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From the editor ..

Welcome to the October 2001 issue of *Learning Technology*. This has been a year full of activities in the Learning Technology Task Force. The IEEE International Conference on Advanced Learning Technologies, Madison, USA (August 6-8, 2001) was successfully organised and turned out to be a very high quality conference. The conference report is available at http://lttf.ieee.org/icalt2001/. The proceedings can also be ordered at the website.

Now our task force is involved in the International Conference on Computers in Education (ICCE 2002), as a supporting organisation. The ICCE 2002 will be held at Auckland, New Zealand during 3-6 December 2002. The call for paper is enclosed below.

You are also welcome to complete the FREE MEMBERSHIP FORM for Learning Technology Task Force. Please complete the form at: http://lttf.ieee.org/join.htm.

Besides, if you are involved in research and/or implementation of any aspect of advanced learning technologies, 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://lttf.ieee.org/learn_tech/authors.html.

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International Conference on Computers in Education (ICCE 2002)
3-6 December 2002
Auckland, New Zealand
http://icce2002.massey.ac.nz

Organised by
AACE-APC

Sponsored by
College of Business, Massey University, New Zealand

The International Conference on Computers in Education (ICCE) series aims to foster the creation and dissemination of knowledge about the use of information technology in education throughout the Asia-Pacific region. Since 1995 the ICCE series has been organized by the Asia-Pacific Chapter of AACE (Association for the Advancement of Computing in Education). Subsequent ICCEs have been held in different Asian countries - Singapore (1995), Malaysia (1997, held annually ever since), China (1998), Japan (1999), Taiwan (2000) and Korea (2001). ICCE 2002 will be held in Auckland, New Zealand.

Through ICCE 2002, New Zealand hopes to contribute enormously to the valuable experience of the ICCEs and hence to reinforce all the efforts to collaborate for the successful building of the new paradigm of education in the information society. Every effort will be made to make this a truly professional worldwide conference providing opportunities for discussion and dissemination of pertinent information in computers and education internationally. We invite you to ICCE 2002 New Zealand where you can view the 21st century through sharing ideas and prospects.

Conference theme

"Learning communities on the Internet - Pedagogy in implementation"

Some years ago there was a movement in education towards learning alongside peers. The recent increase in accessibility to networks, whether global or local, has provided an enormous impetus to practice and research in which learners study and work together. However, many questions on the effectiveness and efficiency of such learning environments remain unanswered or at least have little empirical or theoretical evidence to provide beyond intuitive responses:

- learners naturally have many misconceptions; would peer learning simply spread such misconceptions?
- learning is personal; why should a colearner give better help than a professional tutor?
- Internet resources are general; don't learners need resources designed to meet their specific needs?
- learners' culture leads them to expect to be taught; why should they have to work more?
- tutors' culture leads them to expect to teach; why should they change that role?
- and many more....

ICCE 2002 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.

Topics of Interest
The topics of interest related to the conference theme include but are not limited to:

* Agents technology
* Application of instructional design theories
* Architecture of learning technology systems
* Authoring tools
* Best mix of face-to-face and e-interactions
* Cognition and conceptual change
* Collaborative learning/Groupware/Co-operative learning
* Computer mediated communication
* Country specific developments
* Design principles
* Distributed learning
* Evaluation of impact
* Evaluation of learning systems
* Implementation experiences
* Instructor networking
* Integrated learning environments
* Inter-and Intranet use in conventional universities
* Internet based systems
* Methodologies for system design
* Networked social learning
* Policies, ethics, standards, and legal issues
* Research perspectives
* Teaching/learning strategies
* Tutor role in virtual communities
* Virtual lab/classroom/school
* Virtual universities
* WWW-based learning resources/tools

Submissions

Submissions are invited in following categories:

- Full Papers
- Short Papers
- Posters
- Tutorials
- Workshops
- Doctoral Student Consortium

Details of submission procedure are available at:
http://icce2002.massey.ac.nz

Important dates

Friday 5 April 2002 : All types of submissions

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A possible ICT strategy using multimedia for teachers in New Zealand schools - A humble response to current

literature

As a teacher with a diverse background in regular and specialised education, both in management and teaching, my fascination with computers and how best to use this wonderful, yet perplexing technology as a teaching and learning tool can be directly equated to times of intense frustration and a lack of understanding on my part in how to provide myself with a skill set which would enable me to arrive at a position of professional confidence and comfort regarding the when, how and why of using Information and Communication Technology (ICT) as a teaching and learning tool.

International research on effective pedagogy using ICT has sought to increase teachers' capacity to make informed choices about when and where to use ICT and to understand the implications of using this technology(ERO, 2001). The ICT professional development (PD) schools initiative can address the issues by developing teachers needs to be not only skilled but "informed and critical" (Kenway, 1995,p.57)and "empowered" users of the technology (Jones, 2001). This implies that teachers develop a way of thinking, of critically appraising, of assessing and, using a range of approaches to teaching, which includes ICT methodology(Engs, 2001).

Over the past few years, trends regarding the necessity to provide an integrated approach to developing ICT skills through school curriculum learning in New Zealand schools (ERO, 2001)and overseas; Australia (Cooper, 1996p.13) ,Canada(Collegium, 2001), England(Tearle, 1998,pp.14-16) and America (Riley, 2000,p.14)have increasingly been experimenting with integrated models of learning with IT to help address these issues. Evaluations of these programs have stressed the importance of all teachers having the appropriate IT skills and attitudes to facilitate such integrated models of learning.

The author believes that the focus has moved too rapidly from the classroom to an emphasis on on-line learning, this focus detracting from the need for practical, easy to use, curriculum focused , student-centred ICT strategies within classroom context to develop both teacher and student ICT skills.

In the same way as the New Zealand Technology Curriculum (Milne, 2001) defines the development of a shared language in technology education by teams of teachers involved in the delivery of the subject in a school by attending professional development courses together, the writer has developed a 5 stage multimedia model as part of a MA in Computing Degree through UNITEC, Auckland , New Zealand, using a software package called Illuminatus Opus to be implemented over a two year period through the ICT professional development (PD) schools initiative to encourage teachers who are part of a lead school programme within an identified geographical area to share ideas and confront difficulties collectively as they work to implement student- centred multimedia projects (Milne, 2001).

