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From the editor ..

Welcome to the October 2000 issue of *Learning Technology*. The newsletter is aimed to provide not only the report of various activities which are undertaken by IEEE Learning Technology Task Force (LTF) but also document the latest happening in the world of advanced learning technologies.

Now that the *advanced registration deadline* for the first event of LTF - the IEEE International Workshop on Advanced Learning Technologies, New Zealand (<http://lfff.ieee.org/iwalt2000/>) is very near (October 31, 2000), we have already started working on the next event in this series. It will be held at Madison, USA during August 6-8, 2001. The call for papers is included in this newsletter.

We have also managed to get FREE MEMBERSHIP FORM for Learning Technology Task Force on LTF website. Please complete the form at: <http://lfff.ieee.org/join.htm>.

Besides, I invite you to contribute your own work in progress, project reports, case studies, and events announcements in this newsletter. For more details, please refer author guidelines at http://lfff.ieee.org/learn_tech/authors.html.

Kinshuk

Editor,

Learning Technology Newsletter

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IEEE International Workshop on Advanced Learning Technologies (IWALT 2000) (Call For Participation)

4-6 December 2000

Palmerston North, New Zealand

<http://lfff.ieee.org/iwalt2000/>

Proceedings published by:

IEEE Computer Society Press

Keynote/invited speakers:

1. M. David Merrill, Utah State University, USA
2. Piet Kommers, University of Twente, The Netherlands
3. Ruddy Lelouche, Universite Laval, Canada

Early bird registration closes: 31 October 2000

The registration form, accommodation details and discount flight details are available on the website.

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International Conference on Advanced Learning Technologies (ICALT 2001) (Call For Submissions)

6-8 August 2001 Madison, Wisconsin, USA

<http://lttf.ieee.org/icalt2001/>

Proceedings published by:
IEEE Computer Society

Conference Theme

"Advanced Learning Technologies: Issues, Achievements and Challenges"

The rapidly increasing interest in advanced learning technologies provide many challenges to those engaged in research and development. On the one hand the capabilities of digital technologies in providing and contributing to learning environments are opening up new approaches that utilise, for example, multimedia, virtuality and collaborative methods of knowledge management. On the other hand the changing and increasing demands of education in this technological age require practical techniques and applications that benefit a wider range of abilities, learning styles and organisations.

Where should the computer be placed in these developments and what roles should it undertake in learning environments? What theories and representations should underpin research and what are the fruitful directions to follow and exploit? How should the adaptive intelligences of computing systems and teachers/students interact and collaborate? What pedagogies are appropriate and useful to guide applications and what tools and media are required for developers, teachers and students? Also evaluation is an important but often neglected issue, but what methods are appropriate to provide guidance and empowerment to these advances in learning technologies and their implementations?

ICALT 2001 invites submissions with a good theoretical base or formalism that present new, yet unpublished, solid achievements based on experiments, that come to answer concretely one or more of the questions above or can point to possible answers. Survey papers are also accepted, if they are well documented, make a contribution to the field, and reveal new aspects and perspectives, as well as future directions.

Submission Deadlines:

- Friday 16 February 2001: Paper submission
- Friday 26 January 2001: Panel proposal submission
- Friday 16 February 2001: Tutorial proposal submission
- Friday 9 February 2001: Workshop proposal submission

Submission Information:

Details on submission procedure are available on the conference website:

<http://lttf.ieee.org/icalt2001/>

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Banking the benefits of an eLearning strategy

Online learning is bringing IT and HR departments closer together to successfully deliver organisational change. *Lars Hyland* describes the steps in formulating an eLearning strategy and how The Royal Bank of Scotland are leading the way in the UK.

CBT, TBT, online learning, elearning – the jargon continues to change as fast as the Western economy is readjusting itself to a wired world. Whichever phrase you choose to adopt, using networked technology to manage and deliver learning across your organisation is becoming increasingly attractive.

The financial services sector is experiencing a huge level of change. Products are proliferating, competition has never been more fierce, the internet being the core catalyst. To meet the demands of these new market conditions, organisations must be able to respond quickly and efficiently. Staff must be trained and developed in shorter time frames, more frequently and with less disruption to daily business activity. Using online learning technology is now an essential ingredient in meeting this challenge.

A recent IDC survey revealed that 25% of companies in the US actively use online learning. In the UK, a DfEE survey conducted by Epic Group plc showed that 5% of organisations are currently use online learning. However, *planned* usage is expected to be over 22% within five years. Given the pace at which awareness is growing, this could be a conservative estimate.

So what's driving this growing enthusiasm? The key interest centres on an apparent win/win/win. The learner benefits, management benefits and the bottom line benefits. The cost effectiveness and return on investment of implementing an eLearning strategy are compelling even to the most cynical CEO.

The learner benefits from improved access to consistent, up to date content that can be completed at your own pace and convenience. The learning process is also enhanced. The opportunity to reinforce the learning messages more frequently leads to better retention and can shorten the overall time taken to reach effectiveness within the workplace. Online learning means the traditional course model of training delivery can be abandoned and replaced with a more flexible and effective approach that better suits the demands of the modern business environment.

The management benefits from having much more meaningful control over the learning and development process. With a networked infrastructure, it is possible to track individual progress through a planned programme of learning activity, conduct assessments to judge performance and provide more appropriate remedial action. In short, implementing a learning management system can remove the pain of administration leaving trainers free to focus on coaching and support activities. Senior managers can access more readily up to date reports on progress, at regional and individual levels. The opportunity is now at hand to more accurately gauge how a learning intervention has impacted business performance and to establish the actual return on investment.

Of primary interest to the Board is the bottom line. An online learning infrastructure can lead to significant savings in student costs and delivery costs, primarily in the form of travel, accommodation, opportunity costs, and trainer costs. These cost benefits alone often justify the initial investment in an eLearning infrastructure. A good example of eLearning can impact the whole business is the experience of Sun Microsystems.

In 1995, it took 12 months to get a Sun sales representative up to full sales productivity. Through the provision of product and industry learning material through SunTAN (their internal intranet), new employees can now complete their induction within 6 months. Sun calculated that the additional revenue generated by the 1440 reps within the now reclaimed period of productivity totalled \$3.6 billion – nearly 15% of all revenues. Obviously not all of this can be credited to the training initiative, however, assuming

just 5% of the improvement did come from their eLearning strategy, the return on investment was still over 900%. Sun also calculated that they saved \$2,400 per employee (airfare, hotel, food and transport) as a result of not having to send the employee to head office. Over \$2 million annually is saved on travel alone.

While this is a dramatic example, it is not uncommon to realise returns of several hundred percent. Indeed, closer to home, the Royal Bank of Scotland has managed just that. The Royal Bank is no newcomer to learning technology. CD-ROM has been used to good effect in the past for IT training of key systems installations that have been rolled out nation-wide. This experience proved that real benefits could be achieved on a wider scale online. As part of a strategic review of its retail bank operations, it was identified that the level of change demanded a radical change in training delivery. Traditional classroom methods would prove just too costly and time consuming. Indeed, a key issue was availability of expert training resources sufficiently knowledgeable in the skills and processes. It simply was not practical for these people to reach over 15,000 staff across the country within a sensible time frame. Secondly, the need to train new joiners meant that the lack of persistence of conventional classroom methods would lead to high ongoing training costs.

This immediate requirement, alongside additional strategic considerations, lead to the proposal of a comprehensive online learning infrastructure. The business case model determined an expected sevenfold return on investment.

Currently, IT training is the most popular subject for delivery on line. It is a natural fit – using a computer to learn how to use a computer makes intuitive sense. Also, the nature of content suits delivery in short, timely chunks and competence can be more easily assessed online. However, all areas of an organisation can benefit. The subjects likely to have the greatest business impact initially include product knowledge, process and production procedures, health and safety, and compliance.

While the benefits of investing in an eLearning strategy are convincing, it is not necessarily an easy road to reaping them. This is an integrated solution that requires high levels of cooperation and collaboration between the traditional organisational departments of IT and HR. Also, as it involves providing a direct service to all business units within an organisation, possibly on a global scale, it will need to account for cultural issues and possible (nay, likely) resistance to change.

Common obstacles include the existing IT infrastructure, resourcing and accountability. The existing network architecture may not be able to accommodate such a large initiative that includes the delivery of large volumes of content (potentially rich in media) and database connectivity issues – the bandwidth simply may not be available. Also, it may not be available to all staff who require access to learning resources. Indeed, the existing network may be carrying mission critical data that cannot be compromised into competing for bandwidth.

The Royal Bank of Scotland chose to avoid this issue entirely by choosing to build a parallel network designed for the task. Their Training and Communications Network (TCN) reaches over 650 branches in the UK and is the gateway for over 20,000 staff. The branches are served through multimedia PCs linked using ISDN into the company intranet. Staff log into ORBIT from which they can access a full complement of resources.

Over 100 hours worth of interactive learning content is available. This was developed specifically to support training and development programmes for particular job roles (such as the role of Customer Adviser and Customer Service Officer), based upon a clear package of requirement of competences and skills. Each training and development programme consists of a mixture of online modules, assessments, videos, offline workshops, observations and third party activities. The whole programme is managed online, and individual members of staff can track their progress through both the online and offline activities. The online learning modules are sophisticated in design offering a range of interactive activities and question styles. Video and audio are used where appropriate and are drawn from an associated CD-ROM. This hybrid approach takes into account the current impracticality of delivering high bandwidth media over the network, while allowing for easy migration once bandwidth does become available.

Behind the learning content, is a comprehensive learning management system, built to The Royal Bank's specification. This tracks user activity to section level and records assessment scores and other activity data in a database. Managers within HR and the relevant business units can retrieve comprehensive reports and spot differences in performance at regional, branch and individual levels.

Another key part of the TCN is the Virtual Classroom. This enables staff to tune into broadcast events, in which they may participate without leaving their branch. These broadcasts are sent via satellite and are viewed using the PC. User feedback to ORBIT and TCN has to date been extremely positive. This has led to an increase in demand for further content provision across the Bank. Given the increased rate of change within the business, update and maintenance will be an ongoing issue for both online and offline activities. However, the task is more manageable within an eLearning model, allowing for more timely delivery of up to date content.

Creating and managing such a large initiative requires careful planning, internal resourcing and collaboration between departments and external suppliers. Achieving this is a considerable challenge, that can confront cultural opposition. Senior management support is essential in ensuring the initiative gets the priority it needs to survive in the short term until the benefits become apparent to all.

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Community School District 8 Launches HomeBase8™

Life in the 21st century will require a new set of skills for us in our work life and in our personal lives. It is predicted that financial success, already data-dependent and data-driven, will become even more so in the next millennium. Therefore the ability to access, analyze, and apply information will be a must-have skill. All one has to do is read the classified advertisements to appreciate the necessity of technology skills appearing on an applicants resume. Numerous employers welcome such a resume with open arms and generous salary. But for the "have not" applicants the pickings are decidedly fewer and less green.

Sadly, far too many students fall into the "have not" category, relegating them to second rate jobs and a greatly reduced range of opportunities

To meet this challenge, Dr. Betty A. Rosa, Superintendent of Community School District 8 in the Bronx, has launched Project HomeBase8™. This initiative places a new Apple iMac computer into the home of every District 8 student. An Internet provider and E-mail account are also included. Additionally, parents receive free and comprehensive training that includes educational uses of the Internet, word processing skills, and E-mail protocol.

There has always been a need for information to flow freely between schools and parents. Too often parents are denied critical information regarding their children's education because of faulty, antiquated methods of communication.

The HomeBase8™ web site (<http://www.homebase8.net/>) enables and encourages parents to become actively involved in their children's education via up-to-date district and school calendars, contact information, and E-mail communication. Our goal is allow seamless digital communication for the entire District 8 family.

Another function of HomeBase8™ is to provide our teachers and students with quality web-based activities. For teachers, students, and parents, The District 8 Curriculum Development Team produced lessons, activities and Links that address State and City Standards, the various curriculum areas, and technology skills. Our development team has adopted a model and methodology developed by Bernie Dodge called WebQuest.

A WebQuset is an inquiry-oriented lesson format, which supports higher level thinking skills by giving learners an interesting and doable task and providing web resources to accomplish it. Each WebQuest8 activity is interdisciplinary and we encourage our teachers to customize them to suit their instructional goals. Other features of the HomeBase8™ web site include an interactive map of the Bronx, educational and reference links targeting students, parents, and teachers, a tech support page, and a section for District 8 educators to post pictures and text taken and written while traveling.

To sum up, the major goals and objectives of HomeBase8™ are:

- Place an Apple iMac computer (complete with an Internet provider and E-mail account) into the homes of every District 8 student
- Provide free training computer training for parents – focusing on computer basics, word processing, educational use of the Internet, and E-mail techniques and protocols
- Create engaging Web-based activities which will be accessible, via our web site, at school or from the home
- Create seamless E-mail communication for the entire District 8 family

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The Bristol Biomedical Image Archive: Supporting Learning and Teaching via the Web

Background

The biomedical disciplines are traditionally highly visual. Images are essential in biomedical education and have always been used to support learning and teaching, providing access to visual representations of complex information that cannot be substituted by purely textual resources. Because of the difficulty and time involved in finding suitable digital images for teaching, there is a tendency in biomedicine, as in many

other disciplines, for academics to build their own collections of images.

