The Web as a Resource for Property Educators[*]

by

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Technology is "...the knack of so arranging the world that we don't have to experience it."
Max Frisch, ***Homo Faber***, San Diego: Harcourt Brace, 1994.

Traditional economics was based on the notion of scarcity. The opposite is the case with the Web, instead of scarcity of supply there is scarcity of demand. The main commodity in limited supply is structured Web users who can be induced to spend sufficient time at a particular site and get them to regularly return.

In contrast to physical resources such as oil or real estate there are no physical limits to the Web, computer power and storage continues to grow while cost decreases at an unprecedented rate. There is an infinite number of bits in the universe and virtually bottomless hunger for valuable information and knowledge. The bit-based landscape of the Web acknowledges no national boundaries and makes the ideal of the totally free market economy a good deal more than a mere virtual reality.

Evolution of the Network of Networks

Immediately after the Second World War Vannevar Bush, then head of the Wartime Office of Scientific Research and Development, began to take an interest in the global sharing of information and noted that "Instruments are at hand which, if properly developed, will give man access to and command over the inherited knowledge of the ages."[1] Bush goes on to discuss the growth of available information and our inability to structure and organise this information. He envisioned a system similar to the way in which a human brain worked, constantly associating one idea with another — a searchable, personal storehouse of knowledge he called the "Memex".

The integration of a number of key enabling technologies; computers, television and telecommunications, will provide a strong stimulus for new modes of delivery in education. A recent article in the Australian newspaper states,

> *"Schoolteachers are doomed. The writing is on the blackboard.... we can expect to see formal education sold by satellite, just like any other product. According to an information technology acquaintance, Disney, Rupert Murdoch and Ted Turner are poised to pick up the chalk and redraw the boundaries of education...."*[2]

The article also points to the advantage of scale economies and the ability of these multi-nationals to "hire the best academic minds available – Nobel prize recipients, professors who are master's of their universe."

Some basic structures are already in place to provide a basis for an international curriculum; international comparisons are frequently made in areas of literacy and numeracy and common textbooks are used for courses in a particular discipline offered in different countries. Individual institutions throughout the world draw on these resources in setting their own standards and in putting together course offerings.

There are a number of factors making the emerging educational environment different to what it has been up to now. The major catalyst pushing education in this direction is globalisation. Globalisation, made possible by technology, is already an economic reality, the world's financial markets instantaneously respond to local and regional events making the focus of attention the world economy rather than local or national economies. The unrelenting pressure of free market capitalism ensures that only the

most economically efficient producers in the world endure, an endurance which is predicated on the best available technology. The growing adoption of the Internet as the major form of interaction between the different groups in society has quickly made this technology an important key to the future for most organisations. In the words of one writer "... the Web is the pair of running shoes that can keep you ahead of the ferocious forces of change."[3]

Television, radio and other assorted modes of distance education have been with us for many years, however, they have not become dominant modes of delivery. The advent of the Internet and more specifically the Web, which is itself a progression of technology, has changed all that. Traditional media offers content broadcast from a single source whereas the Internet requires you to build content from the huge resources it puts at your disposal. The interactive nature of the Web, coupled with the dramatic improvements in electronic communications and the techno-cultural nature of modern society will have an irreversible impact on education.

> *The skills of the digitally literate are becoming as necessary as a driver's licence. The Internet is the fastest growing medium in history–like it or not, it will affect you and those around you at home and on the job, from the merging of your television set's images with network data to the emergence of communities of users whose activities will change the shape of commerce and education. The Net's growing universality will create priceless resources for learning and self-advancement. If these won't overwhelm you overnight, they will change it, subtly, continually, and with irresistible force.*[4]

The Australian Federal Government Education Minister was quoted as saying that universities are planning to recruit an extra 45,000 local and overseas fee-paying students over the next three years following the Government's decision to freeze all future spending on higher education.[5] The inability of governments to continue to fund education universally creates a major market for innovative and respected providers of educational services. Who these providers are is not clear at this stage.

Among the most dramatic changes we have seen in recent history is the restructuring of the banking and financial markets. Our perception of the role of the bank has changed and banks themselves provide a range of services that were completely foreign to the banking sector not more than a few years ago. The winds of change that are blowing through the financial markets will also touch many of the cobwebs in the education sector.

The market for education is evolving to meet the needs of society and as the nature of society becomes more sophisticated so will the need for tertiary education. Up to now tertiary institutions have been forced to function within the space-time continuum and the most efficient method of delivering this service was at a physical location using real people. Audio visual technology has introduced some flexibility to this system over the years, however, this have never been a substitute for the traditional mode of delivery.

The Internet represents an alternative delivery mode, it is free from the traditional constraints of space and time, it can function both as a mass medium and a personalised medium, and it is cost effective. The Internet is much more than a medium, it is the enabling technology that will change education as we know it, linking the best resources

of the global village. The Internet takes multimedia and networks it, housing linkages between various kinds of information, making it possible to move between content sites with ease and incorporate what you find there in your work. The student is transformed from a somewhat passive recipient of information to a participant, involved with the tools and resources of this inclusive medium while creating mind-amplifying experiences for the seeker of knowledge.

There is a very real danger that this may exacerbate the divisions within society denying some sectors of the population access to education. While access to education in the future will be possible for the wealthy the key feature of access will be determined by the technological preparedness of the individual - what Nicholas Negropronte[6] refers to as the digitally literate as opposed to the digitally homeless. Those without the necessary computing skills, the 'digitally homeless', whether they are corporate leaders or unskilled factory workers will be disenfranchised in a digital world.

> *The application of knowledge is the true route to personal and organizational success in the information society. Those who will be successful will have access to information but, crucially, the skills to interpret and apply this knowledge in their working lives.* [7]

Internet Based Education

Students completing degree courses are required to master what has now become standard computing skills, how to interact with a computer and be able to use at least a word processing application. Mastery of additional applications may be necessary depending on the course selected. Web based education will require certain basic infrastructure and mastery of the applications required to participate in on-line classes. Basic infrastructure consists of a computer, a communications device such as a modem or some other form of digital connection, and the appropriate software, namely the all encompassing Web browser. Hardware is now sufficiently ubiquitous and in the very near future megabit data delivery will be available to a majority of households.

Educational institutions will need to re-focus their IT resources from giving students access to on site computing resources to providing them with communications ports to access their servers. Most institutions today have a Web presence providing a wide range of information about themselves and the courses on offer. To date very few have moved beyond this informational offering, however, virtually all are engaged in experimental programs to deliver educational content over the Web.

Financial pressures, resulting from a change in the traditional funding base, and rapid improvements in technology are forcing these large, somewhat anarchic, bureaucratic institutions to embrace the new medium at a rapid pace – a state of *permanent white water*[8] has entered into the hallowed halls of academe. An unfortunate by-product of the current cost cutting response is that it targets areas where the greatest contribution is likely to come from, the younger non-tenured staff who are the source of most of the research undertaken and within whose ranks are the digitally literate.