New educational tools, which drive multimedia presentations, offer educators a unique opportunity to design ICT focused learning environments using multimedia to encourage synergy between ICT skills and New Zealand Curriculum learning outcomes through student- centred multimedia projects. These multimedia environments can lead to greater interest which, in turn, can lead to greater understanding which in turn leads to greater success in defining and developing ICT strategies that involve the learner(Combs, 1999). Recent literature research regarding the use of multimedia as a teaching tool indicates that teachers need to move through different stages of ICT proficiency and need to understand that the introduction of ICT into the classroom changes the dynamics of the classroom and impact on classroom management(Hill, 2000, p19). This suggests a definite paradigm shift in approach to teaching and teacher attitudes towards the use of ICT in the classroom. This research project will attempt to provide a teaching model to assist teachers in making the paradigm shift from what research (Eadie, 2000) , (Riley, 2000,p.4), (Tearle, 1998,p.13) indicates as the 'traditional' approach to classroom teaching to an approach that acts as a catalyst for changing teaching and learning in New Zealand classrooms by supporting teachers in their efforts to design and implement student-centred projects wherein students demonstrate their ideas, knowledge and problem solving skills through multimedia (Means & Golan, 1998,p.1). Teachers and their trainers have long professed to aspire to the learner-centred approach, but have done little, even in their own practice, to dismantle the entrenched power structures which are created through limits on the ownership of, and access to, knowledge and skills. Lack of encouragement for students to use ICT by teachers in schools compounds the issue(Murphy & Greenwood, 1998,p.145). Students will be encouraged to experience empowering learner-centred activities by deploying their ICT skills to generate pedagogical resources in innovative ways that encourage problem solving skills through the use of multimedia, a difficult challenge to teachers, but one which the writer believes will be beneficial for teacher educators as part of their teaching tools(Simpson, Payne, Munro, & Lynch, 1998).

References:

1. Collegium, T. (2001). ICT in Canadian Schools:A focus on K-12. [Online] _ 02.05_(2001), http://www.thecollegium.ca/ictcansch.html.
2. Combs, B. (1999). About This Program...[Online] _17.05_(2001), http://www.mcli.dist.maricopa.edu/proj/rm/intro.html.
3. Cooper, S. (1996). Is information technology effective in assisting remedial and transition students? QUICK, 59, 9-13.
4. Eadie, G. (2000). The Impact of ICT on Schools: Classroom Design and Curriculum Delivery.Study of Schools in Australia, USA, England and Hong Kong, 2000. Wellington.
5. Engs, W. (2001). The value of Technology. [Online] _17.05_(2001), http://www.tki.org.nz/r/technology/curriculum/gallery/WelbyIngs_e.php.
6. ERO. (2001). The Implementation of Information and communications Technologies (ICT) in New Zealand Schools. [Online] _04.05_(2001),

http://www.ero.govt.nz/Publications/pubs2000/implementationICT.htm.

7. Hill, R. (2000). Managing a multimedia classroom. Computers in New Zealand Schools, 12(2), 13-19.
8. Jones, A. (2001, 2 May 2001). Technology Transcript. [Online] _05.05_(2001),
   http://www.tki.org.nz/r/technology/curriculum/gallery/AlisterJones_e.php.
9. Kenway, J. (1995). Reality bytes: education, markets and the information superhighway. . Australian Educational Researcher, 22(1), 35-65.
10. Means, B., & Golan, S. (1998). Transforming Teaching and Learning with Multimedia Technology. Report 1998. Menlo Park: Silicon Valley Network.
11. Milne, L. (2001). Technology in the New Zeland Curriculum. Frequently asked Questions in Technology.[Online] _02.5_ (2001),
    http://www.tki.org.nz/r/technology/curriculum/faq_e.php.
12. Murphy, C., & Greenwood, L. (1998). Effective Integration of Information and Communications Technology in Teacher Education. Journal of Information Technology for Teacher Education, 7(3), 4-6.
13. Riley, R. (2000). The National Educational Technology Plan. Report. Washington: U.S. Department of Education.
14. Simpson, M., Payne, F., Munro, R., & Lynch, E. (1998). Using Information and Communications Technology as a Pedagogical Tool:a survey of initial teacher education in Scotland. Journal of Information Technology for Teacher Education, 7(3), 14-16.
15. Tearle, P. (1998). Core Curriculum for Telematics for Teacher Training. Luxembourg and Brussels: University of Exeter.

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A study in reciprocity: Minimizing the digital divide and the intergeneration gap-Children tutor seniors at computer and internet skills and get a lesson in history

This paper describes an on going program initiated by Prof. Edna Aphek and carried out at the Alon School in MateYehuda, in Israel.

The program aims at minimizing the intergeneration gap and the digital divide by having elementary school children tutor seniors at computer and internet skills and at the same time write together with the seniors a digital "mini ebook" based on a chapter from the senior's personal history.

The rationale of the program:

1.The Hi -Tech information oriented society is a society, which places much emphasis on the new and the changing. In such a world the past looses its importance. The voices of past knowledge and experience become obsolete and the chasm between the generations, the old generation and the young ones, becomes insurmountable

2.The new technologies have created a new situation, rather unknown in human history. A situation wherein young children master a skill much needed by adults in general and seniors in particular. In the new Hi-Tech world, where children speak the new language of the Information Technologies 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 computer and the internet.

3. Knowledge endangered: the dire need for preserving knowledge at risk of disappearance
Precious knowledge is stored in the heads of senior citizens. Many seniors are "walking treasures" of history, of folk art (their art work) and of music about to disappear.
Project objectives:
The project aims at combining the vast experience and knowledge of the seniors with the mastery of computer and internet skills of the young ones, thus fostering new social interactions and minimizing the generation and digital divide.

Project history

The project started in 1998 at the Alon school, in Mate Yehuda. In this program children ages 9-13 tutor seniors at computer and internet skills, and together, the young teachers and their old learners write an electronic book describing a chapter in the personal history of the senior tutee. Thus, the element of reciprocity, wherein children tutor the seniors at computer and the IT and learn from the seniors about the past, becomes a key element in this project.

a. The model

The model, developed in light of our work 1998-2001 is a tri-stage model: The preparatory stage, the activity itself and summary-evaluation and assessment.

I. The preparatory stage: (pre - teaching)

Young teachers:

Training in tutoring skills: breaking down a topic into sub- topics, learning communication skills, acceptance of the other, distancing oneself from prejudice and stereotypes, being patient and tolerant of lack of knowledge and slow pace, criticizing and encouraging a learner.

seniors

A preparatory session with the seniors giving them some background about the history of the internet and its components.

II.The activity itself: 10 weeks.

Meeting once a week, for 3 consecutive hours.

5 weeks: tutoring the seniors at computer and internet skills.

5 weeks: writing together an E BOOK, a computerized version of a chapter in the personal history of the senior.

This stage includes: searching the internet, encyclopedias, books.