The Bristol Biomedical Image Archive, or Bristol BioMed (<http://www.brisbio.ac.uk/>), was developed with the aim of bringing together individual lecturers' image collections to create a centralised bank of digital images. This permits more flexible access to image resources for teachers and learners. Digital resources delivered via the Internet provide access from multiple locations and so remove limitations of time and place and are cost-effective in an atmosphere of increasing student numbers and dwindling resources. Increasingly, also, there is a need for resources to support the trend towards student-directed study.

Bristol BioMed is a growing collection of 8500 medical, dental and veterinary images donated by academics and available via the Web for use in learning and teaching. They are freely available, following registration, to UK Higher Education Institutions for use in learning and teaching. The project is hosted at the Institute for Learning and Research Technology (ILRT), at the University of Bristol.

Bristol BioMed started life in the early 1990s as a videodisc. In 1994 funding was received from the Joint Information Systems Committee (JISC) to make the archive available on the Internet. Under this phase, rights were renegotiated with the donors to allow the images to be digitised for storage and delivery on CD-ROM and World Wide Web networks. Images were converted to a standard resolution and colour depth suitable for network delivery and a visual quality check was carried out.

Improving Image Retrieval

Starting in 1998, the next phase of the project involved cataloguing the images using the National Library of Medicine's (NLM) MeSH (Medical Subject Headings) descriptors. This approach has permitted a high standard of accuracy and consistency, and improved search and retrieval facilities.

The descriptions of the images were those originally supplied by donors; at the time of donation metadata was not understood or applied as it is today in electronic collections. The usefulness of the information was frustrated by semantic and syntactic inconsistencies, use of multiple terms for a single concept, and alternative spelling forms. Although the metadata embodied potentially valuable material, it could not be exploited fully as an information retrieval resource without the use of a more disciplined categorisation system.

The NLM's Unified Medical Language Scheme (UMLS) hosted at the NLM Web site (<http://umlsks.nlm.nih.gov/>) is currently used as a tool to assist online cataloguing. The Metathesaurus component of the UMLS is made up of approximately 40 biomedical vocabularies and classification schemes, and overcomes the fundamental problem of diverse medical terminologies by matching different terms with a single preferred concept. Further control and standardisation of catalogue records is achieved by use of defined cataloguing categories. The categories are those described in the Dublin Core Metadata Element Set (http://purl.oclc.org/dc/about/element_set.htm) extended to accommodate the range and variety of biomedical subject matter.

Bristol BioMed users may perform a simple keyword search of the entire archive or choose an advanced option for searching on specific fields or sections. The intrinsic hierarchical structures and advanced searching capabilities of the UMLS-based system have formed the basis of an experimental search interface. This permits users to investigate further resources by either browsing or expanding or focusing searches.

Integrating Images with Learning and Teaching

Additional funding from the JISC has recently allowed the project to make a shift in direction. Rather than concentrating on simply providing access to quality digital images, Bristol BioMed is taking on a more

proactive role, demonstrating the practical uses images can have in a learning and teaching context and making it easier for potential users to incorporate these uses with their own teaching practices. Called the Bristol BioMed Learning and Teaching Project (BB-LT), this project is focusing on use of the enhanced image archive to create learning and teaching materials. The aim is to encourage the use of digital images within the biomedical learning and teaching domain by improving the usability and relevance of Bristol BioMed. This aim will initially be achieved by making available the following groups of resources:

Case Studies

Subject specialists who have donated images to Bristol BioMed have been commissioned to produce case studies drawing on their experiences of using the images to create tutorials. The resulting tutorials and case studies will be made available from the Bristol BioMed Web site for users to consult and download. The resources will include PowerPoint presentations, HTML tutorials and CALNet tutorials. CALNet is a software program that allows lecturers to create Web pages without the need for programming skills or knowledge of HTML. It is freely available to UK higher education users.

Academics will be encouraged to contribute their own learning and teaching materials to the site by the provision of a simple template and procedures to simplify uploading of donated materials to the Bristol BioMed Web site.

“How-to” Guides

A series of “How-to” guides to using Bristol BioMed is being produced. Guides will focus on particular aspects of the using the archive such as searching for and downloading images, using images in PowerPoint and creating digital images from slides.

The case studies and “How-to” guides will form the basis of a growing suite of learning and teaching materials to be housed at the Bristol BioMed Web site. These resources will both encourage and support users attempting to create materials, as well as highlighting the range of ways in which Bristol BioMed images can be used.

References

ILRT	http://www.ilrt.bris.ac.uk/
JISC	http://www.jisc.ac.uk/
Dublin Core	http://purl.oclc.org/dc/
National Library of Medicine	http://www.nlm.nih.gov/
United Medical Language System	http://www.nlm.nih.gov/research/umls/
CALNet	http://www.webecon.bris.ac.uk/calnet/

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Managing large modules via web sites

The Learning Environment

This study revolves around 2 large modules, Business Information Systems and Strategies for Information Management in a UK higher education setting. The first module takes in over 700 students across the 2 semesters. Students are not evenly spread across the two semesters as more than 400 attend the module in the first semester. To complicate the module further, in the first semester, a number of study abroad students also undertake the module, these students come from a number of countries including a large cohort from Japan, a number from the USA, and others from Europe under various exchange schemes. There is also a cohort of evening part-time students taking the module. Each year a number of additional courses outside the business school also choose to take up the module, so the size is still growing.

The major issue in running this module thus becomes 'How do you communicate with students?' bearing in numbers and physical location of some of the students (some are in work full-time and studying part-time). Communication of the same message, simultaneously, clearly, unambiguously, to all students and staff is a major issue. Due to the size, and different modes of running of the modules, it has proved impossible to gather all students together in one lecture theatre at the same time so repeat lectures are held and students never meet as one complete cohort.

First ideas on how to communicate effectively with the students included a module notice board, but there was no obvious physical site. Failing a physical notice board it became apparent that a virtual notice board was required and this has now developed into a full module management site.

Web site development

Good site design is also an important feature and one of the earliest examples of a web design methodology was developed by John December (www.december.com). If a web site is to be used as the medium, it needs to adhere to a series of principles. It is important not to merely duplicate practices intended for paper and other media - there is the potential for a web site to do more and this potential should be realised.

In this case, the staff developing the web site had little formal training on web site design and development. The use of the FrontPage software was found to be very helpful as the package allows the development of good design features such as buttons and frames without in depth knowledge of the background programming involved. An iterative approach using prototyping has proved to be very useful where there is good user participation in the process.

To gauge the effectiveness of the use of a web site, feedback was sought in the following areas;

- Was all relevant information available?
- Was site navigation easy?
- Was access to any part of the site problematic?
- Was the information always up-to-date?
- How easy was it to influence development of the web site?

A model of the student's preferred communication process is shown in figure 1.

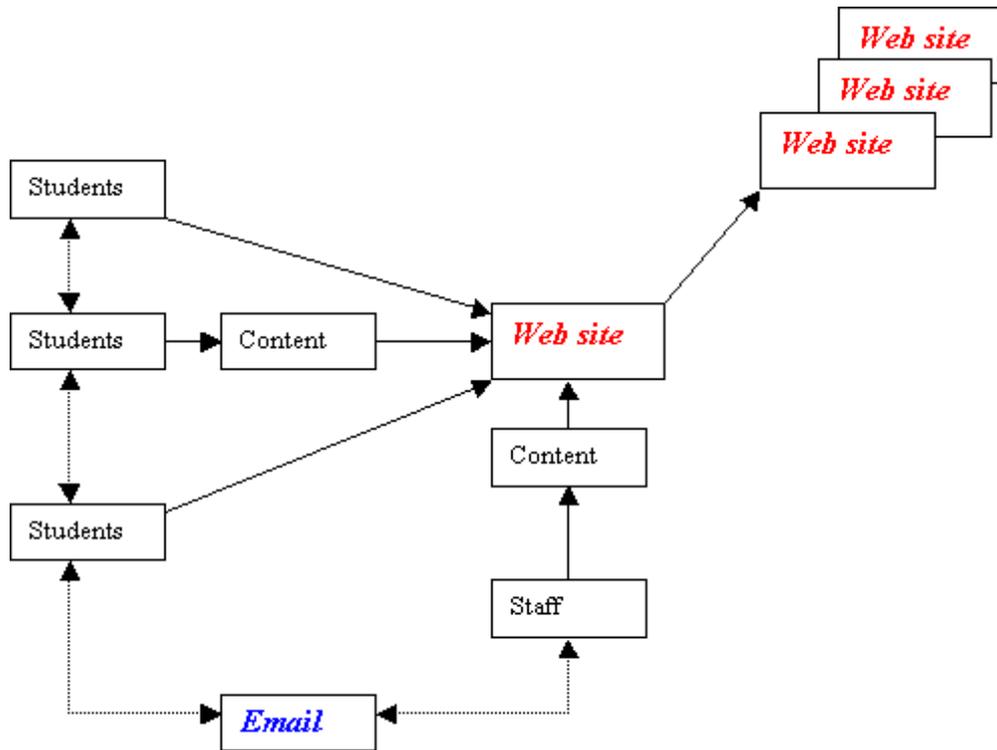


Figure 1. Mass Communication model for staff and students using Web sites supported by email

Module Web sites

The sites are not complex but are intended to give the necessary basic information without the need for paper copies being provided by staff of anything other than the most initial module details especially including the web site address! After the first lecture all other material from then on, including assessments, are provided through the module web site.

The web sites are used as a method of ensuring that communication is kept consistent and constantly available but in addition they have been used to provide additional teaching materials around and between formal lectures and seminars. Thus articles and web site links have been added on a regular basis, items of interest from lecturers' reading have been added, and seminar materials have been collated on particular discussion topics and posted as well as links to other sites of interest.

Pros and cons of using a web site

- The major pro in the use of this type of communication is the secure knowledge that you have done your best to make all the necessary information available, to all the stakeholders - staff and students - in one place that can be accessed by all.
- The web site actually develops interactively with the student comments.
- The web sites are also available to potential and forthcoming students as a 'taster' of what will be coming and are often accessed in advance of taking the module.
- Putting answers to student queries on the web-sites saves, in the end, lecturer time.
- Another saving in staff time has been provided through posting a set of generic comments as feedback on formative assessments on the post-graduate module.

The cons are threefold:

- firstly the time involved in developing and managing the site can be considerable, especially at the beginning of a semester, and is a constant drain as the site has to be updated regularly;

- secondly, students cannot be forced to use to the web site, although we can make it very difficult for them if they don't; and
- thirdly the technology! The technology used at present is FrontPage 2000 on standard PCs. which as users of this software package will be aware has a number of idiosyncrasies which can make life frustrating at times.

Future development

These web sites are not static. It is intended that interactive discussion groups be started on the postgraduate site for both seminar and assessment topics. It is important that the students perceive these as leading to the development of a community for them to be effective.

The obvious future development is to move towards a multimedia based web site with enhanced capabilities, however, the real issue of importance is student ease of access. If more complex presentation leads to poor access, this has to be abandoned in the light of the sites' main aim of supporting students.

In conclusion, it has to be said that the use of a web site has been very successful to date and has the potential to allow delivery of such large modules on other courses with the ability to manage the process – a truly enabling technology.

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Do Students Learn Better With Technology? It Depends On How You Define Learning!

Last week I had a conversation with a businessman who insisted that we have “no evidence whatsoever that technology helps kids learn.” I asked how he was defining learning. He talked vaguely about how children aren't being taught phonics, how students can't locate Minnesota or Idaho on a map, and how the young clerk at K-Mart doesn't know how to make change. I then asked him to tell me what he hoped new employees at his place of business would have learned in school. He didn't mention Minnesota or Idaho. It apparently doesn't matter if they learned to read with phonics or with whole language, and he never mentioned making change. What he did talk about was the importance of knowing how to solve problems, how to find and use information, and how to work with others—two very different definitions of learning! If we use his first definition of learning—facts, skills, content—then he is wrong. There is considerable research indicating that students learn more content and learn it faster with technology (i.e., Kulik & Kulik, 1991.). If we use his definition of learning as real world problem solving, finding and using information, and working well with others, then he is right—we have little research that shows what happens when teachers and students use technology in these ways.

The Research Center for Educational Technology (RCET) at Kent State University was established in 1999 to study the conditions under which teachers and students use technology to pursue lines of real-world inquiry, problem solving, and high-level thinking. The Ameritech Electronic University School Classroom at KSU is one context in which the research is being conducted. The Ameritech Classroom opened in spring 1998. It is a technology-rich classroom where local K-12 students have “school” every day for six weeks at a time. The unique feature of the Ameritech Classroom is the Observation Room, a one-of-a-kind research facility attached to the Ameritech Classroom where researchers unobtrusively observe and collect data.

If these researchers are to learn what conditions lead to high level learning, then teachers who come to the Ameritech Classroom must provide such a research context. Administrators nominate teachers based on a questionnaire that reflects a synthesis of years of research regarding what constitutes “best practice.” It draws on the work of Zemelman, Daniels, and Hyde (1998), Burke and Short (1991), Becker and Riel (1999), and others. A major reference in the development of the questionnaire was *Teaching, Learning, and Computing: A National Survey of Schools and Teachers Describing Their Best Practice, Teaching Philosophies, and Uses of Technology* (Becker & Anderson, 1998). The questionnaire uses well established principles of high quality teaching and learning to identify teachers who will benefit most professionally from the Ameritech Classroom, who will provide a rich context for research, and who will provide leadership in their buildings to share the experience.

