience with.  
  
\*A word of caution though. It is important to learn the etiquette of the particular list and structure your question to the group in an informed way to obtain useful responses. It's always a good idea to lurk on the list for a little while to see how it works. Most list subscribers are happy to respond with suggestions or share their experience or knowledge of an educational multimedia product provided they know exactly what you are looking for. If you are specific you will also eliminate inappropriate responses.
- Construct an online search strategy and use a search engine on the world wide web. You need to decide what search engine or directory is most appropriate for the resource you are looking for and use the most appropriate key-words. Key-words such as 'multimedia', 'interactive', 'CD-ROM' and 'software' combined with key-words relevant to the subject usually returns hits that put you in the area, but even if one of these does find a multimedia title on the subject it's much harder to specify the learning or academic level or the resource in the initial search request. There are quite a few web resources and books dedicated to establishing effective search strategies which can help you to save time and effort with online searching.

### **3. OVERVIEW OF SOME SEARCH PROJECTS**

Over the last two and a half years various search investigations have been undertaken from a range of different faculties and subjects areas. Some of the most notable which illustrate the diversity of search requirements include:

- The compilation of educational multimedia resources available for the study of Least Squares Regression/statistics requested by the Faculty of Science.
- Search investigation for an educational multimedia product suitable for teaching students of Nursing about Labour Management and Normal Delivery.
- The creation of a typography for educational multimedia language learning resources suitable for use in self accessed multimedia language learning laboratories requested by the Institute for International Studies.
- A selection of online courseware available for the teaching and learning of Delphi Forecasting techniques and teambuilding skills requested by an academic in the Faculty of Engineering.

- The compilation of various online and CD-ROM based multimedia alternatives to actual animal dissections used in Science teaching requested by the University Ethics committee.
- Search investigation for an educational multimedia product or computer aided learning package suitable for exploring the lifecycles in various parasite groups through interactive case studies.

### 3.1 TWO SEARCHES DISCUSSED

#### A) A search for educational multimedia language learning resources suitable for use in self-accessed multimedia language learning laboratories requested by the Institute for International Studies.

In the later half of 1997 the Institute for International Studies approached the Institute for Interactive Multimedia requesting information about existing interactive multimedia language learning software that would be suitable for use within self-accessed multimedia language learning laboratories planned to be established within the University. Described as 'self-accessed', the centres were intended to be used for both individual unsupervised study and practice of languages as well as capable of integrating multimedia into classroom activities.

The University planned to offer languages including Chinese (Mandarin and Cantonese), Japanese, Thai, Indonesian, Malay, French, Italian, German, Spanish and ESL. The centres would enable students to study and practice these languages using a variety of language learning software primarily developed elsewhere. Since the centres were still at the planning stage when the request was made to investigate the range of suitable software, the results of this large scale review would have a twofold function by:

- supplying information useful to the actual physical planning of the labs (eg. The hardware requirements, system software and configurations that would be most compatible or run the widest range of suitable language learning software, the other peripherals such as audio headsets and microphones that might be needed to use these products, the site licence costs and the total budget estimate for software that would be needed);
- supplying an actual typography of existing language learning software developed elsewhere suitable for use in language learning laboratories that:
  - includes details about academic level/content scope (from beginner to advanced);
  - indicates availability of software for language assessment and self testing;
  - indicates the availability of occupational specific software for the required languages;
  - identifies word processing software for the required languages;
  - specifies the software's ability to run over a network;
  - indicates site licence estimates and individual cost of the product;
  - provides a categorisation of the product's language learning focus such as grammar pronunciation, vocabulary acquisition and communication activities etc; and
  - includes a demonstration version of the product where available or information (or a link) to where this may be available.

Many of the above points formed the basic criteria for the search investigation. Some criteria brought about challenges in obtaining absolutely accurate results. For example, the need to source software in a range of academic learning levels (from beginner to advanced). Often it was difficult to make a confident assessment of the academic or learning level due to limited documentation about the product, unfamiliarity with the subject and inconsistent standards of learning level between publishers and between Australia and the place of production. Generally, university produced products were far more informative in supplying documentation about learning levels and styles than commercially produced products.

There were other more specific criteria that need to be matched with the sourced products such as the platform. All products had to run on Windows although cross platform hybrid products were included in the compiled review. It was also preferable that the product could be run over a network or that it could be sold with a site licence for multiple users.

The results of this large scale review were compiled into a report and submitted to the Institute for International Studies to be used in planning and further research. It is interesting to note that over the duration of the search other contacts and information were uncovered that also influenced the planning activities of the multimedia language learning centres. Contacts made through computer-aided language learning discussion lists gave invitations to visit their labs, provided evaluations of products and suggested databases of products and other exemplary centres to visit.

Postings on appropriate discussion lists were by far one of the most useful search strategies to this investigation, although some preparation, such as research into the nature of the list and how to find it was necessary. Many commercial publishers were keen to send demonstration versions of their products for evaluation at no cost as were developers at other institutions who were also keen to discuss the product and answer questions as well as to provide detailed documentation. Many educational multimedia products for language learning provided downloadable demonstration versions from their website. Acquiring a demonstration version of a product (or knowing how to access one easily) greatly influenced the selection and categorisation of a product within the search results.

Both the investigator and the academic responsible for requesting information about the multimedia language learning software were surprised at the vast number of products available from different sources. It was extremely useful to learn of organisations and associations dedicated to this topic and use their WebPages as starting points for the search. Some had even included searchable databases that included reviews and evaluations of the products which made the search a lot more time efficient.