Scanning- pictures, documents, art work etc. all connected to the seniors past history

Recording: recording what went on in the session by both the "young teacher" and his/her tutee.

Reflecting over the session: each session ends with a discussion with all the participants as to their feelings and suggestions for improving the process

III. evaluation and reassessment

On- going evaluation of the program, and reassessment at two major points:

At the end of first 5 weeks and at the end of the entire program.

The Ebooks: sample material

As previously mentioned, a key issue in the program is the co-writing of a"mini- ebook", based on a chapter in the personal history of the partcipating senior.

All the seniors who participated in the project this year wrote "mini ebooks" based on their past history. Most of the seniors chose stories connected to major events in their life.

The children were learning history from living resources, and they were taking part in its recording.They were fascinated, captivated by the personal element of the stories and at times extatic about their new role as "history writers".

1.A chapter from an ebook

written by ZIP 65+ and Y. a boy in 6th grade.

> *Chapter I : The Nurse*
>
> Jerusalem, 1936. It's the time of the MEORAOT : shootings and acts of terror.
>
> We live in a southern neighborhood, not far from Beit Zafafa.
>
> My mother went to a hospital in the city (Jerusalem) to have me delivered.
>
> Inlight of the shooting, getting to Hadassa Hospital on Mount Scopus, was impossible.

A maternity ward was set up in the center of the city, and there I was born-MAZAL TOV (congratulations-Hebrew)

Fifteen minutes after my mother gave birth to me, a red headed baby girl, a terrorist's head appeared in the window.

My mother paniced. Her hands were paralyzed.

My father went looking for a nurse in Beith Zafafa.

Y, who has been working with z. was stupefied : why didn't they give you a formula and that's it? He asked, why go and look for a nursing woman? Z. gave Y. a lesson in history. She told him about the very many things that abound nowadays, but which didn't exist sixty + years ago.

Debunking prejudice

The work of the children with the seniors helps debunk unfounded myth and prejudice. The Israeli society is a very torn society. Its torn between religious and non-religious Jews, Jews and non -Jews, Ashkenazi and Sepharadic Jews, young and old and the very young ones and seniors.

In such a deep situation of rift and alienation, there is a danger that each party will close itself to the other parties, become intolerant and prejudiced of other parties.
Volunteering and giving to other segments in population, helps mending the rift and preventing the growth of prejudices. Getting to know the other through giving and receiving- learning from the Third Agers about their personal history-helped in creating a common denominator and a real dialogue as well as to the debunking of prejudices.

We asked the "young teachers" what they thought about the Third Agers prior to working with them and how their view of the seniors changed in light of their work. Here are some of their comments:

- I thought seniors aren't interested in the same things I am. I found that they do. Both Sh. And myself are into mysticism and baking. P.(girl)8th grade.
- We share the same areas of interest : we enjoyed surfing the internet and reading material we searched. I thought all seniors were interested in is knitting. Z. (boy) 5th grade
- I thought they (the seniors) aren't interested in computers and the internet but it so turns out that they are. N. (girl) 6th grade
- I thought they were terribly boring. But they aren't. They can work a computer. A. (boy) 6th grade

The advantages of learning from Children

We wanted to learn from the seniors whether there was any advantage in learning computer and internet skills from young children, or it was just a nice gimmick. We decided to ask our "old learners" about this.

Here are some of their answers:

Q. what's the advantage of having children as tutors?

- J. 70+ the self confidence of the children and their satisfaction as they succeed in teaching us, the adults.
- M.(65) its easier to open up to children
- Z. (65+) the child is born from the computer… they give themselves totally…
- R. (55+) if we were to be tutored by a trained teacher I would not come.. the spontaneity of the children…their flow…these are great things… but it also has its disadvantages : the children aren't that skilled in clarifying concepts. But this adds interest and fun. Besides there are always two trained teachers (grown ups) supervising the whole operation, so if there is a need we could always ask for their help.
- There is much tenderness in the young child. I feel so relaxed working with a young child its great. I don't fret when I make a mistake. I tell my "young teacher" I don't know and the child simply accepts it.
  A. 70+

Summary and discussion

The success of this program stems from the following guiding principles:

1. Mindful Use of Technology

When a new technology becomes prevailing it brings about many changes: changes in ways of thinking, in methods and tools for thinking and in social processes and structures.

We often hear that the new Information Technologies are responsible for the digital divide and as such increase the ever- widening gaps in society.

This paper describes the opportunity to minimize the gaps in society by using these very technologies. I maintain that mindful use of the IT, based upon value oriented pedagogic approach focusing upon volunteering, cooperation and the acceptance of the other, will give us the tools to bridge societal gaps, create new caring communities and establish innovative models of closeness as opposed to individualism and alienation.

2. Careful preparation work

From our work 1998-2001, we learnt that there was much need for thorough and careful preparation work, to be done with the "young teachers" prior to the actual teaching itself, during the teaching and an in depth summation session.

3. Reciprocity is a key element

A good program is a program in which people are both giving and receiving.

Both parties children and seniors, function both as teachers and as learners.

The children tutor the seniors at computer and internet skills and the seniors teach the young ones a lesson in history. The children and the seniors write together a computerized chapter based on the personal history of the senior tutored. Together they surfed the Internet in their quest for information; together they scanned pictures from albums and documents archives, related to the senior's life story.

The seniors don't function only as receivers of technological skills mastered by the young ones, but they are also contributors to the "young teachers" from their vast knowledge and experience.

Reciprocity was and is manifested in many ways in this program.

M. a fifth grade pupil, had the following to say:

" I had a lot of emotional difficulties this year. But my "old lady" listened to me and "fixed" my head.

Each meeting with her was like walking into a beautiful land"..

When we started out the project in 1998 we thought that the main beneficiaries from the project would be the seniors: they would be tutored at computer and internet skills.

For two first years 1998-2000 we limited the scope of the program to teaching by the children of these aforementioned skills. After the first two years we realized how much the children were to gain from this program and we expanded its scope to include a lesson in history and a lesson in reciprocity.
A folk saying maintains, and I am quoting rather freely, that when an old person dies, an entire library is set on fire.

In this program libraries are saved and the young children become the curators of libraries endangered.

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Online resource
Exeter Cathedral Keystones and Carvings:
A Catalogue Raisonné of the Medieval Interior Sculptures and their Polychromy

It is freely accessible via VADS (the Visual Arts Data Service "providing, preserving and promoting digital resources for Research, Learning and Teaching") at:

http://www.vads.ahds.ac.uk/
Click 'search collections' in the left-hand column, then 'Exeter Cathedral' in the right-hand column. (The temporary 'pop-up window' will shortly be removed when the site is directly hosted at VADS.)