It is too early to definitively report our findings, but studies currently being conducted have the potential to inform the profession about how technology “helps kids learn.” The research studies include, among others, the following:

Dr. David Dalton (Kent State University) : "Web-Based Collaborative Problem-Solving"
Dr. Dalton is examining how Internet communication technologies can facilitate learner interaction and promote learning through collaboration and authentic learning contexts.

Ms. Theresa Minick, Dr. Greg Shreve, and doctoral candidate Sandra Torres (Kent State University) :
"Spanish in the Ameritech Classroom"
The data from this research study, conducted in spring 2000, is currently being analyzed. The researchers studied how university students learn a foreign language with web-based course work.

Drs. Barbara Schirmer and Albert Ingram (Kent State University), graduate assistants Tina Harrison and Lynn Woolsey (The Ohio State University), and Jill Bailey, Coordinator of Deaf and Hard of Hearing Services (Hillsboro, Oregon) : "A Graphic Online Chat Environment to Improve the Written Language of Students Who Are Deaf"

This study, now in its second year, seeks to answer the question: Can specific features of the written language of deaf students be improved through teacher scaffolding during online discussion? The subjects are student teams, each consisting of one deaf and one hearing student who communicate to solve academic problems in a chat room.

Ms. Margarete Juliana and Mr. Mark Van t'Hoof (Doctoral candidates at Kent State University) :
"Technology Integration and the Changing Curriculum: One Teacher's Evolutionary Process Working Within a Technology-Immersed Classroom"

Data from this study is currently being analyzed. The study focused on one teacher who was leading a team of four teachers of 36 9th grade "at-risk" students, integrating technology at high levels for the first time.

You are invited to join these researchers and others in exploring the conditions under which teachers and students use technology for problem solving, inquiry, and critical thinking, and what the impact of such use is on student learning. Funding is available through RCET to support research projects, either in the Ameritech Classroom at Kent State University or in the preK-16 field. Guidelines for proposals, which are

blind-reviewed, can be found on the RCET website at www.rcet.org. The Ameritech Classroom Teacher Nomination form referenced above can also be found at this site as well as descriptions of other research projects.

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A Level Playing Field

During the 20th century, computers have become almost ubiquitous in our society. They are used to send and receive information on topics as varied as recipes, medical information, financial news, and books. They carry audio and visual information on a daily basis. Computers have opened the world of information to those who have significant disabilities. Beginning in the 1980's pioneers like Dr. Norman Coombs began using computers for more than just computations. It was discovered that with some adaptations, a blind person could hear information read or have it displayed by a Braille output device, supplementing the Braille book and manual typewriter. People who are deaf are no longer restricted to TDD's but can communicate with anyone who possesses a computer and electronic mail or chat facilities. A person with a learning disability can access text in both written and spoken formats simultaneously, which aids comprehension. The computer has broken down barriers and leveled the playing field for many.

During the last decade of this century, computers have taken a prominent place in the education arena, and students with special needs have been included. In fact, a disproportionate number of students and adults with special needs have taken on the challenge of pioneering this new technology because of its advantages to this population. The following paragraphs describe one aspect of computer access, which is particularly effective when used with students with special needs; Text Based Virtual Reality, as exemplified by the site called GrassRoots.

Text Based Virtual Reality, (TBVR), is an environment on the Internet where people can come to chat or to express themselves through typed text. It evolved from the Multi-User Dungeon (MUD), which allowed users to converse and build their own additions to it. Its Interface is like that of the old Infocom game called Zork where players could enter rooms and pick up and manipulate objects and interact with the computer to solve a puzzle. This type of environment, called a MOO, because it is programmed in Multi-user Object Oriented language, has been used for education since 1994 when Diversity University and Lambda MOO's were formed. GrassRoots is a Virtual World aimed at literacy for those with special needs. Today's TBVR's, including Grassroots, take this format and utilize it in three significant ways: as a vehicle for improving literacy skills, as a means toward expanding literary prowess, and an equalizer of technologies.

Because a TBVR/MOO is text based, all the trappings of the environment, the rooms, the objects, the character descriptions are visible as text. Any command that is given or interaction that takes place happens through the medium of text. Personae must communicate using language, and that language which is presented both to the computer and to other personae must be written in a standard format, that of written English. Thus has the 21st century come up with a means to teach reading and writing naturally, as we learn to listen and to speak.

Students who have language difficulties, either written or spoken can benefit greatly from using TBVR. The interaction between their peers and the MOO itself is fun, and it motivates them to write the proper syntax to communicate their needs and ideas. For example, moving from place to place or learning to smile and to do other actions in the environment reinforce the use of first person singular and third person singular verb forms. This is excellent training for those whose mother tongue is not English. Lesley Shield and Marcus Weidinger have done much study and research in the ways TBVR can be used to improve literacy.

However, the most significant results of using TBVR by students with learning differences or language deficits can be found in examples of progress made by individuals. At GrassRoots, one student named Sean improved his reading level by four grades during the year he spent using GrassRoots with his classmates. Sean had a learning difference, which prevented him from keeping up academically. Through his use of GrassRoots, he was able to narrow that gap considerably. He built a castle and learned to converse with others in complete sentences. The desire to tell a story and the words to express it through the use of text is inherent in the TBVR. In order to describe a room, for example, a user must employ words to convey the picture that he/she sees in his mind so that others can see it as well. The clearer the description, the easier it is for a reader/player to "see" what the creator of a room "sees". Learning to manipulate words to paint pictures is the essence of the literary art form. Teachers of creative writing courses stress use of adjectives and similes and metaphors. A resident of GrassRoots can show others how a forest looks to him or how an office should appear.

Writing creatively can be used to express one's dreams or one's feelings about oneself. A person who has a visible disability can use TBVR to tell others who he/she really is. The reader doesn't see the long white cane, the wheelchair, the ticks and odd speech of Tourette syndrome. One "sees" the bard, the magician or the running horse. One of Grassroots most memorable residents was a teenager with Tourette who created a world that could be reached by going through the back door of a general store. Vedic used words to describe this world and then used objects that had linking descriptions to tie it all together, creating an intricate picture painted by using words alone.

Because GrassRoots and other TBVR sites are text based, all comers easily access them. Persons who are blind and use screen readers to access a computer find TBVR to their liking because there are no graphics. Those with low-end equipment can access places like GrassRoots via telnet making TBVR a leveler of the playing field in its own right.

When students and adults access GrassRoots as well as all other aspects of their computers by using these advantages, it creates a rich environment where students compete on an equal footing. One might ask if computers continue to level the playing field for students and adults, whether today's "learning disabilities" might disappear? Might adults who have significant disabilities be merged into the work force without fuss? GrassRoots is one small aspect of the Internet, but it typifies this new exciting trend toward equalization and inclusion.

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Educational Basics for the 21st Century

As the 20th Century draws to a close, we see a period marked by the extension and integration of 19th Century technology. Telegraph messages are now sent by fiber and are called email; the radio of Marconi has expanded to include radio astronomy, television and wireless phones; the quill pen has been replaced by the word processor; and the World Wide Web integrates them all. The basic skills and tools that a person must take from the classroom to the workplace of the 21st Century are not the same as those for the 20th Century student. Educational practice, however, has not kept up with these changes and continues to place too much emphasis on the ideals of the 19th Century.

The paper has two goals:

- Show that Early Education places too much emphasis on 19th Century skills
- Describe alternative strategies and tactics for literacy and computation.

Conventional educational strategy is to start a child with a pencil and then move to a computer. Such a strategy ignores the lack of fine motor control of 5 and 6 year old children and the effects of task difficulty on learning. A young child whose skills have not fully developed would find a keyboard press much easier and the result more legible than the use of a pencil on paper. The keyboard is the tool of the 21st century, a pencil a tool of the 19th. A pencil is no more basic than a keyboard, just harder to use. Young children are already becoming familiar with computers and soon they will come to school with maturing keyboard skills.

My expectation is that the first grade experience will be used to increase keyboarding skills rather than to manipulate a pencil and to develop writing so it is on a par with speaking. Reading will be learned incidentally as implied by the IBM Writing to Read program. The second grade will build on this literacy base and develop creative and expository writing skills.

The World Wide Web has been in existence for less than 10 years but has become an integral part of our society with unprecedented speed. The stress in Education, however, has been as a tool for research. This does not go far enough. The printed textbook starts life two years out of date and must be updated periodically. Replace the textbook with web sites that cover the same material, are constantly updated, and can be customized by the class teacher.

The WWW is more than a multimedia search engine. The real power can be seen in the terms "html" and

“http” – hypertext. A paper written for the web can take advantage of hypertext to point to specific information and organize that information in ways not possible with traditional writing tools.

An electronic forum is another Internet tool that has a long history in Education. [KidsNet](#), started in 1985, was the first email forum for children. By 1991 students from all over the world were writing about Christmas Dinner on [Chatback](#). Today students can read about and interview people who lived through WW II in Europe and Japan on [Memories](#). A Dickens scholar will answer questions in character on [Boz](#). The electronic forum can be a source of information on current events, an interactive information center, and an archive of past messages that can be searched.

Text-based virtual reality (TVR) refers to a Virtual World, which can be compared to a chat room that you can re-arrange and expand by typing what you want to create. One can build a home, have a pet, and communicate with others. Students find TVR to be highly motivating and an excellent tool for creative writing. Visit [GrassRoots](#) for an example of one such world.

Arithmetic is often seen as the basic from which all subsequent mathematics must flow. That may have been true in the 19th Century, but computers have made arithmetic incidental. Accountants, engineers, mathematicians are all expected to use computers to do precise arithmetic. Furthermore, arithmetic is not only unnecessary; it can interfere with higher math.

I favor a spreadsheet, which allows a student to learn mathematics in an environment where the arithmetic is transparent. I showed my 12-year-old niece how to do use a spreadsheet to do the mathematics she was learning at school. When I asked her what she thought she said, “Fine, but that’s not math. That’s easy!” What mathematics would be taught in the first grade if arithmetic were transparent?

I taught graduate level statistics and I *know* arithmetic is a problem. If I asked for the error variance, given experimental variance of 238.943 and total variance of 746.93, I would be met by many a wide-eyed stare. If I substituted 10 for the total and 8 for the experimental variances, everyone answered 2. They understood the concept, but the arithmetic masked it.

On the other hand, there are times when using your computer is not convenient or time efficient; everyone needs to check a bill and/or calculate a tip. In these cases precision is not essential and estimation will suffice. Children should be taught to estimate answers in a game like environment where they are given immediate feedback and evaluated on their deviation from nominal. In effect, they are playing a game for their grade. I predict that children will be able to estimate the standard arithmetic tables to virtually 100% accuracy and will be approaching that level of accuracy with two and three digit numbers.

Our economy is at an all time high with low unemployment and inflation, and strong consumer confidence. Warren Greenspan, Chairman of the Federal Reserve, considers this the result of greater productivity in the workplace, engendered by the increasing use of technology. This greater productivity must be expanded from the workplace to the schoolspace. At least 10 years ago someone quipped. “It took 15 years for the overhead projector to move from the bowling alley to the classroom”. How long will it take this time?

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Using CAL to assist in the instruction of practical skills - A Case Study from Art & Design

Workshop Techniques is telematic course designed to teach the subject of wood and metal working skills to undergraduates at the Faculty of Art and Design, University of Hertfordshire. The application uses embedded diagnostic tests to assess the student's knowledge of health and safety issues and test for skills competency in using the workshop machines. The project is web based and consists of ten sections each devoted to a particular machine. It is used both as a preparation for safety practices as well as resource for the reinforcement of their most important points. Students are able to undergo formative assessment in the test sections. In all there are 42 test sections comprising 185 questions. The question types are true/false statements, multiple choice "fill the gap" paragraphs and machine labeling exercises. Each test section allows the students to email the tutor directly who stores the data on a spreadsheet. The questions were produced using Javascript and form elements provided by the LTDU Question Generator (http://www.herts.ac.uk/lis/ltdu/development/question_generator).

It was built to harness the students' enthusiasm for the Web and e-mail, in order to teach what might be considered a traditional subject (Woodworking and Metalworking) in a new hi-tech way.

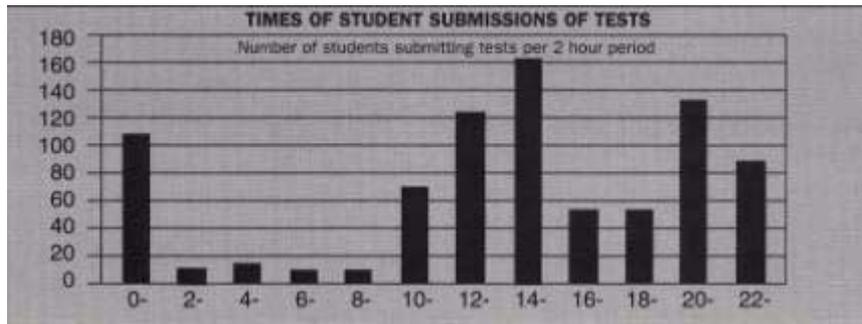
Prior to the inception of the package, the students attended a typical 1.5 hours lecture/demonstration session comprising of two parts. The first was a demonstration on how a particular machine was operated. The second was the completion of a set task by each student on the machine. In my experience this method seems to be the most usual way of teaching these types of skills. While being successful in initially imparting techniques for using machines, the format is not so successful in keeping the knowledge in the forefront of students minds, particularly when they may not use that particular machine for some months after the initial lecture/demonstration session. The student then has to rely on the notes they have taken during the session. So if they prove to be inadequate the only recourse they have is to ask for assistance in setting up from either one of the technical staff or the lecturer in charge (usually me!). In addition, problems always arise with the method outlined above in so much that in any large group of students, some will always miss the initial lecture. This creates a problem for the University. To be covered in terms of Insurance, each student has to have received instructions on the safe operation of the machines. If they missed one lecture, e.g. Milling machine, I have to repeat this lecture/demo session just for them. This is inherently wasteful in terms of resources.