The response to these financial pressures when entwined with fiercely competitive market forces is to seek a solution through technology. The digitally homeless cling to the belief that if each does what the others do there is a chance that all will survive and

continue to offer a product not dissimilar to the traditional offering, albeit with the help of a new medium. The spectre of major content and media providers such as Disney, Murdoch and Turner will ensure that those who subscribe to this myopic belief do so at their peril.

The Internet, at this stage of its development, has at least as great a role to play in the administrative area as it does in the academic area. The clients of the institution, who are mostly students, are still required to be present in some physical location at a specified time for enrolment. Interaction with academic and non-academic staff for a range of issues, (such as subject withdrawals and transfers, use of the library and computing facilities, etc.) is similarly confined to a spacio-temporal setting. Academic results are frequently entered into computer databases more than once due to incompatibilities between divisional computer databases and students must attend a physical location if they wish to gain advance knowledge of their results. In all of these areas the Web offers a simple cost efficient solution.

The rigid nature of the classroom based approach to learning requires that instructor and student be present at the same time and in a specific place by prior arrangement. While we may see this as an unacceptable inflexibility in the future it is an arrangement that provides a number of positive incentives. The arrangement is compatible with our social patterns and behaviour and through a certain amount of peer pressure and conditioned response the ritual of attending class is a natural tendency. Indeed if this arrangement did not exist both students and teachers could take the class 'when they feel like it', a situation that may lead to dire consequences for many. An issue to be resolved by on-line learning is therefore to create an environment that produces a similar attraction for students to participate in the virtual classroom.

Many academic staff are experimenting with the Web by using it to enhance their classroom teaching. The availability of up-to-date subject information and lecture notes through the Web adds value to the instructor's offering. However, it does very little that could not be achieved by more traditional means apart from offering greater flexibility and possibly at lower cost. Making content available on the Web (such as lecture notes, course guides, examinations and assignments) required certain technical skills or the funds to hire a technically competent assistant. More recently the barrier for the less technically oriented has been removed by the inclusion of Web formatted document creation in virtually all the standard desktop applications. A person capable of using a word processor or spreadsheet application can create Web ready documents simply by choosing to save the document in *HTML*, the common language of the Web.

The ability of students to interact with the instructor and with each other through electronic mail greatly enhances the value added for instructor and student. Email is independent of space and time and so provides all participants with much greater flexibility. Electronic feedback may result in new information being posted to the subject area on the Web. However, email is not a suitable form of interaction, particularly if the class size is large and the instructor is required to interact with students on an individual basis, many of whom could each generate several email message on a daily basis.

A more desirable alternative to email is the creation of a *Virtual Forum* or *Conference Board*, that is, a place where students and instructor can post comments for others to see and respond to. Comments are treaded or grouped according to topic. Threaded conversations can occur when any member of the class connects. Real time conferencing

can occur at set times each week, or each day if required, by prior arrangement. Students can interact with each other, the instructor or some invited guest during these real time sessions. The creation of these Virtual Forums is possible by relatively cheap software running on a linked server. With a modicum of technical proficiency and some practice, the operation and maintenance of conferencing software is within the reach of most academics.
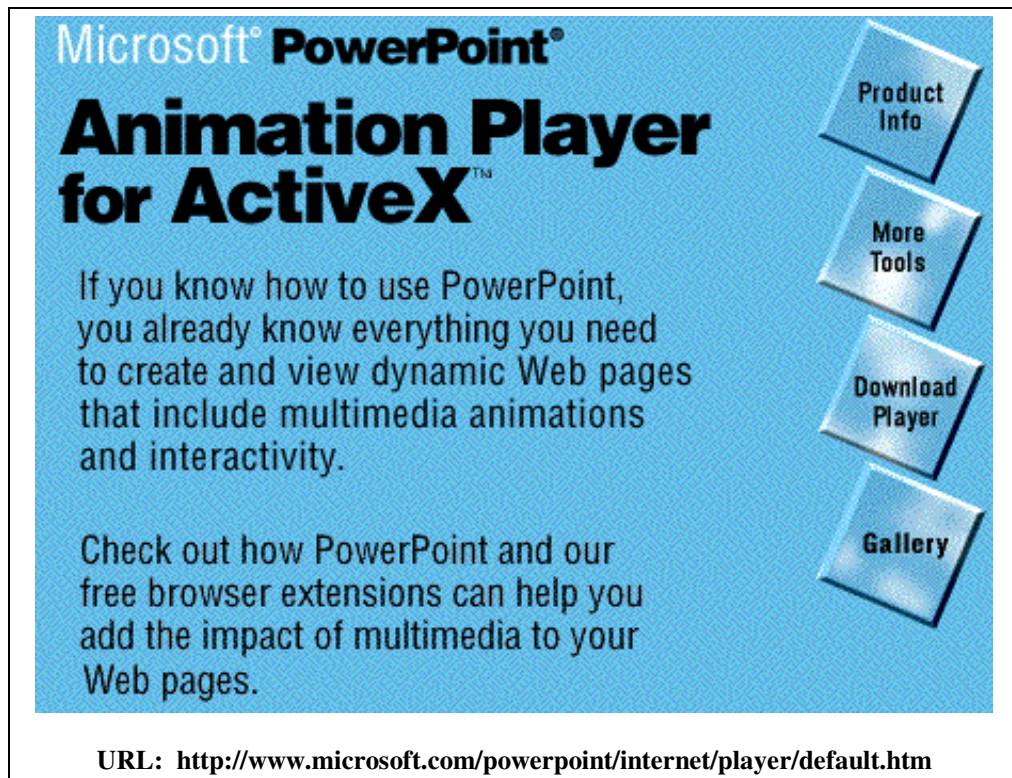
Interaction on the Internet is limited at present to those who possess the skills and are linked through a service provider. When a student submits an essay we expect, at a minimum, that it be word processed and spell checked. The same requirement exists now for staff and students to use electronic communication media, it is barely an extension of the requirement for word processing. Instructors who choose not to set this as the minimum standard are in danger of increasing the numbers of the digitally homeless in our society.

Tools to Design, Create and Access Web Content

Computer software designed for the Web is everywhere. In 1995 the Microsoft Corporation decided that the future of computing would be integrated with the Internet and has since this time focused on making its major product offerings Internet centric. The Web browser has come very close to a desktop operating system; an area in which Microsoft reigns supreme. Recognising the inevitability of this challenge, Microsoft gives away its Web browser and has made its Office suite fully compatible with the Web. The current versions of Word, Excel and Powerpoint may be used to create Internet ready content with precisely the same ease that any standard document is created using these applications.

If content creators have a need to go beyond the capabilities of Office it is possible for a person with no more than average word processing skills to use Microsoft FrontPage [http://www.microsoft.com/frontpage/] to develop quiet sophisticated Web documents. Interaction between class participants is made possible by NetMeeting [http://www.microsoft.com/netmeeting/] which is available free. A good deal of useful information concerning on-line learning is available at Microsoft's higher education site [http://www.microsoft.com/education/hed].