The interactive web-site will interest medievalists; art historians; architects; lovers of Gothic cathedrals, sculpture and polychromy and

anyone who would like to know the often spectacular medieval carvings in Exeter Cathedral, Devon, England.

The web-site will also interest anyone with funding for production of a similar site relating words and images, for Tell Communications, who made the website to my specification, can re-use or modify the template we designed. This template could be simply modified to suit any discipline relating words and images: art, illustration, geology, archaeology, medicine, history, etc .

The Navigation Buttons enable you easily to move from anywhere to anywhere else on the site:

CATHEDRAL MAP gives access to catalogue descriptions and images of all the major objects treated.

SIMPLE SEARCH is self-explanatory.

CONTENTS is possibly the simplest way into the material.

CATALOGUE provides a complete, visual and verbal explanatory record of figurative medieval bosses, corbels and labelstops (with a few other interior carvings) which are an integral part of the medieval interior construction of the Cathedral.

INTRODUCTION contextualises the sculptures in the architectural history of the building.

IMAGES gives access to (clickable) thumbnails of all the treated objects in each cathedral area.

BIBLIOGRAPHY and FOOTNOTES provide the usual scholarly infrastructure.

Tell Communications' production of the web-site in accordance with my Specification was funded by a Leverhulme Emeritus Fellowship: without the imaginative support of the Leverhulme Trust the site could not have been built.

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Using discussion boards to extend the learning space

Discussion boards are often seen as an extension of the traditional classroom, however it is our contention that the true potential of this medium is in extending the learning space in new and different ways. Adopting the concept of the virtual sphere as a 'third space' (Rheingold, 1994) enables us to see the discussion board not as a teaching tool but as an enabler, extending the learning space by allowing dialogue and reflection to take place beyond the physical time/space constraints of the classroom walls.

Skills that students have acquired through earlier study, work or life experience are now applied in a higher learning setting compatible with a constructivist approach to learning, providing an environment in which the learner can "actively construct an internal representation of knowledge by interacting with the material to be learned" (Sherry, 1996, p.4). This in turn allows educational designers to create opportunities for students to develop skills according to the capabilities-driven graduate profiles that industry now requires (Denning, 2001), including the ability to:

- Be interpersonally effective;
- Be capable of an analytical, critical and reflective response to a problem in order to find a solution;
- Be capable of change and adapting quickly to change;
- Be committed to life-long study.

In many programmes of postgraduate study students are encouraged to:

- Be critical and reflective;
- Be able to think strategically;

- Move beyond being receivers of knowledge, becoming constructors of knowledge.

Entering the classroom environment for the first time, the student is situated in a personal space, hopefully attuned to their own means-end rationality but not yet a part of a community of learners. Whilst the traditional classroom setting can lead to engagement and foster community building, the teacher must be cognisant of pre-determined learning outcomes, which students are expected to achieve. In other words, the teacher is facilitating the acquisition of meaning. Learning activities that engage the learner and provide support, offering opportunity for discursive interaction can be used to achieve these outcomes and can include framing of tasks into a real world context (Laurillard, 1993). Students gain understanding through discussion and can then grasp meaning, integrate relevant language, signs and symbols, act upon this in the real world to understand content and gain frequent feedback. In this setting, teachers align learning objectives to performances of understanding in assessment through their teaching methods.

The asynchronous nature of discussion boards allows time for reflection and the dissociation from time and space (Rheingold, 1994). The discussion board can provide an opportunity to build a learning model for enquirers who seek to create a dialectic and reflective learning network of like-minded individuals that goes beyond the limitations of the physical classroom. Yet our own research leads us to conclude that treating the discussion board as an extension of the classroom, rather than seeing it as extending the learning space, is a limiting factor in the success of online discussion boards. Three representative studies describing the nature and qualities of posts to online discussions in a tertiary setting were reviewed (Joyce, Williamson, & Nodder, 2001; MacKinnon, 2000; Pena-Shaff, Martin, & Grey, 2001). All three studies produced similar definitions, which tended to rate as positive the same characteristics. More importantly, the three studies attached negativity to certain postings that were considered to be off-topic and therefore, one supposes, did not lead towards the expected learning outcomes for the group. However, Freire (1972) argued that learning is itself a reflective process and it is dialogue (regardless of topicality) that is central to this reflection. Grundy (1987) describes a model defining curriculum as:

- Product
- Practice
- Praxis

Where 'product' refers to control of the learning environment for the achievement of pre-determined outcomes; 'practice' is based on a consensus of understanding where learners are able to take appropriate actions and learning is relevant and meaningful and; 'praxis' is action and reflection informed by self and others. The three studies reviewed all place their emphasis on the communication of meaning, hence the relative valuing and devaluing of different posting qualities. Focus on meaning causes the facilitator to devalue any discussion that is seen as irrelevant or off-topic. However, if we transfer our focus from practice to praxis, it becomes the dialogue itself and the role of such dialogue in facilitating the reflective process that is important. According to Habermas (1987), the acquisition of knowledge and socialisation of the individual within a group requires that authentic debate take place. In this context, 'authentic' means that such debate assumes the veracity of Habermas' four validity claims, such that interaction should accord with them. In the context of the discussion board, this means that we see a process of student and facilitator moving beyond a teleological, means-end rationality to become socialised within the group and then become comfortable presenting their own subjective viewpoint. Ultimately the members of the group reach an understanding and coordinate their actions by way of mutual agreement through discursive action and reflection.

In this environment, the role of the facilitator becomes not one of facilitating the acquisition of meaning, since this is aligned with pre-conceived learning outcomes, but a facilitator of the process itself. The facilitator is not assessing what is said, rather how it is said and becomes reflexive to group postings. Further, postings that would previously be considered off topic can now be viewed as an opportunity to remove distortions that exist in the group and as having the potential to lead to useful outcomes through a process of scaffolding dialogue and reflection amongst the group. Such postings are no longer perceived as negative but in fact can be powerful catalysts to enhance group learning in an environment where the group mediates dialogue. The value of such dialogue is two-fold, firstly in shifting the locus of power from the teacher to the group in such a way that the group becomes a community of learners responsible for their own learning and secondly by providing a forum that not only enhances classroom learning but which actually extends the learning space beyond it.