To enhance learning I transferred the lecture onto Netscape using its ability to follow links and scroll down pages in a document, to make reading of information simpler and more fun than a simple photocopied handout. By using Netscape I made the whole system of imparting information much more interesting and "Fun". I could also include close up photographs of the machine, showing particular operations as well as explanatory diagrams and illustrations. This type of delivery tapped into the students latent interest in anything remotely technological. The pages were indexed so that students could refer back to what they were looking at previously. The pages were divided into sections for ease of use with a page on each machine, as well as linked pages on, e.g. operation Health and safety tips etc. By following the Links they can also take in as much information as I can give them. In the case of the student who has totally missed the lecture, they would have to follow all the links telling them all about the machine and its attachments. A student however who had attended the initial lecture and only wanted information on one particular aspect could skip through most of the pages and links to gain the specific information that they wanted.

In addition to the teaching material, there are 10 test sections within Workshop Techniques, each designed to test the student's knowledge of a specific machine. Each test section is composed of four question types: multiple choice question, true/false statement, a "fill the gap" exercise where students are required to type in missing terms and machine labeling quizzes. In total the application contains 185 questions. The test results were e-mailed to me on completion.

Because the package was an inbuilt part of a course, take-up by students was very high. 90% used the

package, particularly the tests. Use of the tests resulted in the generation of over 3,000 e-mail responses. What was unexpected was the amount of time each individual student spent using the package. Figures of 7 to 8 hours were not uncommon. The number of hits the pages got at different times of day was also interesting. The largest number of hits was recorded between midnight and 1am weekdays and Sunday afternoons between about 2.30pm and 4 O' clock.



This was surprising as prior to the package being developed students only attended a 1.5 hours lecture/demonstration and did a simple multiple-choice test based on a slide show. One of the most encouraging things when developing on-line applications is this kind of tangible feedback one can get about one's teaching and materials. When you see the e-mail, detailing one's students' understanding of the materials, as well as more interesting findings of the kind described above, it rewards the effort you put in. In this particular case, the instant feedback from tests had many uses: you could immediately see whether a student was competent to be able to use the machines on their own. This was valuable for the faculty because Health & Safety requirements demanded that each student was deemed to be competent to use the machinery. Instead of long tests in a lecture setting (which had to be physically marked) the package told me the percentage each student got right instantly. So, there was no delay between the student taking the test and being documented as having passed (or failed) the test.

Workshop techniques are viewable at: - <http://www.herts.ac.uk/lid/ltdu/projects/mm2>

More information is available at: - <http://www.herts.ac.uk/lis/ltdu/projects/previous/98/mm2.htm> detailing papers and other documents that have been written about the project.

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Using Virtual Environments for Training in Radiological Protection

Abstract

This paper presents the work that has been carried out at the UPM (Universidad Politécnica de Madrid) under the

frame of the project PRVIR, promoted by DTN in cooperation with Vandellós II Nuclear Power Plant.

The aim of the project is to explore the possibilities of the use of computer-based training in nuclear plants, taking advantage of multimedia resources and virtual environments. The area that has been selected for this first training program is radiological protection fundamentals, and the users of the program will be professionally exposed workers (coming into a nuclear plant for the first time).

Structure of the Course

The course has been divided into two sections, covering generic and specific knowledge respectively. The objective is to gather into the second section all the knowledge that is specific to a given nuclear plant and thus it would have to be adapted in order to provide training in a different plant. The general section, however, should be reusable.

The first section starts with a general overview of what radiation is and how it is produced, as well as the main biological effects that can derive from it, as well as the meaning of the different dosimetric magnitudes. Then the course goes into the different types of risks associated with the work in a nuclear plant and the different types of devices that are used for detecting and measuring each of them. The section is concluded with some operational protection topics that teach the student how to avoid or minimize the risks.

The specific section deals more deeply with radiological protection, providing more practical details that are usually specific to a given plant. A map of the installation, for instance, is included into the program, as well as interactive three-dimensional representations of important scenarios. The student will be taken through all the steps that are necessary for a Professionally Exposed Worker in order to do his/her job safely in the radiological area of the considered nuclear plant (Vandellós).

Pedagogical Approach

The first section follows a more conventional approach to computer-based education and training, while the specific section required the design of a more elaborate model that fully exploits the advantages of using an interactive three-dimensional environment.

The system takes the role of an intelligent tutor, and is responsible for deciding at every moment the next steps to be taken. A register is maintained with information about the student, his/her progress through the course and an assessment of his/her current knowledge. The decisions made by the intelligent tutor will depend on this information, adapting the course to the needs of different students.

Every section is structured into modules, and each module is divided into two stages. The first stage is mainly devoted to the transmission of knowledge, and the interaction between the system and the student is quite limited. Communication is uni-directional, and the student can only make a few choices (time spent reviewing a concept, exploration of additional information). Drawings, photographs and other multimedia elements are used whenever they are useful for a better understanding.

The second stage is a self-evaluation in which several questions and activities are posed to the student with the aim of helping him/her verify that the knowledge acquired is correct and complete. When an student fails a question, the system explains why the answer was wrong and refers to the concepts that should have been applied.

In the specific section there is one kind of activity that is especially important. It is what we call scenarios. They are used to transmit three different types of knowledge:

- Familiarization with the physical environment and the disposition of objects and places.
- Procedures to be applied in order to reach one or several objectives.

- How to react to specific events.

Three scenarios have been identified as the most significant: entry into the radiological area (see figure 1), transit zones and exit of the radiological area.



Figure 1. Radiological protection service

When a student enters a scenario for the first time, the objectives to be reached are explained, and the system demonstrates the most appropriate way to reach them. Two views over the environment have been designed: a two-dimensional top-view, in which a circle represents the user, moving from one room to another one, and a third-person point of view over the three-dimensional environment. In this view, an avatar or three-dimensional mannequin is used to represent the user. The point of view is located behind the mannequin and it follows the avatar wherever it goes. The student can observe the execution of the procedure by the mannequin like in a video-clip.

After this familiarization stage, the student is asked to execute the procedure by him/herself. He/she takes control over the mannequin and starts interacting directly with the environment. An interface has been designed to make this task simple. The movement of the mannequin is controlled with the arrow keys in the keyboard, and the actions to be executed are transmitted to the mannequin through a graphical user interface.

The behaviour of the student within the scenario is supervised by the intelligent tutor, which provides the student with hints and advice when the student's performance does not match with the required one.

Each section finishes with a formal evaluation. Its goal is to provide a global and external assessment of the student's knowledge. This is how the nuclear plant will verify that the students have acquired the needed expertise.

Conclusions

The system has been developed in Visual C++, making use of the DirectX API provided by Microsoft for the animation of the 3D environment. The models have been built with 3D Studio.

The software has been finished and we are now entering the installation and pilot-testing phase. It is expected that the use of this educational software will help the nuclear plant to provide just-in-time training, with a program that is also capable of adapting itself to the individual characteristics and previous knowledge of every student, allowing a more personalized learning.

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Teachers As Innovators

The UK Government has invested more than one billion pounds in the National Grid for Learning. But what will motivate teachers to use computers well? In our study, Teachers as Innovators, we focus on the opinions of about one hundred teachers from a range of subject disciplines who already use ICT in the classroom. The majority who had their own on-line computer and email account, agreed that all teachers and students should have an email address. Yet the average age of these enthusiasts was about 45 and the majority were senior managers, challenging the view that only the younger members of the profession can provide a lead.

These experts maintained that computers increase pupils' motivation and help them to learn. Several mentioned improved capacity for independent learning, opportunities to vary the learning, improved presentation and increased concentration.

In terms of professional development, they said that using ICT improved their presentation skills and their range of teaching strategies, promoted diversity and facilitated activities that were otherwise not possible. More resources were accessible and many administrative tasks were easier or faster. Most importantly some felt using ICT in teaching helped them to focus on the processes of learning.

Despite their competence and confidence, only one teacher had been trained to teach IT initially. Although three-quarters taught ICT to other teachers, approximately 13% had not attended ICT in-service at all; the majority had attended between 3 and 6 basic initial awareness courses and short special courses usually held in school. Most felt that benefits included enhancement of ICT skills, discussions with other professionals and new curriculum ideas. But less than half thought that these courses addressed the central issue of teaching style.

Even if all teachers are ICT competent by 2002 this will not guarantee that the use of computers develops more independent, relevant and flexible learning models. Teachers need really good mentoring and advice themselves in order to take ownership of this opportunity.

In our study we tried to identify the special ingredients that create commitment and enthusiasm for new ways of teaching and learning. We found that the Internet may be the application that fires teachers' intellect and imagination.

Very few had attended on line courses of any kind and half said they did not feel well informed about the National Grid for Learning. But they agreed on the value of sites that provide current information like the educational computing press, the Virtual Teachers' Centre and government agency resources. About a third belonged to The National Association of Co-ordinators and ICT teachers (ACITT) or the ICT professional development fellowship, MirandaNet. Being a member of a professional association including a teachers' on line support network was considered to be important. Half the participants said also they would be willing to spend about 15 hours a month tutoring and supporting colleagues on line.

The MirandaNet respondents whose on-line community has been developing for five years ago found the communication had enabled them to meet like-minded individuals, to have greater awareness of the uses of

ICT, and to keep up with advances in ICT. Some elements of this model, like long term mentoring, publishing case studies for peers, industry partnership and contact with teachers outside the UK may be helpful to other professional groups who want to set up similar on-line communities.

As a result of the research, Oracle and Compaq are funding two projects in support of teachers. Firstly the team have developed a framework for ICT in service education, which is stored dynamically on the web. Teachers are encouraged to add their evidence about what kind of training works. Secondly, MirandaNet Fellows are also developing an ICT e-mentoring service for teachers using a free web based learning environment funded by Oracle called Think.com. These activities are already proving the point that teachers are keen to support each other in developing skills in electronic multimedia. In this way the profession will come to terms with the new pressures on their teaching role.

Notes

This article is based on new findings from “Teachers as Innovators: An evaluation of what motivates teachers to use ICT” by C.Preston, M.Cox and K.Cox (funded by the Teacher Training, Compaq and Oracle).

Details of publication on <http://www.mirandanet.ac.uk> or enquiries@mirandanet.ac.uk

In service ICT Framework <http://www.compaq.co.uk/education>

Free registration to Think.com <http://think.oracle.co.uk>

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A 21st Century Curriculum Process

Quality Thinking

We're living and working in an increasingly complex society requiring higher quality thinking and decisions. Beyond just “remembering” (knowledge) or psychomotive skills, most primary jobs today require

higher order abilities. We need to be able to evaluate, synthesize and analyze ideas and processes. When we're able to practice these higher order cognitive skills we can think more critically, precisely and inventively. Eliciting higher level cognitive skills is a central focus of today's learning centered postsecondary/adult education curriculum process.

Involving People

When a company or institution maintains a curriculum process involving a number of people, the process can often dominate the content's significance. People frequently tend to think of the process as a series of hurdles to overcome rather than as a service to improve curriculum quality. Fitting the information into an administrative box often becomes more important than discovering how to guarantee behaviors needed to perform required tasks. Designing a curriculum process that allows a number of people to work at their convenience, contribute to their interests and focus on the learner is necessary for a 21st century curriculum process.

Specified Outcomes

Curriculum is strengthened when there is ample information and support from groups that require particular outcome behaviors from learners. Employers, agencies, academicians, members of your internal community and interested members of the general community can assist course and program design. They can specify cognitive or psychomotive skills and processes required to precisely define responsibilities. Before beginning course or program design, thoroughly researching specific needs is basic to a 21st century curriculum process.

- To serve employers, curriculum processes solicit employer needs and interests. These continuous appeals for information must satisfy employers without appreciably disrupting their business activities.
- Agencies that require certain learner or employee skills also need continuous and non-disruptive requests for their needs and interests. Agencies can provide accurate numbers and directories of task-related behaviors.
- Academicians often provide processes, trends and direction for probable future employment needs. Today, however, academicians are rarely the single source of information regarding a particular field. Also, learners usually require a more global outlook than a single source might provide.
- Members of your internal community often help plan courses and programming when they are aware of the curriculum elements that have an impact on their interests. Systems and persons with historic data can often save time by keeping re-invention energies to a minimum.
- Members of the general community can provide insight and less formal information regarding the perceived employment and common skills' climate.

Interactive Processes

Online processes improve courses and programs when the full community interacts with the various curriculum components.

An interactive process can begin as a modest effort that simply allows various communities to see information at their convenience. This process allows them to understand your process. An initial step might also be a combination of print media and email that solicits information regarding specific course or program needs.

A somewhat more ambitious interactive curriculum endeavor can include media, an interactive web site including a public (internal) forum and an e-mail program. A fully interactive curriculum process incorporates a database. Prospective students, faculty, employers, administrators and community members can easily query it online.