More sophisticated tools for the creation of multimedia content are readily available on the Internet. Most require specialised skills to produce quality Web pages. Microsoft's ActiveX and Sun Microsystems Java applets require a high level of programming skills. However, this is not a problem for a determined educator who can borrow from the growing volume of applets that are freely available over the Internet.

URL: http://www.microsoft.com/powerpoint/internet/player/default.htm

In addition to the standard Microsoft software educators can create Web content may be created using software designed for this purpose, one such product is WebCT. The following information was extracted from the home page of WebCT.

> *"WebCT not only produces courses for the WWW, but also uses WWW browsers as the interface for the course-building environment. Aside from facilitating the organization of course material on the web, WebCT also provides a wide variety of tools and features that can be added to a course. Examples of tools include a conferencing system, on-line chat, student progress tracking, group project organization, student self-evaluation, grade maintenance and distribution, access control, navigation tools, auto-marked quizzes, electronic mail, automatic index generation, course calendar, student homepages, course content searches and much more."*

> *WebCT is an easy-to-use environment for creating sophisticated WWW-based courses that are otherwise beyond the ability of the non computer programmer."* [http://homebrew1.cs.ubc.ca/webct/]

Several links are provided at the end of this document to provide a flavour for the Web and how it may be used to assist the educator. Instructors will need to compile their own links to support specific programs. It is however possible to create a central repository of links that could be used across a range of subjects offered by property educators. A significant amount of content exists for areas such as statistics, economics, finance, accounting, law and several other disciplines servicing the property profession. Very little Web content on core property subjects is currently available on the Web, at least it is not publicly accessible. Real estate practitioners on the other hand are among

the most prolific users of the Web for commercial purposes. The absence of copyright protection and the ease with which content can be plagiarised from the Internet may be a factor influencing property educators. Just as Microsoft believes the Internet to be the way of the future there is a need for property educators to fully acquaint their students with the benefits of this medium. A Web based approach to learning is equally important as the mastering of basic computing skills.

General Examples of Internet Based Learning

Charles Sturt University (CSU), [http://www.csu.edu.au/] Australia's largest provider of distance education, recently completed the pilot of a Web publishing system that delivers support to external students via the Internet. One of the developers of this system, John Reeves, believes, "there was a move from classroom to network learning as education became a life-long activity."[9] An important aspect of the pilot study was the creation of a *forum area* for each subject, enabling students to interact with each other. The CSU system will be extended with the aim of eventually providing on-line teaching as well as support services.

CSU offers the following information at its Web site to prospective students:

> *A large number of on-line supported subjects is available through CSU in 1998. These subjects provide a gateway to resources and communication forums that can greatly enhance your learning experience. The support consists of:*
>
> - *on-line access through the Internet to a range of administrative and support services, including the library, the Co-op Bookshop, Student Services and student records;*
>
> - *on-line access to the subject outline; links to other resources within the subject and other web sites;*
>
> - *email access between you and your lecturer; and*
>
> - *an electronic discussion forum.*
>
> *If your subject is on-line supported, a separate brochure and computer disk will be sent to you, providing additional information.*

University of the Year 1997
Charles Sturt University
AUSTRALIA

Welcome
to
Subjects On-Line

CSU On-Line Brochure

Access your subject List(For STUDENTS Only)

URL: http://www.csu.edu.au/subjects

The approach adopted by CSU would appear to be consistent with standards generally available on the Web. Provided that the subject is well structured on-line learning is a good substitute for the traditional classroom. Indeed, many students may find that their learning experience is enhanced.

Of major importance is the credibility of the institution offering on-line courses, the Web does not discriminate between garbage and quality. How does a prospective student choose between a content provider, for example Disney, who markets its course in association with a leading academic and a traditional university whose strength is its educational tradition? The multimedia quality of the on-line offering and the educational experience of the student will be different. The nexus here has more to do with complementarity than competition. The enriching experience of multimedia will do more to provoke the inquisitive nature of the student than can be satisfied by the content provider. The role of the tutor will take on greater prominence as education becomes digitised making the traditional university an essential element in higher learning.

A good example of on-line learning is located at Cerro Cose Community College [http://www.cc.cc.ca.us] where a sample on-line course is made available. This Web site has been completely designed using fairly standard Microsoft software.

> *"The sample will allow you to look at the Course Homepage, General Course Information, a sample lecture, an online quiz, the class discussion area, some student services information and other miscellaneous material. All Cerro Coso Online courses follow this same format and use the same template. This means that you won't have to learn a new interface for each Cerro Coso Online course you take. "*

Cerro Coso ONLINE Community College

Sample Online Course

URL: http://www.cc.cc.ca.us/ccolsamp/index.htm

Anbar Electronic Intelligence, a UK based business publishing group, have recently established a *Virtual Business School* .

| | Home Page | Seminar Rooms | Book Stores | Tutor's Lounge |
| | Course Materials | Library | Student Union | Real World Clients |

URL: http://www.anbar.co.uk/products/virtual-uni/virtual-university.htm

Anbar highlight the advantage of linking with a publisher who has significant resources and illuminate many of the problems associated with the more traditional mode of distance learning, namely

> "*Where distance learning course resources are provided as hard copy materials through the post, the learning provider is faced with some major logistical difficulties:*
>
> • *materials are inevitably out-of-date and do not include the very latest new knowledge;*
>
> • *revision of course materials is an expensive undertaking which is not to be carried out more frequently than absolutely necessary;*
>
> • *storage and distribution of materials is a significant cost;*
>
> • *it is impossible to reproduce a 'library'! Distance students are often expected to produce work with little library support.* "

Anbar offer a range of academic programs that may be pursued individually or integrated with corporate training programs or taken as part of a formal academic course. Would-be enrolees are provided with a description of the courses on offer, however, access to most of the site is restricted to members. Students interact with each other by posting messages relevant to their interests and problems encountered in their subjects, the internet assignment had the largest number of messages.

One of the greatest resources available on the Web is the World Lecture Hall. This is a project devoted to making as much educational material available on the Web as possible and educators are actively encouraged to make their materials available to the World community.

> "*The World Lecture Hall (WLH) contains links to pages created by faculty worldwide who are using the Web to deliver class materials. For example, you will find course syllabi, assignments, lecture notes, exams, class calendars, multimedia textbooks, etc.*"
> [http://www.utexas.edu/world/lecture/]

Despite the large range of courses currently on offer at this site the discipline of property is absent, an opportunity for a munificent property academic. While direct property courses may not be available, several supporting disciplines may be accessed: business statistics, finance, economics, accounting, law[10], urban planning, building science and possibly others of interest to those who wish to pursue their own direction.