References

1. Denning, P. J. (2001). The IT schools movement. Communications of the ACM, 44(8), 19-22.
2. Freire, P. (1972). Pedagogy of the oppressed. Harmondsworth: Penguin.
3. Grundy, S. (1987). Curriculum: Product or praxis. New York: Falmer Press.
4. Habermas, J. (1987). The theory of communicative action (Thomas McCarthy, Trans.). (Vol. 2). Boston, MA: Beacon.
5. Joyce, D., Williamson, A., & Nodder, C. (2001, July 2-5). Electronic support for learning at postgraduate level. Paper presented at the 14th NACCQ Annual Conference, Napier, New Zealand.
6. Laurillard, D. (1993). Rethinking university teaching: A framework for the effective use of educational technology. London: Routledge.
7. MacKinnon, G. R. (2000). The dilemma of evaluating online discussion groups. Journal of Research on Computing in Education, 33(2), 125-131.
8. Pena-Shaff, J., Martin, W., & Grey, G. (2001). An epistemological framework for analyzing student interactions in computer-mediated communication environments. Journal of Interactive Learning, 12(1), 41-68.
9. Rheingold, H. (1994). The virtual community. London: Minerva.
10. Sherry, L. (1996). Issues in distance learning. International Journal of Educational Telecommunications, 1(4), 337-365.

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How Do Nowadays Chinese Elementary School Teachers In The Information Education Understand the Advanced Learning Technologies?

Background

During August, several graduate degree programs were taught, we as lecturers, and students both are the top of some elementary schools' teachers in the information education. The emphasis was the web technology for developing instructional websites. Snatching the opportunity, we did a research on how them understood the advanced learning technology in the one of classes. The outcome was very interesting.

The level of students

During the research, our first there questions aimed at acquainting the level of teachers in the English and computer field. We distributed 20 questionnaires, 17 copies came back. The outcome was as followed (everyone can select one from four options):

1. Computer Field

> a. Can complete routine operation in the PC (such as using CD-ROM, knowing how to create, copy, paste& save files, use mouse with click& double click, switching with English and Chinese input): 29%
> b. Can expertly use common software (such as Word, Powerpoint, IE browser) and setup & uninstall software: 59%
> c. Can use common professional applications (such as Dreamweaver, Flash): 6%
> d. Can expertly use common professional applications (such as setup a website with Dreamweaver etc.): 6%

2. English Field

> a. Jackaroo: 18%
> b. Know: 65%
> c. Expert: 12%
>
> Blank: 6%

From outcome we can know most of them have several knowledge in the English and computer, and most aren't experts in each field of them.

The Research

The other questions were concern of the viewpoints of students in the advanced learning technology:

3. Which field more probably students implement with technology or software (such as ASP\CGI\PHP\Perl\Dreamweaver\Flash):

a. Instruction: 6%
b. Assistant instruction: 41%
c. Other: 41%

Blank: 12%

4. Attention the field of the advanced learning technology:

- Instructional Mode: student-center learning, individualize learning, active learning, collaborate learning, teach students in accordance of their aptitude.
- Instructional Content: web-base instruction, content modularize, content integrative, content adaptive, link with social demand and work context, abusive media, lack good teaching material & courseware.
- Training of Teachers: stimulate system, general teachers' computer literacy, computer teachers' cultural literacy.
- Hardware: not open for common teacher.
- Educational Philosophy: skills degenerate, technology ethic, communi- cation.
- Barrier: finance aid, officers' attitude.

Conclusion

According to the attitude of elementary schools' teachers, we can decide what kinds of advanced learning technology them want, to what level, how to teach them, and what kinds of advanced learning technology we should develop.

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Involving the Deaf Community in Distance Learning, Using Blended Technologies and Learning Objects

Abstract

As distance education technology advances, mandates for accessibility and appropriate instructional design for instructors and learners with special needs are shifting our perceptions to this critical area. This paper presents a distance education American Sign Language (ASL) pilot course designed to begin to address this need by blending the Internet, videoconferencing and newly created ASL streaming video learning objects developed specifically for the course.

Introduction and Background

There are nearly 20 million deaf and hard of hearing individuals in the United States and 500 million worldwide. More than 43 million Americans have one or more physical or cognitive disabilities. Historically, society has tended to isolate and segregate individuals with disabilities, and, despite some improvement, such forms of discrimination against individuals with disabilities continue to be a serious, pervasive and persisting problem.

The Americans with Disabilities Act, the Telecommunications Act, Section 508 of the 1998 Rehabilitation Act Amendments and the Workforce Reinvestment Act mandate that we address technology accessibility and curriculum design. A summer 2001, University of Wisconsin-Milwaukee (UWM) ASL distance education pilot course, utilized the blended technologies of the Internet, videoconferencing and newly created ASL streaming video learning objects, to begin to address this need.

UWM currently has the strongest program in Wisconsin for teaching ASL as a foreign language. All of the teachers are native ASL users, certified by the National Certifying body of the ASL Teachers Association. UWM initiated the ASL pilot course and extended it to a site at The Pyle Distance Education and Conference Center. Instructional Communications Systems (ICS), University of Wisconsin-Extension (UWEX), located in The Pyle Center, worked closely with UWM in all project phases and was responsible for the videoconferencing training. Funding from the University of Wisconsin System was used to develop and archive the streaming video learning objects, for use in the course and for eventual sharing nationally and internationally.

Project

The project involved a three-phase process: Phase I - Instructor Design and Preparation, Phase II - Implementation, Monitoring and Assessment and Phase III - Analysis of Findings and Implications for Practice.

Phase I - The focus of the course was on: 1) the natural acquisition of ASL as a conversational language, 2) a knowledge of aspects of the Deaf Culture and 3) everyday communication practices as demonstrated by American deaf people. Blackboard CourseInfo was chosen as the Web management and discussion technology and videoconferencing was selected as the major instructional technology. Streaming video was selected for the creation and archiving of the learning objects.

ICS developed and implemented an initial meeting with personnel involved in the course and an Orientation Training Workshop for the deaf instructor, site coordinator, and evaluator. The course was scheduled in the UWM catalog and sites were selected on the Milwaukee campus and at The Pyle Center in Madison. A brochure was developed to promote the course and ASL sign language interpreters were hired for the training sessions and the first class session. The interpreters assisted the trainers in both understanding and clarifying any questions or concerns.

The course timeline began in March 2001 with the course setup and training. The course ran for seven, three-hour sessions during the university summer session. The timeline will end in June, 2002 with a data analysis summary and the final report.

Phase II - A required ASL text and videotape formed the course framework and an extensive management and discussion Web site was developed. Streaming video learning objects of the instructor signing ASL words and phrases were produced and archived on the course Web site for learner review and rehearsal. A comprehensive evaluation system was developed that included: surveys, observations, learning assessment (quizzes, journals, and papers,) and a software program, integrated to provide evaluation statistics. The staff included: a deaf instructor, site coordinator and evaluator and two hearing videoconferencing/evaluation experts. Eight learners participated in Milwaukee and six in Madison.