Below are basic curriculum process functions for popular Internet tools:

1. Web Site

- distribute curriculum process information
- solicit curriculum information from various communities

2. E-mail

- solicit curriculum information from various communities
- distribute proposals for review, recommendation and approval
- resolve proposals with E-signatures

3. Forum

- solicit curriculum information from specific communities
- openly discuss curriculum projects
- resolve proposals with E-signatures

4. Database

- store outcomes, assessments and proposals for various reports
- use data for future course or program promotion
- integrate the curriculum system into operations

Essential Function

The curriculum process is essential to many institutions and businesses. All too often, however, administrators and faculty view the curriculum process as an accounting system rather than as a means for producing quality products. A common assumption is that faculty know how to build curriculum. Our surveys affirm that most faculty have had little or no explicit training in course or program planning. Most borrow their initial syllabus and informally change it over years. Also a common and more faulty assumption is that these faculty produce quality courses and programs on their own, with little or no formal support.

Institutions and companies build their foundations on offered courses, programs and training. Higher quality can result from more people being productively involved in the process.

Promoting learner-centered curriculum methods confirms competent course and program design through individual and group concentration. Internet-based curriculum collaboration processes can greatly enhance positive results.

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Transferring Organisational Learning into Organisational Capabilities

Organisations sponsoring staff on management development programmes such as MBA's expect a return on investment in the short as well as long term – improved day-to-day management performance; new insights through project work as part of the study; enhanced problem solving capability; improved implementation of changes needed to improve operations.

Those organisations that are at the leading edge are undoubtedly concerned about their ability to manage their internal knowledge as well as their ability to develop new knowledge. Training and development, in addition to supporting the absorption of new knowledge, facilitates knowledge sharing across organisations by making explicit some of the tacit knowledge retained within the organization. Whilst early work on knowledge management placed emphasis on the application of technology to enable the capture, dissemination and exploitation of knowledge, it has been recognised that organizational issues are more critical in most organisations (Truch et al., 2000). Successful knowledge management processes and a learning organization both depend upon a culture of trust, openness, sharing and a thirst for improvement.

Knowledge workers, to be effective, need timely and easy access to the organization's knowledge, much of which is in a tacit form. However, whilst access to knowledge is important to organisations, competitive advantage is in practice gained from superior capabilities comprising the four components of knowledge-based skills, technologies and technical systems, culture and norms (Birchall & Tovstiga, 1999). The company MBA aims to impact on technical and management systems where project work is channeled towards improving performance and culture and norms where groups of learners jointly explore issues in relation to these facets.

The Programme

The learners involved in his research were studying Innovation Management and Creative Problem Solving in the latter stages of a largely distance-taught MBA. They had considerable prior experience of distance learning.

Assignment work carried out for the assessment of learning was based on a review of performance in innovation management in either their own organisation or one with which they have considerable familiarity. The learners were required to draw out key points about the process in order to effect improvement in subsequent innovations. The learners worked in small teams and were required to develop a common framework for analyzing their own particular case study. Additionally each learner was required to review their own personal experiences in facilitating creative problem solving groups.

Learning resources included CD-ROM based teaching materials, a model of innovation and a diagnostic which enables a review of the organization's innovation performance, web links. Learners used

LotusLearningSpace for team interaction in a virtual environment as well as to work with tutors. The tutoring role was split between a 'subject expert' and a facilitator responsible for assisting with personal and team development. The first cohort of learners was divided into 4 groups, each with 4 members.

Our intention here is to present a review of outcomes in relation to the wider capability aspirations of the organisation based around knowledge sharing to improve innovation performance and ultimately business performance. In consequence we will not focus on direct learner outcomes demonstrated through the quality of assignment work submitted for assessment, nor feedback elicited from learners about the extent to which they consider their own personal learning outcomes to have been achieved.

The qualitative review is more focussed on the extent to which participants were willing to engage in collaborative activity and knowledge sharing, a key element in building the knowledge-based and innovative organisation. It was also assumed that networks established during the study programme could form the basis of a self-sustaining learning community.

The Outcomes

The quality of assignment work was particularly high from those learners with direct and current involvement in the innovation process. Some used project team reviews to collect information. However, despite the knowledge that collaborative working within the learning teams was recognised in the assessment of the outcomes through the assignment grade, not all learners entered into discussion within their teams. Some seemed unwilling to share their ideas and insights, perhaps being unwilling to expose partially developed ideas to managers within their own organisation who they did not know well and whose reactions they felt uncertain about.

Whilst practical work-based assignments such as these provide a platform for the programme member to share learning within the immediate work group concerned with the particular innovation, it represents only two dimensions of knowledge management i.e. knowledge management at the personal and team levels. But having a cohort of learners from one business entity presents the opportunity for shared learning across wider frontiers and the development of a wider learning community. Particularly where the business has in place a knowledge management system based on group systems such as Lotus Notes, there is the possibility for sharing across wider boundaries by using depositories of such knowledge and virtual meeting places to effect sharing, debate and the generation of further knowledge. However our evidence from the level knowledge sharing even within teams of learners is not encouraging if we are hoping for a wider sharing of this knowledge across even closed communities of practice within the business.

If organizations wish the benefits of programmes such as corporate MBA's to extend into wider organizational learning consideration should be given to mechanisms for facilitating this. One approach would be to engage learners in communities of practice through which the work done on formal study programmes might gain wider dissemination, stimulate debate and hence lead to wider organizational learning. Communities of practice often have as their routes an informal network but organizations can encourage their formation and development. 'Knowledge members' to help learners understand the working of such communities and the nature of a shared culture may well assist (Rogers, 2000). Certainly such communities need amongst their membership active enthusiasts with knowledge to share which is of interest to other members. The shared experience of the MBA may well help with this but more effort seems to be needed to encourage knowledge sharing during the programme of study so that it is the foundation for on-going collaboration. The role of the facilitating tutor could usefully be extended to include this dimension but at the end of the day the sponsoring organization has to take ownership of the activity and manage it in a way which fits with the culture that it is attempting to build as part of its enhancement of capabilities.

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Influence of printed and electronic text on reading comprehension in a foreign language

Abstract

In view of making the best use of material from the World Wide, this case study tested the impact of a text format on the students' reading comprehension. Four groups of students in French as a foreign language were given a text in French, half of them had its printed version while the other half had its electronic version.

Introduction

Participants

They were students in Computer Science who are generally familiar with the use of the WWW. Four groups were divided into two and each were given the same text either as a printed version or an electronic one. The topic of the text was leisure in France. The printed version offered a text without any illustrations, a section on grammar explaining some of the past tenses and had exercises on these tenses with their solutions at the end. The electronic version had the text with links on which the user could click. They were either showing visual illustrations of some of the words or were taking the readers to other web sites on sports in France. The grammar section gave explanations and had interactive exercises, which gave the users a feedback on their score and comprehension. No translation was made available in either formats. All the students were given the option to contact the tutor for help or further information.

Tests and questionnaires

All the participants were tested before and after they studied these versions of the text. The students were given questionnaires about their surfing habits and were asked about the text in an interview with the

researcher.

Results

The use of visual elements in the hypertext has improved the comprehension of the text but not in a significant manner compared with the printed text. Nevertheless the most important difference is found in the fact that the visual support has motivated the learners.

The same observation can be made with the use of the hyperlinks. Ninety-one percent of the students reading the hypertext found the grammar explanations and the interactive exercises interesting while 86% of the students with the printed version did not show any interest in the grammar section. Most of these students have little experience in the study of grammar even in their own native language. With the exception of those who had a previous knowledge, very few had a look at the printed grammar section, only 10% read it. In the hypertext version 83% completed the interactive exercises.

The main problem faced by the user of the hypertext was the confusion that some of the links brought. They often complained about having difficulties in finding their way around the sites due to an overload of information.

On the other hand, those using the printed text had a feeling of boredom and were lacking stimulation.

The different groups used the tutor's help to gather further information.

Discussion

The format of the reading material is very important in the use of the hypertext. Its variety needs, nevertheless, to be adapted to the readers. This case study shows that the multimedia elements help to stimulate the learners' interest.

As mentioned by Laurillard (1993) the users gain a sense of control with the hypertext. The links can help the students in understanding the text when they present clear information but also a clear mapping to surf the site. The students seem to select a reading, which doesn't take time, and chose to read short sections of text. This tendency to skip through a text has also been observed in previous research such as the one by Davies (1995). It is too early to find out how much the hypertext is going to influence our reading habits but it seems that reading in that format favours the search for information and communication in an interactive way instead of just reading for entertainment value.

The hypertext is a very flexible format which, when used adequately, facilitates reading as seen in Barnes (1994). The main points to consider for its best use are the learner, the environment and the content.

The learner

The study shows that the hypertext format stimulates the reader's interest when the latter is experienced enough and does not get "lost in Cyberspace".

The environment

The more popular sections of the sites was those with visual and interactive elements. These allowed a better

understanding but also emphasized communication and exchange

The content

The hypertext can provide a text, which is controlled by the readers. They can chose how to create the text itself by selecting various links. This notion of control and selection is very important as it leads to train analysis, evaluation and understanding of the text from the students.

Conclusion

Hypertext can improve an active learning thanks to its interactive capacity and the freedom to surf as one chooses. This type of format requires the ability to find and select information and therefore needs to offer clarity in the style and presentation of the web site. This format presents the information as a game and can be used as a ludic pedagogical tool through its interactivity. The diversity of the hypertext presentation when avoiding overload can stimulate and promote the learning of the language. As mentioned by Bernhardt (93), hypertext opens reading to a multidimensional and variable process. It is this process which should help the student in assimilating the language through reading.

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Web Learning Environment (WLE): An Example of the Use of The Internet in

Educational Process

Abstract

The Internet represents a tremendous opportunity to redefine our notions of education, to modify the teaching methods and the process of learning. The aim of this paper is to present how to use the Internet and its resources in the learning process in a high school. We refer of our experience how supervisor in a teaching project in a technical institute in Italy (16 students aged 16-17).

Introduction

The computer technology has become a fundamental part of education across the curriculum and will likely be more so in the future. Instead of simply being a source of information, computers are becoming multimedia workstations for students. Innovative use of technology combines telecommunications (e-mail, online resources, Internet navigators), multimedia authoring (home page editors), user-friendly convenient applications software and are turns students into producers as well as consumers of content. The role of the classroom teacher is evolving from that of a giver of information to that of a facilitator of student learning. New technologies already exist to help teachers complete that evolution. Our educational project is an example in this field. It has been divided in six stages: the knowledge of the Internet, the research in the Internet, the access to the FTP, the didactics with the Internet, the creation of a cooperative hypertext, and the communication using the "Net".

The knowledge of the Internet

In the first stage the students, organised in eight groups each of two persons, have learnt the Internet directly in the Web using some special interactive lessons, developed by the "Polo Didattico e di Ricerca di Crema" Italy. These lessons are available at:

<http://weblab.crema.unimi.it/internetcourse/>

This hypertextual course it is well calibrated to transmit some specific educational goals. Using these interactive lessons the students have learnt: the story of the Internet, the correct navigation in the Web, the recognition of the different types of hyperlinks (e.g. hot words, icons, buttons, and images), and the netiquette.

The research in the Internet

The search of information in the Internet still constitutes a bottleneck for the "net". For this reason, in the second stage, the students have learnt to use the search engines (e.g. Altavista, Yahoo, etc.), comparing their performances using the same keywords. They have also discussed these results.

The access to the FTP

The Internet is a big archive of information. In the third stage the students have analysed the capability to download, to install and to use some shareware and freeware software (on mathematics, geometry, Italian literature, information technology) in their educational process.

The didactics with the Internet

The Web is argued to be the next technological tool to be used in the delivery of educational material. In this stage the students have used some educational Internet sites dedicated to the Italian literature, to the physics, and to the mathematics. To study Italian literature we have proposed three interesting Internet sites: <http://tutti-c611.uibk.ac.at/nanda/Manuzio/000ind.htm> (it contains texts of Italian literature); <http://www.ecs.net/scrivere/DANTE/GUIDA.HTM> (to study Dante Alighieri's literary works); <http://www.augustea.it/~banfi/INFO/TG2/CARTELLI/LAVORI.HTM> (dedicated to the Italian poems).

After the exercises proposed on these Internet sites the students have improved their composition technique. To expound the brownian motion we have searched in Internet some applications in physics. We have found, at the Internet address:

<http://physicsweb.org/TIPTOP/VLAB/>

a Virtual Laboratory, which is an archive of java-applets. It contains an animation of the brownian motion. It shows little particles batting about a more massive one and what it would look like if you could see only the massive one through a microscope. This applet demonstrates that a big particle can be considered as a dust particle while the smaller particles can be considered as molecules of a gas. After this phase we have proposed to the students a multiple-choice test to control their knowledge on Italian language, physics, and mathematics.

The creation of a cooperative hypertext

In the fifth stage the students have created a cooperative hypertext (using HTML) dedicated to Bonaventura Cavalieri (1598 - 1647) (an Italian mathematician) for an International Conference of Mathematics. In course of execution the phases have been: the bibliographical research of information (using some traditional textbooks and the Internet); the choice of information to put in the hypertext; the hypertext's story board; the realisation of the user Interface; the encoding of information in hypertextual form; the control of hypertext (links, hot words, etc.). Sixteen students, organised in eight work groups, have developed: "Cavalieri's biography"; "Cavalieri: the religious figure", "Cavalieri's scientific production", "Cavalieri and the town of Verbania", "Bibliography", and "Other sites on Cavalieri" (with some links to other Internet sites). During this hypertext development, the students put a particular care to make "friendly" the user interface for easy navigation. This hypertext is written in two languages: Italian and English, and it is available at the Internet address:

<http://www.verbania.alpcom.it/scuole/cavalieri/cav0e.htm>

This stage is an example of "learning by doing" environment because the students have also learnt the history of mathematics during the hypertext development. This is also an example of cooperative learning. Figure 1 illustrates the histograms of the correct answers to the multiple-choice test to evaluate the student knowledge.