Specific Examples of Internet Based Learning

Example 1

William Cartwright at the Department of Land Information of RMIT University has developed a "dynamic prototype" version of what he refers to as an On-Line GeoExploratorium for Geographical Discovery. At the time of writing, the web site for his GeoExploratorium is being shifted, but details of the new site and any other related questions may be directed to William Cartwight at the following email address : w.cartwright@rmit.edu.au. In this section we shall explore how the idea of a GeoExploratorium might be modified to create a powerful real estate resource. Essentially, the GeoExploratorium enables one to make use of 'metaphors' to access different types of spatially related information concerning the Queenscliff township on the Bellarine Peninsula near Geelong (refer to diagram below).
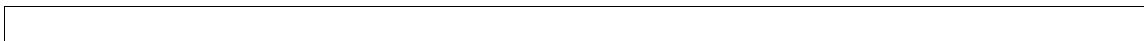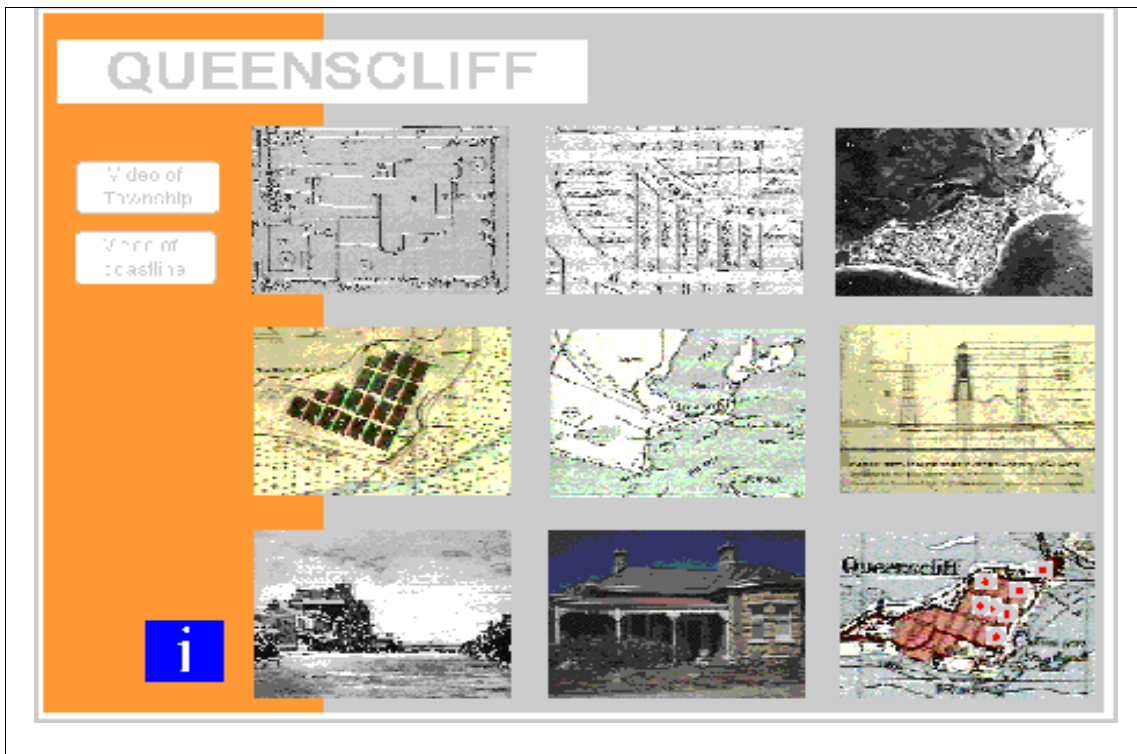
Each 'metaphor' may be thought as a 'word image' or 'word icon' that readily conjures up in the user's mind an easily remembered set of generic information gathering tools. Some but not all of the 'metaphors' used in the Geoexploratorium are briefly described below accompanied by some consideration of how - with some modification - each described metaphor might be used as a meaningful resource for real estate research and learning.

The Fact Book Metaphor

The 'Fact Book' metaphor enables the user of the GeoExploratorium to access web links to commercially or publicly produced data. At the time of writing, there are web links to information (e.g. timetables and routes) on various transport modes (e.g. bus, ferry, train etc.) in the area. Clearly, from a real estate perspective, the usefulness of the metaphor would be enhanced if it also possessed links to data on schools, shopping centres, hospitals, parks, recreational facilities, restaurants, data on land use etc.

The Data Store Metaphor

The 'Data Store' metaphor allows the user of the GeoExploratorium to access maps relating to the Queenscliff township as well as the Bellarine Peninsula. From the perspective of real estate applications it is clear that links to cadastral maps, soil maps, land use maps, economic maps, geologic and topographic maps would be invaluable. For this reason, perhaps a more fitting label for the 'Data Store' metaphor would be 'Cartographer'. Incidentally, the utility of 'Cartographer' would be greatly enhanced if one is also able to access data sets that may be read into a multimedia mapping package (say MapInfo or ArcView).

The GamePlayer Metaphor

The 'GamePlayer' metaphor permits the visitor of the GeoExploratorium to use a variety of games to enhance one's knowledge of the locale. Presently, there is only one web link associated with this metaphor. Essentially, it allows the user to play a simple game in which images of historic properties are linked to appropriate captions. In this simple game, the user is able to view the correct answers to ascertain whether his/her best guesses were correct. Other plausible games (or exercises) that may enrich the learning experience for property students might include :

- a game requiring students to correctly identify construction styles or even defects in building and title.

- a game requiring students to use multimedia mapping software to decide where best to position a development in a region if at all.

The GamePlayer Metaphor

The 'Story Teller' metaphor enables the visitor of the GeoExploratorium to link to stories about the Queenscliff environs. Some of these stories will only be available in written form (e.g. a link to a newspaper story about the township) but there is no reason why the story cannot be communicated aurally whilst the user views a picture or map. Potentially there are multitude of interesting real estate oriented stories that could be told about a locality. Some possibilities include : a story about residential property sales over the last year, a story about the changing demography of the area, stories about the changing land use patterns of the region, a story about a property that is available for rent or sale.

The Navigator Metaphor

Cartwright's 'Navigator' metaphor performs a function that is extremely relevant to real estate. Most readers will be acquainted with the web pages of many real estate agencies that provide still life photographs of properties that are available for rent or sale. The Navigator metaphor goes one huge leap forward by allowing the user to 'virtually navigate' through an 'information space'. As a concrete example, Cartwright has divided the Queenscliff township into a number of blocks that are designated with web links on a viewable map.

Clicking on a link will download a file that may then be read by a multimedia video package (e.g. Quicktime). The user is then provided with a 'virtual car drive' around the selected block so that s/he can view the various properties on the block as the car travels by'. It is also possible to pause the car drive so that the user (or 'virtual car passenger') may concentrate on a particular image (say the front view of a property). Finally, the effectiveness of the 'tour of the block' could be enhanced with an accompanying aural commentary of what may be seen from the 'car window'. In the view of the authors this tool with some modification would be a most useful tool for valuations work. One need not stop here for real estate applications. One may conduct inspections of homes that are available for rent or sale or even tour important amenities in the area.