**B) Search investigation for an educational multimedia product or computer-aided learning package suitable for exploring the lifecycles in various parasite groups through interactive case studies to be used in the study of parasitology.**

In Early 1998, an academic from the Department for Cell & Molecular Biology, Faculty of Science visited the Institute for Interactive Multimedia to obtain advice about developing an educational multimedia product for use in the teaching and learning of parasitology. Reasons for interest in using multimedia for this subject included a need to illustrate the life cycle stages of parasites in the context of their activity, habitat and effect in hosts as well as to implement some element of flexible learning in the subject. It was also agreed that the use of case studies would be a desirable teaching and learning strategy. Multimedia may also provide a way for students to visualise the parasites at their different life cycle stages and the effect to their hosts without using actual expensive specimens.

It was decided that before any further discussion of development was to take place a thorough review of what already might be available in the field should be compiled. Once again a meeting with the academic established a criteria for the search which included the desired learning design (such as case studies), the content/scope of the subject matter (such as the exploration of the parasite life cycles) and the type of desired media (in this case high quality images, or animations would be suitable). Another requirement was to find resources with current information about the prevalence or incidence of parasite-related disease.

Initially most of the web searching that was performed brought back results that included parasite image databases, interactive encyclopaedias or web-based tutorials that didn't really cover the learning needs or be used consistently or reliably. Further meetings with the academic eventuated in the searching and use of print journals dedicated to the use of computers in parasitology. The journals produced results closer to the aim of the search as they provided evaluations and documentation not only on commercial products but also on products that were in the process of being developed at other institutions. This step was also an important lesson for the investigator who had, until this point, not considered searching print academic journals related to the use of computers and the subject as a starting point to a search.

Further refinement of search terms after a greater knowledge of the subject matter enabled more online searching of both medical and veterinary science courseware websites. One of these sites listed a product that seemed the most suitable found so far. This product (a CD-ROM) was current, had been developed by a large international university department and was distributed by a large well known publisher of medical resources. It was also advertised on the university department's website. Although both the institution and the publisher advertised the product with brief descriptions at their website and listed its individual price, neither gave a site licence price or indicated the availability of a demonstration version of the product.

Obtaining a demonstration version and detailed documentation for the above-mentioned product became a challenge to the successful initial evaluation of how useful this product really might be and the quest for this information consumed a lot of time and effort.

- A post had to be made to an email contact listed on the publisher's homepage to try and find a suitable Australian contact or distributor.
- A reply was then received that supplied an Australian contact.
- Another message was then sent to the publisher's Australian contact (note the publisher didn't forward the message) requesting a demonstration version of the product .
- A reply was then received from the publisher's Australian contact that stated the individual price of the product and that they did not have demonstration versions available.
- Another message was then sent requesting any demonstration of the product (in the Australian publisher's office if possible) it would be pointless to purchase the product without evaluating it.
- The publisher's Australian contact then phoned to say that he could not demonstrate a copy and was unable to even order one on our behalf. Unless the product was ordered and paid for in advance there would be no way for us to evaluate it.
- We would need to buy the product and return it after evaluation in hopes of receiving a refund.

This whole scenario highlights inconsistencies in the ability to obtain demonstration versions of software from commercial suppliers and contrasts greatly to experiences that I have had with obtaining demonstration versions of software from other institutions or academics. An exception occurs where there are unclear copyright arrangements.

The search for a suitable product continued through the use of online discussion groups relevant to the subject area. A message was sent asking for anybody's experience with the above mentioned product as we were unable to obtain a demonstration version of it. We also requested news of any other products that were known that specifically used a case study approach in the learning design. Several responses pointed to two new products that had not been found in the previous search as well as some favourable comments about experiences with the product for which we could not obtain a demonstration version.

Interestingly the two newly suggested products published by smaller association based publishers were much easier to obtain demonstration versions and documentation for than that of the large commercial based product above. The demonstration version of one of these is being evaluated at the time of writing this paper.

#### **4. CONCLUSION**

The 'not invented here' syndrome is being overcome by some academics interested in the use of educational multimedia products. It is however not an easy syndrome to overcome due to the time and resources required to thoroughly investigate the existence of potentially useful products developed elsewhere. Although this paper has only given detailed overviews of two search investigations undertaken, they do illustrate the degree of effort, time and skills required to achieve a level of confidence that the investigation has been somewhat exhaustive in its exploration of the area. There are many problems to overcome in searching for educational

multimedia such as the acquisition of demonstration versions of the software for accurate evaluation, the problems involved in unclear copyright arrangements of some products sourced for demonstration, and the problem of how to actually find non-commercially produced products developed at other institutions that may be available for use elsewhere but not extensively advertised.

Probably one of the biggest problems associated with overcoming the 'not invented here' syndrome is 'time' rather than 'attitude'. Academics rarely have the available time to carry out extensive searches or plan them effectively. One solution to this problem is to use a professional resource such as the one illustrated by my role throughout this paper. Unfortunately not all universities have a resource available to assist with the specific location of educational multimedia products like the ones I have described. Some suggestions listed below may make the task of sourcing educational multimedia products developed elsewhere less time consuming in the future.

- The first suggestion would be the call for a more unified approach to the creation of an educational multimedia product database (available and searchable for Australian-made products). The database might be a reworking of the Uniserve Clearinghouses formerly administered by the late CAUT (Committee for the Advancement of University Teaching. These clearinghouse sites could encourage a wider process of review and evaluation and act more as a centralised source of educational multimedia product 'search jump points' within the subject area.
- To save time during the search process, use a search engine as a last option. Searching the web without an appropriate strategy can actually waste a lot of valuable time. Use available catalogues first, collect resource starting points and use relevant discussion lists with forethought.
- If you are a developer of a product and are considering making the product available for potential use by others, encourage review and evaluation of it within a wider network and publicise its existence in publications where other academics may find it.

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