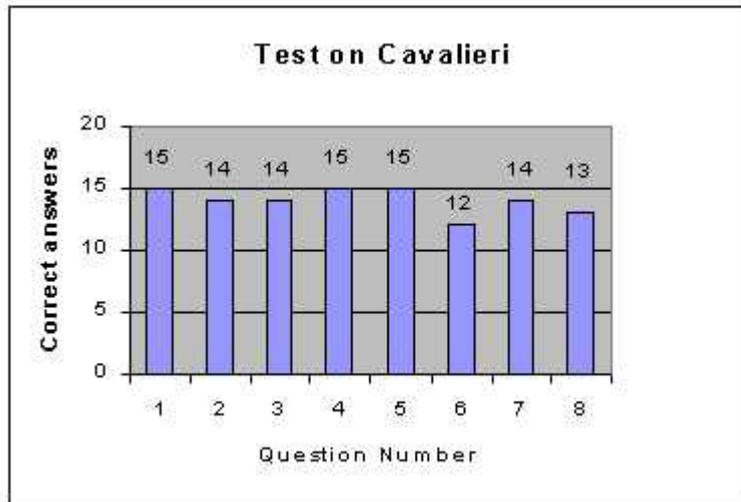


Figure 1. Correct answers to the multiple-choice test

The communication using the "Net"

The sixth stage, and final stage, has been dedicated to the communication with other European schools using the e-mail. In a particular case a disabled student of our classroom has researched (and found) some Italian and Swiss "cyber-friends". Internet became for him a new way to socialize (going out from the isolation of his classroom) and to overcome his handicap.

Conclusion

This project demonstrates that the Internet offers significant benefits in educational process, and it shows that there are clear educational advantages to be derived from cooperative student activities.

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WebBoard use at UCN: A case study from Talent project

<http://www.le.ac.uk/TALENT>

Overview

University College Northampton (UCN) currently has around 10,000 students enrolled in over 100 courses. Since 1998, WebBoard has been introduced in learning and teaching activities in the institution. There are

now over 40 virtual boards established for a variety of teaching modules and about one tenth of academic staff are involved in organising WebBoard activities.

A recent survey on the use of WebBoard found positive response among the users and a variety of activities on WebBoard. The main use of WebBoard was for distribution of course information which included timetables, reading/reference list, annotated Web links, assignments, lecture notes and past examination papers, etc. This has been highly valued by both staff and students as it provides a convenient means to deliver course information. WebBoard has also been used to extend learning and teaching activities beyond classrooms. This type of activities varies from simple students queries, staff response, free discussions initiated by students, to organised seminars and group project work. There was no major difficulties encountered and there was strong desire to increase the teaching activities on WebBoard. Provision of examples of good practice and on variety of WebBoard activities was seen by the respondents as the key to increase and improve the use of WebBoard.

Introduction and Support of WebBoard

WebBoard was first introduced into UCN as a result of a request by a distance learning course for a Web based tool to facilitate day to day contacts with its students who are based all over the world. After a brief search and assessment of suitable technologies at the time, WebBoard was chosen for its simplicity and cost effectiveness. WebBoard is an Internet conference system, which allow groups of people to exchange information through interface of a Web browser and where messages are organised in a hierarchical structure consisting conferences, topics and messages. Space on a WebBoard server is arranged into many (up to 255 max) virtual boards, which can be managed individually. The interface of WebBoard was relatively simple and requirement for server support was minimal. A medium specification PC NT server is sufficient for a typical operation and only a browser is required on client side. This provided not only a cost-effective tool, but also potentially a relatively easy way to introduce Web technology into teaching.

Promotion of use of WebBoard across the institution was followed by open events and training sessions that were widely publicised on staff email list and internal newsletters. Open events were mainly for demonstration purpose while WebBoard training sessions provided explanation on technical details with hands-on exercises. Issues of how to make effective use of WebBoard were also discussed in various sessions. Training notes were converted into two user guides, one for normal user mainly of students and the other on managerial functions, which concern lecturers. The guides have been made available in online version and printed version that is freely distributed through computer centres. Introduction of WebBoard to students was organised by staff who manages the individual boards and was carried out mainly through simple demonstration and provision of user guides.

A central support of WebBoard activities has been undertaken by the IT Services department. The major effort was on promotion, training and updating of guide materials. The daily routine task was kept to minimum with simple monitoring of the server performance. However there are occasions when large manpower is required to keep the server running and to resolve faults in the software, particularly during the last upgrading period. User support through telephone, email and face to face contacts is another necessary service requirement that can be incorporated into an existing service structure.

Use of WebBoard

The use of individual boards was very much left for lecturers to decide as they are the managers of their own boards. It is very common to start the use of WebBoard by distributing the course related information such as timetables, reading list, Web site URLs, assessments and lecture notes. This way of information distribution saves staff's effort to photocopy materials and allows the information to be made available instantly. It is also possible to use emails or Web pages to achieve the same effects, but email lacks a structural way to accumulate course resource and Web pages would require some skills to produce.

Autonomy of being in control of a self-contained space on the Internet is also very important factor that suited the spirit of academic freedom. Like many similar institutions in HE sector, Web publishing at UCN is facilitated through centralised procedures on institutional servers and may incur some delay. WebBoard has been seen as a means to access Web resource with a relatively little effort, albeit targeted only to a small group of students as an audience.

The ability of limiting audience group and of two-way communication by WebBoard also made it advantageous for learning and teaching in comparison with simple Web pages. To a certain extent, classroom activities can be continued on the WebBoard where tutorial care can be provided, discussion and seminars can be conducted. Posting queries online has the advantage of having the time to consider problem and promoting the confidence of those students who may otherwise shy away. Staff may choose to give feedback to the individual concerned or to the whole class. Common questions could be compiled and made available for successive years. Activities of this type were found on some virtual boards. However this was a less consistent practice and would require great effort on the part of staff in order to nurture a community environment and their diligence to maintain the flow of exchange. This was particularly true on courses with on-campus undergraduate students. Interaction on WebBoard was found easier to occur in classes with small number of students where teaching staff are more likely to know students individually and with mature students who tend to be more proactive in learning and willing to share. Some distance learning courses and research-based programmes have shown typical example of this aspect of WebBoard activities where daily exchange of messages among staff and students on WebBoard was a common practice.

There were more organised WebBoard activities on some courses. One module used it to conduct a seminar which formed a part of course work. The module leader started the seminar by posting a few strands of discussion topics with instructions that requested everyone to browse messages on the board and to contribute to the discussion. Although contributions on WebBoard were not assessed, it was stated that topics discussed may appear in the examination paper. The seminar was quite successful where well thought-out arguments were articulated and various points of the topics were explored into depth. The quality of discussion was also enhanced because students did not have to response instantly and they had the time to think through their argument thoroughly and check the reference carefully. In addition all messages were kept on the board for examination preparation. Another organised WebBoard activity was for group project work. Private conferences were created for individual group of students to provide a common working area and were used to plan project activities and to discuss progress. Meeting minutes, group presentations as well as works from group members were posted and comments were exchanged.

User Experience

Staff and student surveys by questionnaires were conducted after nearly two years of introduction of WebBoard and found the user experiences were mainly positive. The majority of users preferred to learn functionality of WebBoard by trial and error, and colleagues and fellow students were proved to be a popular source of help in solving difficulties. Both students and staff welcomed training sessions as a start point. Most students found the WebBoard useful as additional resource and some regard it as essential for their studies. The majority of students would like to increase activities on WebBoard. Some even suggested making WebBoard a mandatory part of any course. The lack of such activities on many boards were attributed to the lack of organisation on the part of staff and at the same time other staff wished to see more examples of such activities be provided.

For current level of activities, most users only spent less than one hour per week and access frequency was centred between daily to a few times a week. Technical skills and facilities for access were not seen as main obstacles in using WebBoard, however the some temporal server instabilities during upgrading period were a main source of irritation. All common functions of WebBoard were well used although some students found a few functions confusing. One particular problem was of duplicated accounts created by students. There has been a common misconception among students that they have to register separately on each board to get access. This resulted in multiple accounts for some students and associated frustrations when passwords and user names were forgotten.

Reflection

The relatively good acceptance of WebBoard by students and staff is possibly due to several factors. One is its simple user interface and easy to use functionality. Self-autonomy in controlling individual board also proves to be very attractive to academics. Use of WebBoard as a file server to distribute course information is a winning point. However, we have found that students would still like to print out documents posted on the board. This resulted in a transfer of printing cost from individual schools to central IT department where printing facility were provided free. The overall printing cost may well be increased because it is done individually and most likely on single side papers. In exchange it provides convenience for both staff and students.

To move the use of WebBoard beyond the simple information distribution, some considerable effort is required to organise online activities and to integrate these activities into teaching and learning. Imaginative exploration and insight from other people's experience would also help to achieve the goal of using WebBoard as a virtual extension of a classroom. The support effort on the technical side is not demanding, but an increased role on training and dissemination of good practice may have large impact on the effective use of WebBoard. This type of role change for support department may well apply to other learning technology with increasing sophistication of software and easier user interfaces.

WebBoard has been adopted for teaching on a variety of subjects and with different delivery modes. This is because that WebBoard is a generic tool and that there was no rigid rule imposed as how to use it. It suited the need of technology enthusiasts and to help them to start up simple advice was given. Barriers to further penetration of this learning technology among other staff are not course related, but are linked to culture. Staff who are not familiar with Web do not understand what WebBoard can offer and are not likely wanting to know about it. Process of change may be slow and would possibly require a combination of approaches. Provision of clear examples of effective use of Internet technology can pull interests and demand to increase IT components in course validation could push the change.

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Computer Based Training

In 1996, according to Training magazines; 1996 Industry Report, U.S. companies budgeted nearly \$60 billion on training and provided nearly 2 billion hours of instruction. Manufacturing companies with more than 100 employees budgeted an average of \$500,000 each. These are huge numbers and all indications so far are for these numbers to increase substantially.

We've all been trained in one way or another. Most of training we went through was in a room with an instructor who wrote on a blackboard or more recently used overhead projectors with prepared slides. I remember many times trying to keep up with instructors copying what they write down or show or even talk about. I also wished if I would just concentrate on the subject been trained on instead of concentrating on writing what my ears heard and my brain did not process.

In the late seventies with the introduction of the personal computers a major shift in the way we conduct our lives and jobs occurred. Personal computers have become an indispensable tool. We probably can live without them, but we would miss them badly. We should always remember that a computer is only a tool and it is in how we use it that we can measure how valuable it is.

Personal computers have become a great training tool. Recently in the training world the term CBT has become very popular. What is CBT? It is simply, *computer based training*.

It can be explained as:

- A system which uses the computer to facilitate learning
- A generic term for courses delivered on personal computers
- The use of computers to help people learn

CBT is not quite as simple as the definitions imply. There are many other definitions, names and acronyms. For example, all the following refer to Computer Based Training:

- Technology Based Training (TBL)
- Computer Based Training (CBT)
- Computer Based Education (CBE)
- Computer Based Learning (CBL)
- Computer Based Instruction (CBI)
- Web Based Training(WBT)
- Internet Based Training (IBT)

CBT contains the following three components:

- Computer Assisted Instruction (CAI)
- Computer Managed Instruction (CMI)
- Computer Supported Learning Resources (CSLR)

In order to understand what CBT means, it is necessary to examine the meaning of each of its components.

Computer Assisted Instruction (CAI)

Implementation of CAI uses any (or all) of the following:

- Pure instructions
- Tutorial
- Drill and Practice
- Instructional Game
- Modeling
- Simulation
- Problem Solving

Computer Managed Instruction (CMI)

It adds each of the following:

- Testing management
- Record tracking

Computer Supported Learning Resources (CSLR)

It adds the following to CAI and CMI:

- Expert Systems/Artificial intelligence/Fuzzy Logic
- Multimedia

Focus on performance

The key to achieving practical results through training is to focus on performance objectives rather than learning objectives, i.e., what you want your employees to do rather than what you want them to know.

What business challenges is your company facing? What could your employees do differently that would help overcome those challenges? Choose your topics with those specific goals in mind, rather than simply training for training sake.

Before you decide that your employees need training, ask these questions:

- **Performance-needs analysis:** Why do you think you need training? What is the problem? Why is it happening? What should be happening instead? What factors help and hinder employee performance? What improvements do you expect from the trainees? What improvements do you hope for in your organization? Instead of asking How can training solve this problem? ask What are some ways this problem could be solved? Training may be the answer, or it may not.
- **Training-needs analysis:** What will be taught? What needs to be included? How will it be presented? Who will present it? What do employees already know about the topic? What should they be able to do afterward? Specify course objectives and establish criteria of acceptability. How will an employee know whether he or she passed? Decide how to determine program success and how it will be measured.
- **Feasibility analysis:** Even if you've found the perfect solution, if you don't have the necessary management support, budget, or technical requirements, it might not be feasible.

Do you have a subject-matter expert who can work with the course designer?

How long will the training take? It's harder to see benefits from longer courses, because they're more expensive.

How large is the trainee population? The more employees that will receive the training, the more cost-effective it is per person.