Phase III - This Phase is still in progress. Preliminary course feedback resulted in the following:

- All participants of the course shared positive remarks about the relevance and usefulness of the blended technology course.
- For the Web component of the course, the "learning objects" appeared to be a very helpful medium. Participants, however, expressed a lack of interest in utilizing the Web Coffee Shop discussion, but liked checking the Web announcements area. The intent of the Web Coffee Shop was to provide socialization space for the participants.
- All but one of the participants stated that they would recommend videocon-ferencing course to a peer, with the exception of one participant who stated it would depend on the course type.

An analysis of all of the evaluation tools will appear in the final report in June, 2002.

Implications for Practice

This course was a unique experience and broke new ground for distance learning. A number of challenges presented themselves and were resolved to produce positive results. Selected implications for practice included: 1) the need to change room configurations at both sites from that of traditional tables and chairs, with the instructor in front, to chairs (without arms) in semi-circles. The instructor was often a part of the semi-circle; 2) keeping camera pre-sets and camera movement to a minimum. We discovered that excessive visual movement was disorienting to the deaf instructors, perhaps because of their sensitivity to the visual world. Shots also needed to include enough room for body movement and arm extension, yet be close enough for facial expressions (facial expressions and body movement play a critical part in sign language;) 3) considering color and contrast. Instructors chose to wear black so that their clothing would contrast with their hands and arms, allowing the signs to be more clearly visible to the learners. 4) for the most part, eliminating microphones. Microphones were on mute for the full course, except during the training sessions, the first class session orientation and when noise was necessary to change the site view for taping purposes.

American Sign language is highly visual and interactive and, therefore, an excellent type of content for videoconferencing. Interaction

took place on many levels: 1) instructor to learner, 2) learner to learner (between sites and within sites,) 3) instructor to instructor and 4) learner and instructor to technology and materials. The use of the blended technologies of the Web, videoconferencing and streaming video were excellent component tools for this course and worked well together to provide an in-depth learning experience.

One of the major benefits of being involved with the course was that of learning about the rich culture of the deaf community, the refined sensibility of those in the deaf culture and their wonderful humor.

Next Steps

As we progress toward the closure of this project we will continue to: work on the final project report, develop articles and presentations for the dissemination of the findings and work with the University of Wisconsin CO Lab to archive the learning objects for use nationally and internationally.

Bios

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Turkish Students Attitudes Toward Computers

Overview

Computers and related technologies are now in schools across the world. Education policy efforts related to Instructional Technology include the integration of technology in curriculum standards and sometimes make technology skills a separate standard for students to achieve. As the focus on technology expands, policy makers and educators are asking researchers in educational practice to provide the data for thoughtful decision making on the use of technology for learning. At this time the decision-making is often hampered by the lack of adequate research, although there is considerable work from previous years to guide future study.

Many variables affect children's experiences with computers (Sutton, 1991). Access to computers at home and school, and socialization factors, such as differential expectations for males and females, equity issues at home or at school where children often have unequal access to or experiences with computers depending on their gender, age, race, economic status and type of school they attend and children's attitudes about computers and skills related to computer based technology are important variables to consider in understanding children's thinking about computer technology (Levin, Bary; 1997). This study looked at several variables relating to students' attitudes toward computers and especially Turkish children's attitudes toward computers. The focus of the study is on Turkish children because there has not been much research done in Turkey on this issue.

Computer Attitudes Research

A review of literature reveals that research in this area has been fragmented and sparse because of its recency. In a broad based assessment of computer literacy Smith (1986) examined eighth and eleventh grade students across Minnesota. While the researchers found generally positive attitudes toward computers among students, they concluded that many students lacked confidence in their ability to deal with and use computers. Research relating to computer usage and accessibility may provide information from which computer attitudes can be inferred. In a survey of research related to inequities in opportunities for computer literacy Onderson, Welch and Harris (1984) found disparities in usage and access to computer training. These inequities related to wealth; community size; region; gender; and race. Lack of access and opportunity for computer training would seem to imply attitudes that the poor, minorities and females are less suited to training in computer usage than are middle and upper income, Caucasian males. In a study of the impact of microcomputers in three geographically distinct school districts, Sheingold (1981) found differential access to computers, which are both planned (achievement determined access) and unplanned male dominant enrollment in classes).

Method

In this study data was collected from 481 Turkish Elementary second, third and forth graders using a computer attitudes survey. The study was conducted in four elementary schools in Izmir, Turkey. Two of the schools had computer labs as well as computers in some of their classes.

The Computer Attitudes Survey was administered by the class teacher to students without the interference of a third person researcher/ survey administrator. Students are asked by their teachers to give their own answers and they are ensured that the survey is not a test to measure their performance. The survey is composed of items that are taken from similar questionnaires that were developed by educators and researchers previously, translated and adopted to Turkish language. The survey is first developed in English and then translated back to Turkish. The survey that is in Turkish is then translated back to English by two English- Turkish teachers to check the clarity of meaning in items. Moreover the survey items were adapted to the level of elementary school children and developed in order to cover the range of meanings included with the concept of attitude.

The survey items came from previously developed surveys such as A scale of Children's Attitudes to Computers (reliability: 0.82) (Todman, File; 1990), Young children's Computer Inventory (reliability: 0.78) (Miyoshita, Knezek, 1992) and also Computer Attitude Scale (reliability: 0.81) (Shashaani, 1992).

Results

A total of 481 students (Males: 233 Females: 225 Missing: 23) between ages 7 and 10 with an age mean of 8.73 and a standard deviation of .823 filled out the survey. 60% of students knew how to use computers and 34% had computers at home. According to the independent t-tests conducted, there is not a significant difference between males and females in their attitudes toward computers ($p=.719$, $t=-.360$). A factor that made a difference in student's perceptions is found to be age. Children who are older tended to have more positive attitudes toward computers ($F= 4.260$ $p=.006$ with 3 and 449 degrees of freedom). Moreover children who had access to computers at home and/or at school had significantly more positive attitudes toward computers ($t=4.192$ $p=.000$ with 437 degrees of freedom). 58% of the children reported that their teachers and 66% reported that their parents encouraged them to use computers. The alpha reliability coefficient for the survey was .71.