The Sage Metaphor

In Cartwright's GeoExploratorium the 'Sage' metaphor is employed to access various 'gurus' that possess specialist knowledge about certain attributes connected with an immediate area and surrounds. In Cartwright's words: "Not every one is an expert. Every spatial information user cannot hope to know every answer, or have easy access to

experts in specialised fields .... The expert, when providing information, draws upon extensive experience during re-telling or informing and takes a story beyond mere description by providing authority." In Cartwright's GeoExploratorium, the 'Sage' metaphor provides a series of email links to these so called experts with a brief description of the title and background of each expert. To modify this metaphor so that it becomes a valuable tool for real estate research and learning, one needs to ensure that there are links to experts in areas related to property decision-making : architects, town planners, town engineers, real estate agents, valuers and consultants, builders etc.

Example 2

This section considers a non web-based product currently used for real estate training and how it might be extended for use over the web.

'Property - the inside story' is a CD-ROM product that was developed by the Flexible Learning Unit of RMIT with considerable input from John Leigh of RMIT's Property Group together with industry and property academics from around Australia. The CD-ROM forms the major part of the training and learning material for both the Building and Real Estate Appraisal subjects for the Australian National Training Authority. The software will also be used in RMIT's Bachelor of Business (Property) as a learning resource in the subject: Property Practice 1. However, the product could in principle be immeasurably improved if it were available over the Web. More will be said about this later. For the moment, let us consider the content of the present product.

'Property - the inside story' is a completely interactive application that permits the user to enter a virtual real estate agency called *Holmes Real Estate Agency* (Exhibit 1). The student may nominate to spend time in one of two areas of this virtual agency - the *Training Room* or the *Office*.

Exhibit 1 Holmes - A Virtual Real Estate Agency
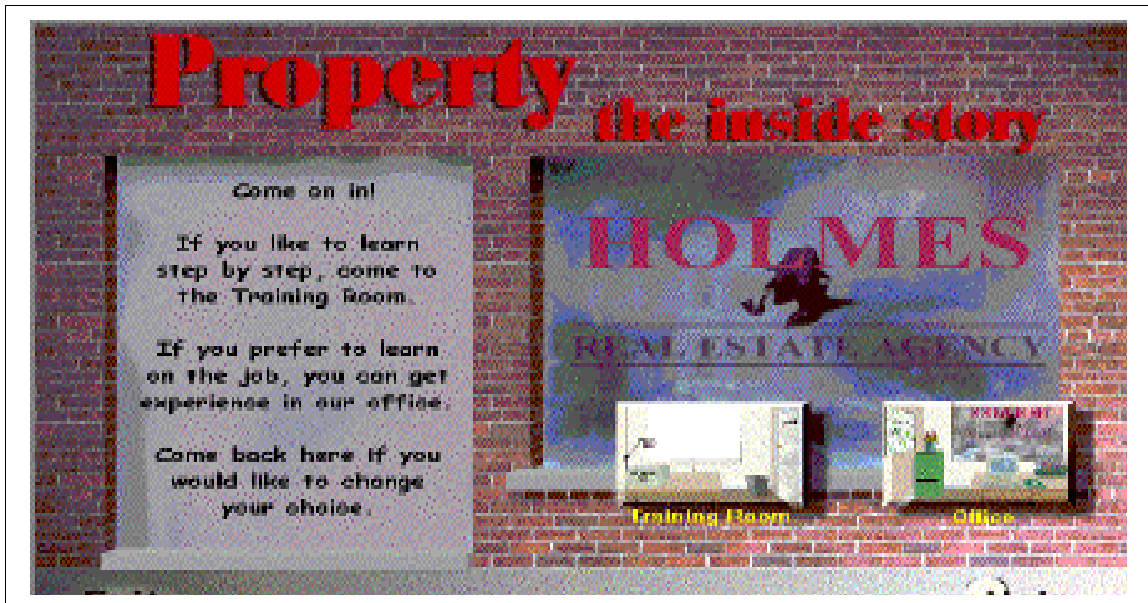
In the *Training Room* , students may learn in systematic and comprehensive steps about property research and analysis, common building styles and faults as well as the fundamentals of property appraisal. On the other hand, one may gain 'hands on' experience in the *office* by operating the real estate business over a virtual week. For the moment the discussion focuses more closely on the activities conducted in the training room.

In this room, students are offered several training modules. One such module related to the principles of *Property Appraisal* is illustrated in Exhibit 2.

Exhibit 2 Menu of Learning Activities in the Property Appraisal Module
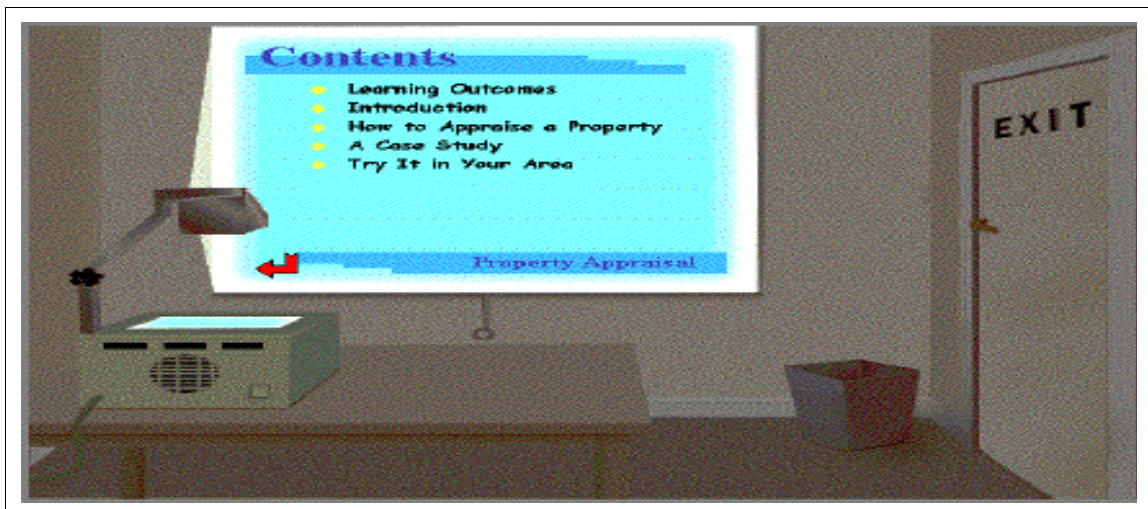
At the beginning of each training module students are provided with *learning outcomes* as well as a brief *introduction.*. They may also access a series of learning suites. For the module under discussion these would be accessed by clicking the *How to Appraise a Property* option. Having completed the training suites the student can test his/her understanding by answering questions that appear under the option : *A Case Study*. Finally, the option : *Try it in your own area* , suggests how the student might apply his/her newly acquired knowledge in the student's immediate neighbourhood.