What is the shelf-life of the information? Training that quickly becomes obsolete will need to be revised sooner.

What are the company turnover and growth rates? If they are high, you may have more trainees over the life cycle of the course.

Is similar training already available from an outside commercial source or trade association? Don't reinvent

the wheel. Packaged training, if it exists, is usually more cost-effective than the custom-designed variety.

Choosing a trainer

Some of the things you should look for are:

- **Education:** Whether or not your trainer has a formal degree or certification, he/she should have had some sort of training in how to be an effective trainer.
- **Experience:** Ask to see examples of previous training efforts. Ask for references from previous clients. In general, being able to learn your business is more important than already knowing it.
- **Professionalism:** You will be working closely with this person, so you need to be comfortable talking with him. A good trainer will tell you if training isn't the answer to your problem. He should also be able to produce hard data on the effectiveness of his courses.

Minimize your investment

To minimize your investment without jeopardizing your return, you should consider:

- **What to train:** What do your employees really need to know, and what is just nice to know? Ask yourself, If we didn't include this, what would happen? How else could employees learn it? Eliminate topics that have no clear bearing on the intent of course, but don't cut anything that helps you meet your objectives.
- **Who to train:** Train only those who can immediately apply the new skills. Don't train people in skills they already have, skills they easily can get some other way, or skills that aren't important to their performance.
- **Where to train:** The most convenient place to hold training is at work, because it takes less time away from the job and can be done on the actual equipment, files, or tools the trainees use every day. Computer-based training even allows training to take place right at the employee desktop.
- **When to train:** Ideally, training should be done just before you need it.
- **How to train:** Issues are money, time, content, and audience. Consider the general effectiveness of the method: adults learn best from graphics, interactive media, and hands-on practice. Don't forget to look at the total cost of delivering the training, not just the development costs.

Maximize your return

The whole point of training is to transfer the knowledge and skills taught in the class to behaviors back on the job. If you think it is going to happen by itself, you're in for a real shock. By setting goals ahead of time, you'll make sure the trainees are more tuned in during the session and thinking about ways to apply their new skills afterward.

You may want to give the participants a pretest to measure how much they already know. After the training is completed, the participants' new skills and behaviors need to be nurtured until they become habits.

You should sit down with your employees and ask them what they learned. Have them make an action plan of ways they can use what they learned. Then follow up on it. Don't just permit them to apply what they learned. Require it.

Rewarding employees for their efforts reinforces the new behaviors even more. If they improve their performance, meet new goals, have a success, or solve a problem, don't let it go unnoticed.

Measure your results

The four levels of evaluation are:

1. Reactions: Did the participants like the program? Did they feel it was valuable? Did it meet their expectations? This is measured by having participants fill out evaluation sheets at the end of course.
2. Learning: Did the participants learn what they were supposed to learn? This is measured by comparing participants' scores on pre- and post-tests.
3. Behavior: Did the participants apply their new learning back on the job? This is judged by managers' observations and follow-ups to employees' action plans.
4. Results: Did the training have any measurable business impact? Did it produce any ROI? This is measured by doing a financial comparison of costs vs. benefits.

Evaluate your costs:

- course design, development, or purchase
- salary of instructor, consultant, and/or staff
- offsite travel, lodging, and meals
- facilities rented or allocated
- equipment and hardware
- instructional materials
- loss of productivity while trainees are attending training.

Count your benefits:

- Time savings: taking less time to reach proficiency, spending less time performing each operation, needing less supervision, spending less time reworking or correcting mistakes, and having better time management
- Improved productivity: faster work rate, more units, or services produced
- Labor savings: less overtime or temporary help required, downsizing, jobs eliminated
- Improved quality: fewer rejects, less scrap, fewer returns, bigger sales, better products
- Improved health and safety: fewer accidents, less lost time, reduced legal and insurance costs
- Better morale: less turnover and absenteeism, fewer strikes and grievances.

Choosing a training-delivery method

In an effective training program, how the information is presented can be as important as the information itself. Different situations require different training methods, depending on the number, background, and geographic distribution of the learners, as well as the nature, goals, and stability of the course content. Using the wrong method can actually hinder the transfer of knowledge, leading to unnecessary expense and frustrated, poorly trained employees. Listed here are some advantages and disadvantages of several of the most common training-delivery methods to help you select the best one for your needs.

	Advantages:	Disadvantages:
Print (books, manuals, workbooks)	<ul style="list-style-type: none"> • can be quickly developed • portable • self-paced • materials can be referenced later 	<ul style="list-style-type: none"> • expensive to revise • bulky to store and transport • low completion rates • requires literate learners
Video (videotapes, teleconferences)	<ul style="list-style-type: none"> • efficient for large groups or multiple locations • does not require trainer or trainee travel • controlled, consistent content • able to demonstrate as well as explain 	<ul style="list-style-type: none"> • high production costs • requires complex planning • requires playback equipment • risk of technical malfunction
Technology-delivered (computer-based training, Web-based training, virtual reality)	<ul style="list-style-type: none"> • fast learning curve, high retention • consistent • interactive, immediate feedback • ease of record keeping 	<ul style="list-style-type: none"> • high development costs • long development time • requires computer equipment • computers intimidate some learners
On-the-job (mentoring, apprenticeships)	<ul style="list-style-type: none"> • inexpensive to develop • high transfer of knowledge • directly relevant to trainee job • trainees interact with coworkers 	<ul style="list-style-type: none"> • inconsistent • difficult to control/monitor • requires workers to be teachers • can disrupt production
Classroom(conferences, lectures)	<ul style="list-style-type: none"> • easily customized and revised • quickly developed minimal development costs • trainees can ask questions 	<ul style="list-style-type: none"> • slow learning rate • low knowledge retention • inconsistencies from class to class scheduling difficulties

CBTs normally developed by a team with various skills. Each team member being responsible for a particular skill. Some team members might have several of the required skills, but rarely will a single member possess all of the required skills. The following is an essential list of distinct skills needed to develop CBTs.

Project manager
Graphics expert

Subject matter expert (SME)
Video/Audio expert

Instructional Design expert
Computer/software expert

Content

With CBTs, lesson quality is controlled and trainers concentrate on improving course content, not delivering it. Most custom CBT projects are based on delivering existing text and graphic content via the CBT medium. Content must be written, storyboarded, approved, and accepted as final before CBT is developed.

The use of content templates can make content production easier. Subject matter experts can provide the content, the CBT team can provide the user interface, instructional design, programming, and delivery media. Templates can be an effective delivery method for instruction and rapid CBT development.

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Ontology Learning

Ontologies and related technologies, such as data schemata or thesauri, serve as a means for establishing a conceptually concise basis for structuring and communicating knowledge for many purposes. Research in ontology engineering has shown that there is a huge potential in the area of engineering ontologies for a very wide range of interesting applications, e.g. knowledge management systems, e-commerce, information integration, information retrieval applications, or natural-language understanding systems to name but a few.

So far, however, ontology modeling and maintenance has remained a time consuming task. Human expert modeling by hand is biased, error prone, and expensive. It is very difficult and cumbersome to manually derive ontologies from data. This appears to be true even regardless of the type of data one might consider. The recent years have seen a surge of interest in fields that tackle the *discovery* and *automatic creation* of complex, multirelational knowledge structures. For example, the natural language community tries to acquire word semantics from natural language texts, database researchers tackle the problem of schema induction, and people building intelligent information agents research the learning of complex structures from semi-structured input (HTML, XML). All the while, efforts in the machine learning community pursue the induction of more concise and more expressive knowledge structures (e.g., relational learning) in general.

Thus, we have seen the emergence of **Ontology Learning** as a new topic in learning technologies that aims at the acceleration of ontology creation by combining methods from the above mentioned areas. Its potential applications are far ranging and draw strong interests from businesses that rely on the content structuring of their services, e.g. providers of business-to-business services, e-commerce marketplaces, or knowledge management services.

Right now Ontology Learning consists of mainly three different subareas:

1. Ontology Learning from Natural Language.

Natural language texts exhibit morphological, syntactic, semantic, pragmatic and conceptual constraints that interact in order to convey a particular meaning to the reader. Thus, the text transports information to the reader and the reader embeds this information into his background knowledge. Through the understanding of the text data is associated with conceptual structures and new conceptual structures are learned from the interacting constraints given through language. Tools that learn ontologies from natural language exploit the interacting constraints on the various language levels (from morphology to pragmatics and background knowledge) in order to discover new concepts and stipulate relationships between concepts. Current research investigates the combination of natural language processing techniques and machine learning methods for the learning task.

2. Ontology Learning from Semi-structured Data.

With the success of new standards for document publishing on the web there comes a proliferation of semi-structured data and formal descriptions of semi-structured data freely and widely available. HTML data, XML data, XML Document Type Definitions (DTDs), XML-Schemata (cf. <http://w3c.org>), and their likes add -- more or less expressive -- semantic information to documents. A number of approaches understand ontologies as a common generalizing level that may communicate between the various data types and data descriptions. Ontologies play a major role for allowing semantic access to these vast resources of semi-structured data.

3. Ontology Learning from Structured Data.

Ontologies have been firmly established as a means for mediating between different databases. Nevertheless, the manual creation of a mediating ontology is again a tedious, often extremely difficult, task that may be facilitated through learning methods. The negotiation of a common ontology from a set of data and the evolution of ontologies through the observation of data is a hot topic these days. The same applies to the learning of ontologies from metadata, such as database schemata, in order to derive a common high-level abstraction of underlying data descriptions - an important precondition for data warehousing or intelligent information agents.

The need for more semantics on the web, in business applications and for effective information retrieval is widely known today. The solution to its fast and cost efficient realization, however, just emerges as its own topic in research and – immediately thereafter – as an sine-qua-non in business. The first workshop in Ontology Learning has just taken place, but it will certainly signal only the beginning of a plethora of benefits.

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A Modular Approach to Online Learning: A Teacher's Perspective

Abstract

The advantages of asynchronous courses to students have increased the number of offerings by universities throughout the world. Student feedback from these courses has however been mixed. Surveys of students enrolled in online graduate courses have shown that students like the advantages of any time any place learning, but some students miss the face to face nature of synchronous instruction that has caused higher attrition rates. A good methodology for success may be to offer a modular approach, which provides some of the flexibility of asynchronous learning but also offers synchronous learning opportunities. This article offers a teacher's perspective on a graduate course in technology for educational administrators.

Goals and Objectives

The growing use of technology in our schools makes it imperative that we train future administrators on issues relating to technology. Technology has played a critical role in recent school reform efforts and administrators should be aware of its proper use within school buildings. Our experience has shown that the proper integration of technology into the curriculum affects all facets of school administration, from budgetary concerns to staff development to policies of Internet use in the classroom. In preparing administrators for tomorrow's schools, we need to train and expose them to a variety of issues that relate to technology in the schools.

The role and duties of the administrators and teachers have increased over time. They are involved from fund raising to discipline. Given the demand of their jobs on the time of students being trained to become administrators, asynchronous learning offers these students flexibility in when and where they learn. However, asynchronous learning may not be suitable for all students. Some students prefer face to face interaction with their instructors. Also, students in Educational Administration Programs find networking with their peers important to achieve their career goals. This is primarily achieved through meeting people on campus and taking class together.

In this environment, a course that offer the advantages of asynchronous learning (flexibility of time and place) and synchronous learning (face to face interaction and networking with peers) led us to develop a course that is modular with three modules: Web-based Module, Technology Module and Discussion Module.

Course Description

The course developed for this modular approach was a graduate technology course for all students completing a Masters Program in Educational Administration. The course content was divided into three modules: Web-based modules, Technology Modules and Discussion Modules.

Web-based Modules: There were seven lessons in the web-based modules. Students had access to online and textbook readings and were required to respond to a case study for each lesson. The content of this module included readings and case studies in technology that related to planning, staff development, technology integration into the curriculum, software evaluation, evaluation of technology, budgeting and funding, and community relations. Students did all the work asynchronously, which included online discussions and e-mailing of final responses to the instructor. Students had specific deadlines to e-mail case study responses. The deadline was a way to help keep students on task.

Technology Module: There were seven lessons in the technology module. Students were given expected competencies for each of the seven modules. The content of this module included word processing, spreadsheets, databases, desktop publishing, presentation software, multimedia development, and web page development. Attendance was optional in the technology module lessons. If students did not attend they were to e-mail an assignment that showed their competency in the application. One of the requirements was that the instructor receives the assignment before the technology lesson was taught. This allowed students to try to attain the competencies or attend class if they fail to attain the competencies. These technology modules also allowed students who want face to face instruction (even if they have the necessary technology skills to meet the competencies) the opportunity for synchronous instruction.

Discussion Modules: There were four discussion modules. The content of this module included the Internet and its implications for education, copyright law and ethics in technology, hardware evaluation, and facilities planning. Students were required to attend all the discussion modules.

Learner Experience

Students who enrolled in the course were surveyed at the end of the fall 1999 and spring 2000 semesters. There were fifteen students enrolled in the course each semester. The surveys showed that the students found the course to be more flexible than traditional synchronous courses. Students were satisfied with the level of interaction with the instructor. They however found that there was the same level of collaboration in this modular course in comparison to a face to face synchronous course. Students also indicated that they were more likely to take a web-based course given their experience with a course that offered some experience in asynchronous learning.

Summary

These types of modular courses offer students some flexibility to choose the type of instruction, synchronous or asynchronous, which is best suited for them. The successes of this course may give us insight into development of future asynchronous courses.