Conclusion

The children see themselves as computer users now and express the belief that they will be computer users in the future. It has become a necessity to understand children's attitudes toward computers to use this technology efficiently and also to help students achieve higher levels. According to this analysis, access is a significant factor for positive attitudes toward computers. Access has also been found to be one of the major determinant for positive attitudes in other studies conducted with other populations. For future, this research needs to be expanded across cultures and repeated on a regular basis to assess whether or how attitudes change overtime.

References

1. Hentrel, B.K. & Harper, L. (1985). Computers in Education: a guide for Education. Ann Arbor: The University of Michigan Press.
2. Levin, B. & Barry, S.M. (1997). Children's views of technology: The role of age, gender and school setting. Journal of Computing in Childhood Education, 8(4). 267-290.
3. Miyashita, K. & Knezek, G. (1992). The young children's computer inventory: A likert scale for assessing attitudes related to computers and instruction. Journal of Computing in Childhood Education, 3(1), 63-72.
4. Shashaani, L. (1992). Gender based differences in Attitudes toward computers. Computers and Education, 20, 169-181
5. Sheingold, K. (1984) The microcomputer as a medium for young children. Technical Report. New York.
6. Smith, S.D. (1986). Relationship of computer attitudes to sex, grade level and teacher influence. Education 106, 338-344.
7. Sutton, R.E. (1991). Equity and Computers. Review of Educational Research, 61, 474-505.
8. Todman, J. & Portia, F. (1990). A scale for Children's Attitudes to Computers. School Psychology International, 11, 71-75.
9. Welch, W.W. & Harris, L. B. (1984) How many are enrolled in science? The science teacher, 51. 14-19.

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Anatomy of a Web-Based Listening Activity for EFL Learners

We are teachers of English as a Foreign Language (EFL) at a small liberal arts college in rural Japan. We have been designing and implementing web-based courses, conducted in computer laboratories, that attempt to concurrently introduce students to technology, expose them to environmental issues, and develop their language skills. Upon completion of these courses our students have sometimes complained, either directly or through end-of-term surveys, that they feel they are not sufficiently improving their listening and speaking skills when working with technology. In response to this feedback, this year we decided to develop and incorporate a unit specifically designed to help students improve these skills. For the sake of others wishing to create similar web-based activities, this article describes in detail the process of preparing the listening component of that unit. Also, it points out the possible advantages and disadvantages inherent in this use of technology as perceived by us as well as by our students.

As our source material, we decided to use the video "Jam Packed: The Challenge of Human Overpopulation" because it was only 25 minutes long, informative, and suited the overall environmental theme of our course. After some initial previewing activities, we played the entire video on the first day of the unit. During the following four weeks (eight total classes), the students worked intensively with eight small QuickTime® clips we created from the video. Finally, the unit concluded as students watched the video again in its entirety and gave us feedback on whether or not their comprehension of the video had improved since the beginning of the unit. We also solicited feedback and comments on the individual online listening activities.

Preparation

Activity	Comments	Hours
Preview the video	We watched the video three times in order to clearly understand its organization and scope. We began to select the segments we would later use and we came up with ideas for additional activities based on the video	1.5
Select 8 short clips	We viewed the video separately and then agreed on 8 clips of about 20 to 30 seconds apiece. While making our final selections, we kept three criteria in mind: 1) the content of each clip should reflect essential information of the thematic unit; 2) the clips should include a variety of speakers and speaking styles; and 3) the majority of the linguistic features of each clip should not be overly sophisticated or obscure for our intermediate-level students.	1.5

Convert analog to digital video	We have a video player that dubs large-format VHS video to digital videotape. We are fortunate that we have access to this equipment through our work. Even using a digital video camera and regular VCR, the cost of assembling the equipment to digitize material might be prohibitive for individuals unsupported by institutional funds.	.5
Download the digital video to the computer	We did this by connecting a digital video camera with a firewire to a Macintosh G3 computer. Using Apple's I-Movie application, we downloaded the selected video clips. This was the first time we used this software so part of the time was spent on learning how to use it. Even though Apple applications claim to be intuitive and easy-to-use, the learning curve was still quite steep.	3.0
Manipulate the digital clips	We added titles, instructions, credits, and transitions to each clip for a more professional appearance. Parts of this step were perhaps somewhat superfluous and it is debatable whether they added anything to student learning.	2.0
Transcribe the clips	As we watched the clips again, we transcribed each one exactly. This meant including features such as fillers (e.g., *ah...*), false starts (e.g., *th...their),* and grammatical mistakes (e.g., *There is so many problems*). Such features were then addressed in the related language activities.	1.5
Create language activities for each clip	We converted each transcription into a cloze passage for students to fill in while listening to and manipulating the video clip. In addition, we created a variety of micro- and macro-level comprehension questions.	4.0
Create the webpage	This step was time consuming because we had to create a webpage design that would let students complete the language activities at the same time they were viewing the QuickTime clip. This was accomplished by using frames and embedding the video in one of the frames. We used javascript to make the language activities interactive. Once students made a selection, feedback on the correctness of the answer would appear. The script also kept score of how many correct answers the students got on the first try. Subsequent corrections after the first try were not scored.	4.0
Total		18.00

Using the Activity

The students surprised us with how quickly they were able to complete the listening activity the first time we tried it in class. We had estimated that it would take them at least 30 minutes to finish, but in reality, the exercises took them at most 15 minutes.

Student Feedback

Though the scope of this module was too limited for us to attempt to measure actual improvements in students' listening ability, we did administer a survey in order to gather student impressions about the perceived effectiveness of this type of listening activity. All 20 of our students responded to the survey and, as the results in Table 2 show, none of them were negative about the experience. The remarkably similar patterns of responses to the first and second questions suggest that students believe these activities are not only assisting them with the specific listening tasks at hand but also contributing to the broader goal of developing general listening ability. Question three was the only question that did not specifically mention the video clip listening activities and, interestingly, it received the least enthusiastic dispersion of "yes" answers. This suggests that our students, while apparently somewhat hesitant to make non-causal claims about their own listening gains, were firmer in their belief that whatever gains they were making were directly attributable to the video clip activities we prepared.

Table 2: Survey feedback questions and results

Question	No	Yes, but only a little	Yes, some	Yes, a lot
1. Did the questions help you to understand the video clips?	0	2 (9.5%)	7 (33.3%)	11 (52.4%)
2. Do you think these activities help to improve your English listening ability?	0	1 (4.8%)	7	12
3. Did you understand the *Jam Packed* video better the second time we watched it?	0	4	12	4

4. Do you think the *Jam Packed* video clip listening activities helped you to understand the whole video better?	0	1	9	10

We also asked open-ended questions about the advantages and disadvantages of this module. All twenty students were able to think of advantages. Ten of the comments mentioned general listening ability improvement, while other comments such as *We can stop the video whenever we want when we can't understand or listen* singled out the ability to individually manipulate the clips as an advantage. Three other students commented on the advantage of being able to simultaneously read and listen (e.g., *I think the sentence that is written which people said in the video helps us to understand the main idea better*), while the remaining three comments (e.g., *It is fun*) are best classified as "other."