As mentioned previously, the student may obtain practical learning experience by working in the *office* section of Holmes Real Estate. Access to the *office* is achieved by clicking the *office icon* appearing on the opening screen of the package (Exhibit 1). Upon entering the office the student is met by Shirley Holmes (Exhibit 3) who invites the student to elect the day of the week that the student wishes to work.

Exhibit 3 The Office at Holmes Real Estate Agency
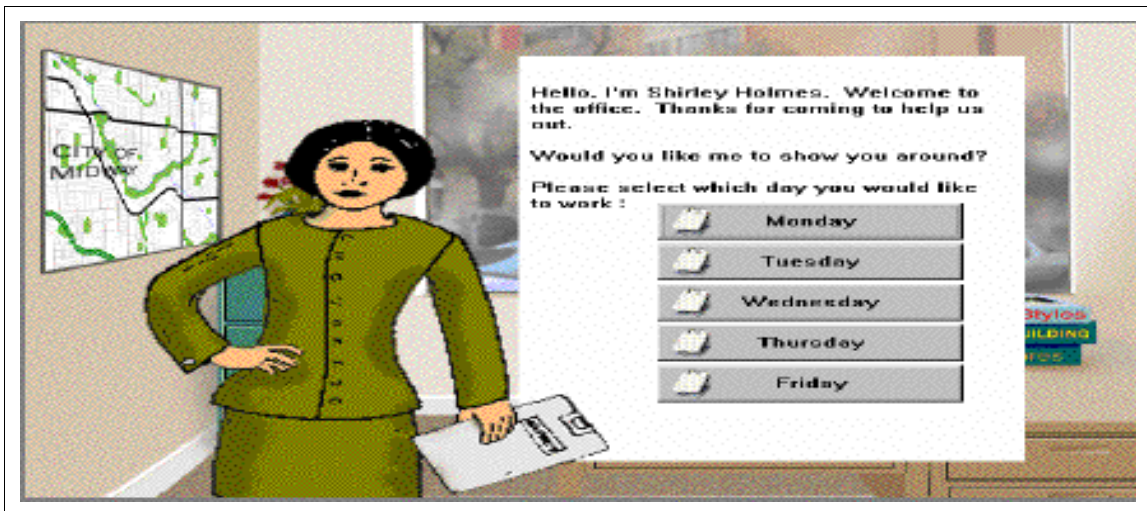
Once in the office (depicted in Exhibit 4) the student is provided with a desk. Clicking on the *clipboard* provides a list of tasks for the day presumably left by Shirley Holmes.

**Exhibit 4 Monday at the Office of Holmes Real Estate Agency**

Clicking the map on the wall (Exhibit 4) enables the student to view the various suburbs making up the city served by Holmes Real Estate. Clicking again on any one of the highlighted suburbs enables the student to use GIS type operations on that suburb. Clearly, this last feature enables the student to facilitate real estate research and analysis of selected suburbs for various clients.

Clicking on the top drawer of the *office filing cabinet* (Exhibit 4) the student may obtain descriptive information (ie information on prices, transportation, facilities and building styles) about each of several suburbs served by the real estate agency.

Clicking on the computer's keyboard (Exhibit 4) activates a virtual *database package* that is viewable on the screen of the office computer (Exhibit 5). The student may use this virtual database package to obtain information on particular properties as well as data on comparables. Whilst the software performs some basic database operations it also has the capability of generating actual prints.

Exhibit 5 Using Virtual Database Software on the Office Computer
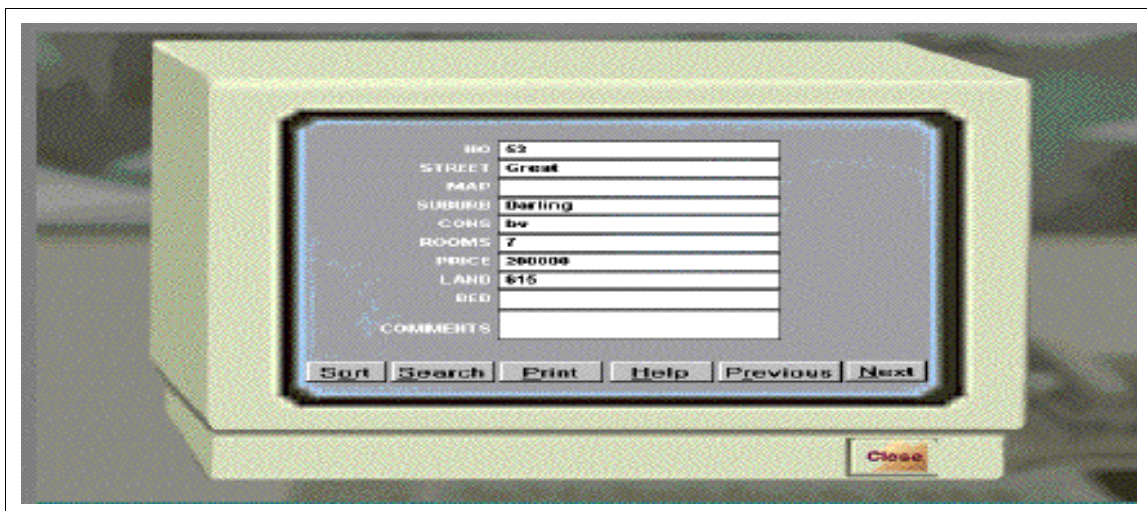
To assist the student in carrying out various tasks appearing on the *clipboard*, use may be made of three reference books appearing on the office desk (Exhibit 4). The first resource: *Housing Styles* is a virtual compendium of common building styles. The second book : *ABC of Building* is a dictionary of Building Terms. The third resource: *Procedures* is a virtual manual of how to conduct property inspections and appraisals, how to conduct research and analysis of localities and finally how to estimate the size of properties. To open any one of these resources the student simply clicks the required resource with the mouse. For instance, a click of the *Housing Styles* resource brings into view its contents page. Further clicking of the items listed in the *Housing Styles* contents page will provide modular instruction on various examples of the selected style The other two resources operate in much the same way.

The most exciting feature of the virtual *office* is that when students embark on the tasks appearing on the Clipboard (eg. identifying suitable suburbs for clients, conducting property appraisals and inspections etc) they end up having to consult maps, database software and reference books as one would do in the real world. The virtual experiences provided by the software span a very realistic mix of residential, retail and commercial

properties and permit a broad selection of valuation methods to be implemented. Moreover, the CD-ROM contains innumerable linked screens and several hundred photographs that together provide a rich learning environment.

As suggested at the outset of this example, the Web is probably a better medium for accessing the types of experiential learning activities housed on the CD-ROM. Interestingly, the development of the CD-ROM: 'Property - the inside story' took place independently of a far more ambitious project conducted in the unrelated discipline of pathology at RMIT. Nicholas Vardaxis[11] of the Department of Medical Laboratory Science at RMIT heads a team that has been actively developing multi-media learning resources since the early 1990's.