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Children Tutoring Seniors at Internet Skills: An Experiment Conducted at one Israeli Elementary School

Abstract

The Internet which connects about 200 million people and millions of pages, voice, sound, image and video files, has become a most powerful tool in the hands of those who know how to navigate it. The opportunity to use this powerful tool exists and is open to most strata of the population, regardless of the limitations of age, education, etc. Though the opportunity exists what actually happens is that the gap between Internet surfers and those who are not knowledgeable in Internet skills, is ever growing. The gap is widening between youngsters, the primary Internet user population, and adults and mostly seniors, who are not skilled at using a computer or the Internet.

In the new Hi-Tech world, where children speak the new language of the Internet as their mother tongue, it would be most fitting to put their mastery to good use and train them to teach this new language to Senior Citizens, those unacquainted with the language of the Internet.

This latter age group might find much interest and relevant, useful information via the net; they can study on-line, meet new people via the Internet, find useful information, participate in on-line interest groups, and contribute from their experience and knowledge and most importantly feel connected.

An experiment was conducted in one elementary school in Israel, the Alon School in 1999, where ten children tutored ten seniors aged 11-14.

The Virtual College for the Third Agers and how it all started

It all started with the Virtual College for Senior Citizens which is an initiative of the College Department in the Ministry of Education in Israel. (<http://www.education.gov.il/michlala>) We, at the College Department felt that the new technologies could revolutionize the existing social system and serve as a powerful tool to give senior citizens an opportunity to obtain asynchronous education and connectivity regardless of age, previous education and location constraints as well as making them part of the new order the IT is creating. In light of the above the Virtual College for Senior Citizens was developed.

While working on the development of the Virtual College for the Third Agers, we realized that though the number of seniors using the Internet is on the rise, many are still lacking in Internet skills.

We decided to use the knowledge of young children in IT in order to train seniors in Internet skills, thus creating new social interactions.

I am a great believer in the need for knowledge to be passed on. The Israeli government, as many other governments, has invested so much in schools both in equipment and in teaching the youngsters computer and Internet skills that it would be only logical to put this accumulation of knowledge into use, in this case for the benefit of the Senior community.

The Alon School, in the Mate Yehuda region was chosen for a mini experiment. The uniqueness of the experiment at the Alon School, as far as the Israeli scene is concerned, lies in the fact that **elementary** school children served as teachers. My idea to work with younger children and not with high school students, something more common in Israel, met with skepticism and much criticism. Most of the members of the Steering Committee of the Virtual College for the Third Agers were against it, they preferred to have high school students as teachers.

I was adamant; in this case I am glad I was.

I felt that the younger students would be less cynical, more giving and patient than the older ones. My choice paid off.

The Alon School

The Alon School is an elementary school in the Mate Yehuda Council, about 20km. from Jerusalem, at its southern entrance. The school serves a mixed population 1-8, from three Kibbutzim near Jerusalem two Moshavim (communal settlements) and new urban communities.

It would be most appropriate to note that it has always been in the Kibbutz tradition to care for the community; the Kibbutz still has a highly developed social structure in which the elderly work even at a fairly old age and are well cared for. Therefore, when I approached the headmistress of the Alon school and asked her if she would be willing to run an experiment, where children from 5th grade on would be teaching Internet skills to the Third Agers, she was rather enthusiastic.

I serve as an academic adviser to the school and thus am quite knowledgeable about the students' mastery of Internet skills. The Alone school, under my guidance, has fully integrated the computer skills and IT in the classroom.

We advertised the experiment in the region and soon we had 10 candidates, all 55+.

Using a closed network, in Hebrew, as a platform for communication and documentation

In addition to frequent use of the Internet for schoolwork, the Alone school is using the FirstClass outdated 2.6 version as its “intranet”. Unfortunately there are no good intranets in Hebrew and though the SoftArc Firstclass software in Hebrew doesn’t contain many much desired features, it still is, I believe, the best “intranet” one could find in Hebrew.

The Alone students are connected to the TelHi network, at school and from home.

A forum specially designed for the experiment was opened on the network. Each old learner was given an ID and a password, so that they would become part of the school’s on line community. We also wanted to make sure that the process would be fully recorded both by the “young teachers” and the “old learners”.

This paper is based upon the careful recording of the process, as written in the aforementioned forum.

The course

For five weeks, 10 volunteers, grades 5-8 tutored ten senior citizens 55-75.

They taught them search techniques, how to participate in discussion groups, shopping on the internet, chatting, sending e mail messages and even making PowerPoint presentations.

The “young teachers” and the “old learners” met on Fridays. The Alone school, unlike most of the Israeli schools operates 5 days only as part of an experiment conducted by the Ministry of Education. The “young teachers” were ready to give up their day off in order to train the seniors. They had to get up early, and be ready for the school bus to come and pick them up.

Each session lasted 3 hours from 8:30-11:30, with one break around 9:45. During the break teachers and students had the opportunity to eat, drink and socialize.

The process

The first meeting was held on May 25, 1999. All in all there were 5 meetings.

At the end of each meeting both teachers and learners recorded the learning and teaching process and their comments, in the forum dedicated for this project, in the TelHi network.

The following are some of the comments, suggestions and instructions as documented in the aforementioned forum.

The First meeting

One. “young teachers”

- *“Today I taught S. how to conduct a search on the Internet and find sites containing information she was looking for. It was somewhat hard in the beginning, but we overcame all the difficulties.”*

I, 13 y/o

And another “teacher “writes:

-“ *today we had the first meeting with the adults.*

It was OK, because R. whom I am tutoring is nice and a fast learner, so it wasn't difficult at all.tT. 12y/o

Two. The “older learners”

And what did the “older learners” have to say after the first meeting? Here are some of the comments:

-I learnt how to conduct a search on the Internet.

I learnt that even at my age one can learn new things. I learnt not to be afraid. This, I believe, is our [the Third Agers] greatest problem.S. 65+

I really enjoyed getting acquainted with the innovations of the end of this century.

I am most grateful to S. for her patience, and being up to the challenge to minimize the paradoxical gap between adults and children who are the age of our grandchildren. I am eagerly looking forward to our next meeting.

Thanks and see you [next week]IL 55+

At home

The tutors were thrilled. They kept talking about the project at home. They felt they were doing something meaningful and beneficial.

One mother, M. told us the following:

*My daughter doesn't stop talking about “her old lady”. The entire house revolves around L's “old lady”. The other day she called her on the phone and wanted to know what she was **really** interested in, so that she could better prepare for the next meeting.”L., added the mother, “hates waking up early, but now she does it out of her own free will on Fridays.”*

The last session

In the last session, the “young teachers” spontaneously, came up with the idea of taking a computer apart and showing its components to their students, who have never seen the inside of a computer before.

This on the spot decision and the way it was carried out turned out to be one of the highlights of the course.

At the end of the last meeting the older learners summarized their impressions of the course and tipped us as to what future courses should be:

-“ Today, 25/6/99 is our last meeting for the time being. I would like to note that I learnt a great deal in the lessons we had. However, I didn't practice at home and I don't know how I'll cope [with the Internet] without the children's help. I think it would be most advisable to continue this course after the summer vacation. By then we'll have many more questions. I would like to thank L. and all the children who took

part in this project. I would also like to thank all the adults who devoted their time and energy to this interesting initiative. R. 55+

-“At the end of the project I would like to express our satisfaction. The “young teachers” were very kind and patient. I am sure it was not easy for them not to touch the mouse and to wait for us to do that. I gained much self assurance [from the process] . I am not afraid of the computer anymore. I am very grateful to all the teachers and all the other people who helped get this project off the ground. L.

-“For the last 5 sessions I had the opportunity of becoming acquainted with the computer in general and the Internet in particular.

It was very interesting to learn a skill which as far as I am concerned was unattainable and this was quite embarrassing. Now I feel its possible even at my age. If we only practiced more and believed in ourselves...The idea of children teaching Seniors Internet skills was most enjoyable and beyond our expectations. I [still] don't feel quite at ease with the computer and the Internet but have a strong feeling its possible. I would like to thank the initiators of the project and the teachers, and to extend a special thank you to my lovely, patient teacher- L. With much love and appreciation. A

P.s. we would love to have the children come for a visit.

-Today, Friday 25.6.99 I graduated Internet 101.

I enjoyed it very much and derived special joy from the work with my teachers- the children.

I'll never reach their level of expertise, but I find it very important to have [some basic knowledge] in the field. In my opinion, courses like this one must continue, so as to bridge the generation gap.

I think this is a real blessing for the older generation. I hope there will be a continuation.

Sh.

Some things need to be improved

Two learners were more critical of the process:

-To summarize: the two first sessions were very good and I learnt a lot of new things. Then, my tutor didn't show up.

She left in the middle. I had no private tutor even though we started working according to a new method: we went from one tutor to another and each taught us something new and different.

I liked this method a lot. The last session was somewhat wasted; not all the teachers showed up and most of the time I worked on my own. Still this had its merits as I practiced a lot and learnt from my own mistakes. Thanks to all the lovely children.

R.

-[This experiment] proves that children can teach Internet skills to seniors. The idea is good and feasible. How ever, more attention should be given to the mental and intellectual gap [between the older learners and the young teachers.]

This gap necessitates more preparation.

The young teachers should have a detailed lesson plan [in front of them] suitable for the more [structured]

way of learning of the older learner.

May I suggest that at the end of each session, the older learner be given an assignment such as finding a site on the Internet or sending an e-mail message. It would also be advisable to have the course evaluated. Thank you all .M.

Summary and discussion

The aforementioned data clearly indicate that the Alone school mini- experiment was very successful. However, we encountered a few difficulties and drew conclusions as to future courses.

a. Tiredness

About half of the “young teachers” got tired of the task after three meetings and five of them left in the middle. It was good that we had some tutors as stand by, we asked them to step in, and they did.

At the initial stages, we explained to the young volunteers that once they start tutoring it’s a commitment and they can’t leave in the middle.

They all said they would “stick to the end”, but they didn’t.

b. Structure

The Alone teachers, the headmistress, the “young teachers” and myself were sure the course was well structured.

Since we are “old” surfers we didn’t realize that the course should have been more tightly structured. We were also carried away by the children’s ability to create structure out of chaos, hyperlinks and endless undirected surfing.

We learnt from the mini experiment that adult learners need a more structured, linear approach.

Some more observations

a. On being patient

The adult learners, all 55+, were extremely grateful to their teachers for their patience.

There wasn’t a single learner who didn’t mention this point. This brings to mind the following questions:

1. are we that impatient towards the Third Agers that being patient comes as such an outstanding gesture to the “older learner”?

or

2. is it the myth that older people are so slow to learn that underlies the learners’ attitude?

In his book *The Nine Myths of Aging*, Powell (1998) debunks the most prevalent myths about aging and amongst them that “old dogs can’t learn new tricks”. We could gather from the information presented and from my close supervision of the project that all the seniors learnt “new tricks” i.e.; using the Internet, being part of a communication network, the TelHi Network, and even making power point presentations, which

the children taught the seniors as a “bonus”.

The children weren't only patient they were also tolerant of the other. They accepted the seniors with all their limitations. There was no ridicule, no cynicism. I believe there was much gratitude on both sides.

The children's being tolerant helped alleviate the seniors' fear of technology: the computer and the Internet.

b. On being a teacher

It was most interesting to note how regardless of age and experience the children became almost typical teachers, caring about how much their learners absorbed, worried about being understood, desiring that what they taught would be useful and wanting very much to live up to their students expectations. The seniors became learners, good ones. They worried about practicing what they learnt, hurt when their own private tutor left and fearing they might not remember everything they learnt.

Conclusions

There is much talk about the changing role of the schools in the Information age. Many educationists point out to the need for value and character education, and to greater involvement in the community.

The mini experiment in the Alone School combined both: the “young teachers” combined their knowledge of the Information Technologies with the values of volunteering, tolerance, patience, responsibility, caring, commitment, understanding of the other and giving of oneself.

It wasn't academic learning. It was real life doing.

Much of the success of the project lies in its being meaningful. There is much talk about the shallowness, the zapping way in which our youngsters behave and act.

Give them a meaningful real life task to do and we'll see how responsible and deep they are.

Programs such as the one I have just described should start at the elementary schools, so that they may become a way of life.

I strongly believe that the new technologies are handing us new opportunities for bridging gaps in society such as the intergeneration gap and for planning for a better future in which social involvement and caring is a commandment to live by.

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Conference announcements

Globalisation and Higher Education: Views from the South An International Conference

March 27-29 2001
Cape Town, South Africa
<http://www.srhe.ac.uk/southafrica/Templates/globalHE.htm>

The 6th International Conference on Asynchronous Learning Networks

November 3-5, 2000
University of Maryland University College
Adelphi, MD, USA
<http://www.aln.org/alnconf2000/>

Education Technology 2001 Conference

July 24-26 2001
Arlington, Virginia, USA
<http://www.salt.org>

Online Educa Berlin 2000

November 29 - December 1, 2000
Berlin, Germany
<http://www.online-educa.com>

Opening Gates in Teacher Education

February 12-14, 2001
(Virtual conference)
<http://www.vcisrael.macam.ac.il/>

Barrier-free Web Design online workshop

Four weeks workshops starting on 30 October 2000, 8 January 2001, 5 March 2001 and 7 May 2001
(Virtual workshops)
<http://www.rit.edu/~easi/workshop.htm>

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