One of the team's products - the *Virtual Pathology Department* - was originally developed as a CD-ROM (using the Macromedia Director Software®). However, due to the extraordinary growth in the popularity of the *World Wide Web* as a vehicle for teaching and learning, the Vardaxis team plans over the long run to make the product accessible through this more publicly accessible route. Unlike *Holmes Real Estate Agency*, the *Virtual Pathology Department* comprises more than two areas of activity. Moreover, within the *Virtual Pathology Department* students not only engage in experiential learning and traditional training activities but they may also engage in purely administrative matters that relate to their marks, lecturers and subject enrollments.

'As students "approach" the Department they enter their ID number that allows them to access confidential information about their marks and progress through [a unit they may be studying]. They then "enter" the Department and proceed to an Administrative area where they obtain information about their progress, the subject that they are enrolled in, academic staff and the layout of the CALM [computer assisted learning module]. They then have a choice of wandering through the Department going to the Library, Pathology Museum, [Study Area and] Laboratory where they may access information specific to each of these areas.[12]

Some of the non administrative activities that may be conducted in this *Virtual Pathology Department* are analogous to those that may be performed in *Holmes Real Estate Agency*. For instance, the diagnosis of building defects and how building inspections are conducted is completely analogous to the process of diagnosing diseases through tests and observation of the patient's symptoms in the Department's *Virtual Laboratory*. Again the services provided by the pathology department's *library* and *museum* are similar to those provided by the three reference books sitting on the estate agency's *office desk*. Finally, the learning sessions that are conducted within Holmes's *training room* are analogous to the interactive learning modules that are conducted in the pathology department's *study area*.. Further details about the Vardaxis projected as well as any other related questions may be directed to Nicholas Vardaxis at following email address : vardaxis@rmit.edu.au.

Other Examples

It is more common than not that undergraduate students in real estate are offered *generic* units in economics, finance, investment and statistics, etc. Certainly, in some cases (if the body of real estate students is large), concessions will be made to include some specialised modules that relate the subject material to real estate in particular.

However, to the knowledge of the authors, this is particularly rare in the case of courses *offered over the internet*.

One exception to the general rule is The School of Real Estate at Waukesha County Technical College (WCTC), in Wisconsin. WCTC is a public, post secondary school that provides occupational training below the baccalaureate level and amongst other programs is also responsible for several technical associate degrees in real estate. Its School of Real Estate offers associate degrees in :

- Real Estate Brokerage
- Property Appraisal/Assessment
- Property Management
- Mortgage Lending

All four degrees are available on-line with a surprising number of core business units being offered with a particular real estate slant. For instance, there are on-line subject offerings in : Real Estate Law, Real Estate Finance, Real Estate Investment, Real Estate Mathematics and Real Estate Marketing. Details of how these and other on-line real estate units are conducted may be viewed at WCTC's On-Line site located at : http://www.waukesha.tec.wi.us/online.html

Whilst the array of on-line *property* related courses provided at WCTC is quite broad, the tools that are being used to promote on-line learning are fairly standard : conferencing, email, electronically accessible lecture summaries, course notes and assignments.

On the other hand, there are some very innovative on-line courses available on the net at the *generic* level. It is not possible to review them all here but a very good place to start exploring the possibilities is at the World Lecture Hall (located at : http://www.utexas.edu/world/lecture). One very impressive offering in the area of elementary finance is provided by the University of Iowa in the subject : 6F:100 *Basic Financial Management.* This subject revolves around the fundamental paradigms of finance : net present value, capital asset pricing theory and market efficiency. Apart from the usual tools used for on-line learning two additional resources are employed to enrich the student learning experience.

The first involves student observation of and participation in the *Iowa Electronic Market* (IEM). The IEM is an experimental market[13] (involving real money commitments) operated primarily for the purposes of teaching and research. In fact, the market really comprises a series of separate double auction futures markets that may be accessed worldwide over the internet.[14] These markets may be reached by traders anywhere in the world (not just students at the University of Iowa) provided they have fulfilled the registration requirements and they possess a suitable telnetting facility. In the subject under discussion, students are required to monitor as well as trade in one or two markets that have been specifically set up for the subject. The explicit purpose of this experiential learning exercise is to ensure students

- gain a deeper appreciation of how real financial markets operate by actually trading in them.
- gather experience in the art of locating pertinent market information and how to interpret it

- reinforce their understanding of abstract concepts (like market efficiency and CAPM) by routinely applying them in a real world setting.

The IEM markets are fascinating to observe and even more exciting to participate in. The interested reader may wish to trade in a *practice* market once having accessed the IEM from its website at : http://www.biz.uiowa.edu/iem.

The second highly effective tool that is used to enhance learning outcomes in 6F:100 is an 'over the counter' software product called *Fincoach*. The product was specifically designed to improve student understanding through the practical application of what might otherwise be regarded as very dry esoteric financial theory. In particular, *Fincoach* permits the student to acquire basic valuation principles through 'practical problem solving activities' without reference to a prescribed text book. Indeed most material relating to valuation that would be taught in a traditional first course in finance is covered in a much more applied learning environment by the software product. Essentially, the software provides the user with a 'virtual coach' dubbed : *intelligent coach*. Additionally, the software provides the user with a number of utilities that facilitate the learning process. These utilities are briefly discussed below.

- A *virtual textbook* called *FinText* discusses the principles of financial valuation.
- A *virtual assistant* called *FinHelp* provides context sensitive help when the user grapples with practical financial valuation problems. *FinHelp* also facilitates the study of associated topics in a self paced learning environment by providing the student with useful learning strategies and general guidance.
- A utility known as *FinAide* reveals at the user's request all mathematical formulae and expressions required to resolve a specific valuation problem.
- A utility known as *FinDoc* furnishes all the parameter values needed to solve a valuation problem and generates (at the user's request) the actual answer.
- A *virtual calculator* called *FinCalc* allows the user to train/practice as well as prepare for in-class tests and exams.
- A *virtual spreadsheet utility* called *Worksheet* enables its user to explore the interractions amongst the various financial variables in a valuation problem as well as to engage in rich sensitivity analyses.
- A *virtual charting utility* called *Graphsheet* enables the user to explore the graphical relationship existing among any two variables of a valuation model.

In passing, it should be mentioned that *FinCoach* is entirely customizable in that it allows the student to take full control over display features, the saving and review of problems, the testing of one's abilities in a self-directed learning environment. It is also completely flexible on the delivery side in that it permits educators to augment the learning activities that are made available through the product. For instance, instructors may author their own problems, presentations and announcements etc. to be delivered by *Fincoach* in a fully networked environment. A demonstration version of *Fincoach* may be downloaded from the subject's website which is located at : http://www.biz.uiowa.edu/class/6F100_handa/#IEM

Notes

*   We wish to acknowledge the comments and suggestions contributed by our colleagues at RMIT, Stewart Adam and John Leigh. Stewart is a leading exponent of Web-based learning and has already put many of the ideas discussed in this paper into practice. John Leigh member of the project team who developed the CD-ROM produce discusses in example 2 of the paper.

1. Bush, Vannevar, "As We May Think," Atlantic Monthly, July 1945.

2. Brechin, Robbie, "Goodbye Mr. Chips – hello, microchips," The Australian, Monday, 12 January 1998

3. Schwartz, Evan I., Webonomics, Nine Essential Principles for Growing your Business on the World Wide Web,Penguin Books, 1997, p. 3.

4. Glister, Paul, Digital Literacy, Wiley Computer publishing, John Wiley & Sons, Inc., p. 2.

5. Garcia, Luis M., "Unis to seek more fee-paying students", The Age, Monday, 12 January 1998

6. Negroponte, Nicholas, Being Digital, Random House, 1995. Negroponte is concerened that the world is being run by digitally illiterate people neither young enough or old enough to have the time to get familiar with what he sees as the main moving force in society (http://wkweb2.cableinet.co.uk/montesquieu/JOURNAL.HTML).

7. Anbar Electronic Intelligence, http://www.anbar.co.uk/products/virtual-uni/virtual-university.htm

8. This concept was popularised in a recent book by Peter B. Vaill, Learning as a Way of being, Strategies for Survival in a World of Permanent White Water, Jossey-Bass Publishers, Inc., 1996. Vaill discusses the issue of continuous change - the permanent whitewater, the failure of institutional learning in preparing future leaders and why we should instead focus on learning as a way of being.

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14. In 1993, Ric Lombardo (one of the present authors) in collaboration with Forrest Nelson and Bob Forsythe (both at the University of Iowa) designed the Australian Political Stock Market which ran on the IEM. Participants of this futures market were essentially trading expectations on the eventual distribution of seats in the lower house of the Australian Federal Parliament. The majority of the participants in this market were students in the subject : EF 458 Treasury Dealing offered at RMIT University in the Department of Economics and Finance. The final examination included a seen question that tested student understanding of how the market operated and how the share prices associated with different political parties were affected by various events that occurred during the course of the election campaign. In a follow up survey, students remarked that the experience of trading in a real market heightened their understanding of various issues ranging from market efficiency to the distinction between arbitrage and speculation.

References

Broderick, Damien, 1997, *The Spike, Accelerating Into the Unimaginable Future*, Reed Books Australia.

Campbell, Dave, and Campbell, Mary, 1995, *The Student's Guide to Doing Research on the Internet*, Addison-Wesley Publishing Company.

Cuban, Larry, 1986, *Teachers and Machines, The Classroom Use of Technology Since 1920*, Teachers College Press, Columbia University.

Dertouzos, Michael, 1997, *What Will Be. How the New World of Information Will Change Our Lives*, Harper Collins Publishers Inc.

Garcia, Luis M., 1998, "Unis to seek more fee-paying students", *The Age*, Monday, 12 January.

Gilster, Paul, 1997, *Digital Literacy*, Wiley Computer publishing, John Wiley & Sons, Inc.

Hammond, Ray, 1996, *Digital Business, Surviving and Thriving in an On-Line World*, Hodder & Stoughton Ltd. On-Line companion to the book may be located at: http://www.hammond.co.uk

Petre, Daniel, and Harrington, David, 1996, *The Clever Country? Australia's Digital Future*, Lansdowne Publishing Pty. Ltd.

Rodriguez, M., Lipscomb, J., and Yancey, W., 1996, "Under All Is the net: Surfing the Internet for Real Estate Information," *Journal of Real Estate Literature*, 4:207-227.

Schwartz, Evan I., 1997, *Webonomics, Nine Essential Principles for Growing Your Business on the World Wide Web*, Penguin Books, p. 3.

Tapscott, Don, 1996, *The Digital Economy, Promise and Peril in the Age of Networked Intelligence*, McGraw-Hill.

Tapscott, Don, *Growing Up Digital*,
http://www.growingupdigital.com

Turnbull, Noel, 1996, *The Millennium Edge*, Allen & Unwin Pty. Ltd.

Vaill, Peter B., *Learning as a Way of being, Strategies for Survival in a World of Permanent White Water*, Jossey-Bass Publishers, Inc., 1996.

Resources available on the Web

Amazon.com Bookstore	http://www.amazon.com
Business Statistics	http://www.clt.astate.edu/jseydel/qm2113.htm
Center for Teaching Excellence (The University of North Carolina at Wilmington)	http://cte.uncwil.edu/
Economic Chart Dispenser	http://bos.business.uab.edu/charts.htm
Education, Training and Development Resource Center	http://www.tasl.com/tasl/home.html
Excel - getting started	http://www.utexas.edu/courses/mis311f/xl/xlstart.htm
Excel - the Unofficial help Site	http://www.vex.net/~negandhi/excel/
Flexible Location-independent Education (FLiE) for Interactive Media	http://orac.art.rmit.edu.au/~i-nmc/FLiE/
Generalized Modeling Techniques with Applications	http://dsc.gsu.edu/courses/dsc312/www_2.html
How to do research (Paul Hutchinson)	http://www.wp.com/STAT/research.html
How to study statistics (Paul Hutchinson)	http://www.wp.com/STAT/study.html
Internet: Technology and Culture	http://hermes.arts.cuhk.edu.hk/~cmc/instruction/local/in-tech-culture.html
Pacific-Rim Real Estate Society	http://www.bf.rmit.edu.au/PRRES
Pathfinder Network	http://www.pathfinder.com/welcome/
Personal Finance via the Internet	http://www.cwu.edu/~pf3/
Prentice Hall Business Publishing	http://www.prenhall.com/phbusiness/
Real Estate Invest. -Waukesha County Tech Coll	http://www.waukesha.tec.wi.us/busocc/reinvest/instruct.htm
Real Estate Training and Consulting - The Lipsey Company	http://www.lipsey-co.com/
Searching the Internet	http://www2.shef.ac.uk/info_studies/search/search.html
Searching the Internet - How to Use Galaxy	http://galaxy.einet.net/howto.html
Successful Learning	http://www.campuslife.utoronto.ca/Handbook/learning.html
The Chronicle of Higher Education	http://thisweek.chronicle.com/
Toward a Virtual Classroom (R. MacMinn)	http://kiwiclub.bus.utexas.edu/aea_presentation/aea_presentation.html
Views on the Digital Revolution	http://wkweb2.cableinet.co.uk/montesquieu/JOURNAL.HTML
Virtual Conference Centre	http://www.mcb.co.uk/confhome.htm
Web66 - WWW Information	http://web66.coled.umn.edu/WWWInfo/Default.html
WebCT - World Wide Web Course Tools	http://homebrew1.cs.ubc.ca/webct/
World Lecture Hall	http://www.utexas.edu/world/lecture/

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