Only nine of the twenty students were able to come up with any disadvantages when prompted. Of the nine comments, four centered on the difficulty of listening to authentic English, and the remaining five comments were too diverse to classify. In class, when all twenty students accessed our server at the same time, the video clips sometimes took as long as five or six minutes to load, and this was one of the most irritating technological shortcomings of the activity from our standpoint as teachers. Surprisingly, though, only one student mentioned loading time as a disadvantage. Another student commented that *We rely on written words*, indicating that a minority might view the simultaneity feature (being able to read the transcript while listening) as a disadvantage rather than an advantage.

Finally, when asked if they would like to do more or less of these video clip listening activities, fifteen students answered *more*, five said *this amount was perfect*, and no one answered *less*. Despite the clear enthusiasm for even more listening, unlike previous semesters, we did not receive any feedback at the end of this course complaining about a lack of listening skills development. Thus, we feel that we accomplished our goal of adding a listening module to our course that is extensive enough to satisfy students but is also compact enough to allow us the time to achieve the other curricular objectives.

Is It Worth It?

To answer this question, the following must be considered: access to equipment, technological training, administrative support, and time. In our case, we had the right equipment and, although primarily self-trained and supported, we didn't run into any technological glitches that were too big to overcome. Time, however, was a major issue: 18 hours of preparation produced only about 2 hours of actual classroom activities. Because we teach the course together we were able to divide the preparation duties in half, but they were still time consuming. On the other hand, it is likely that we will be able to use slightly modified versions of what we have created in future courses. Also, a portion of our preparation time was devoted to familiarizing ourselves with new technologies. Thus, it may have been time well spent after all.

Give It a Try

To best understand the possibilities of this technique, it might be easiest to try the finished product for yourself. You can access the video clips and their accompanying listening activities on our course website at http://www.miyazaki-mic.ac.jp/classes/spring01/sci151/home.html. The video/listening activities begin on June 7. QuickTime must be installed to view the videos.

References:

1. Apple I-Movie [Computer software]. (2000). Cupertino, CA: Apple Computer.
2. Jam Packed: The challenge of human overpopulation [video]. (1997). (Available from The Video Project, 200 Estates Dr., Ben Lomond, Ca 95505).
3. Javascript [Computer programming language]. (1998) Mountain View, CA: Netscape Communications.
4. QuickTime 5 [Computer software]. (2001). Cupertino, CA: Apple Computer.

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New Communication Technologies and English for Academic Purposes

Introduction

One of the biggest challenges foreign language teachers have to face today in Latin America is the integration of the new communication technologies into the classroom. English for Academic Purposes courses (EAP) have been offered to professionals from various scientific fields at the National University of Río Cuarto for many years. Since the beginning, the aim of these courses has been teaching reading comprehension in the areas of education, social and political sciences.

Nowadays, with the advent of new means of communication many aspects of teaching EAP courses have changed radically. In fact, advances in new technologies have caused changes not only in the content of the courses but also in the way, the means and the materials used to develop them. The traditional perspective of English for specific purposes based on teaching reading comprehension using authentic paper-based texts taken from textbooks or journals from the student's major area of studies had to be revised to include an emphasis on communication skills using electronically-based texts or hypertexts from the students specialized area of studies.

The primary purpose of this paper is to present a communication technology approach, based on an experience carried out with university students in an EAP course.

Students needs

One of the circumstances that brought about this change of perspective was the fact that both teachers and students realized that future professionals needed not only the traditional four skills: reading writing, listening and speaking, but also competence in the use of the new communication technologies. Whenever an English-speaking teacher came to the University or new scholarships or international internships were offered the students recognized their necessity to develop electronic skills for oral and written communication.

In fact, their needs were widely justified by new academic and professional requirements. Taking into account these new needs, the course goals were widened so that they could satisfy the student's expectations. After an informal survey among the students the following objectives were established:

- communicating orally
- reading comprehensively using new technologies
- writing reports and messages,
- manipulating text, graphics and computer documents,
- using the e-mail,
- searching for information on the Internet.

Course organization

The first step was to design a course organization, which included using the e-mail and the World Wide Web to enhance the students´ language learning skills, to develop a variety of Web searching abilities, as well as a repertoire of strategies and procedures that ensured the participation of all students.

On the whole, the course was organized on the assumption that by using communication technologies learners could "interact, ask questions, provide explanations, compare interpretations and work, with teachers, fellow students and peers in other parts of the world toward mutual understanding" (Kern, 1996).

Activities

Regarding activities, we set up a series of technology-supported tasks for reading and writing that could foster the development of cognitive strategies such as exploring, searching, selecting information; socioaffective strategies such as peer collaboration, interacting with teachers and specialists, asking for and giving advice and help; metacognitive strategies, such as reflecting on their tasks, monitoring their comprehension and evaluating their own progress.

The assignments included composing text-based e-mail messages and asking for information about upcoming conferences in their area of interest. In some of these activities the students were asked to search on the Internet updated texts dealing with the latest advances, reports or news; in others, they sent messages via e-mail to their teachers, classmates and even to professionals working at universities in English speaking countries. Besides, they gave and asked for personal information, reported on daily activities and made comments on their main interests and hobbies.

One of the tasks that helped create a friendly working atmosphere was writing and exchanging a biodata with their virtual correspondents. E-mail interactions also provided the opportunity for meaningful learning through descriptions of their own city and country, as well as comparing life-styles.

They made full use of navigation features such as hypertexts or hyperlinks that allowed them to find the target text excerpts. In order to design their class assignments they organized information by arranging texts in their own word processing documents and manipulating text and graphics. Moreover, they could also copy or save Web graphics and add them to their text-based designs. It was also interesting to notice that students worked at their individual pace playing an active role by interacting with resources (dictionaries, grammar references), materials (texts, graphics, CD-ROMs) and people (classmates, professors and off-campus professionals).

Together with their assignments students were required to keep a journal in which they could write about their own learning process. This was a good instance for them to monitor their difficulties, evaluate their own learning progress and develop metalinguistic awareness.

Teachers, on the other hand, played a distinctive role in the organization of the course. They acted as designers of more creative original activities, as facilitators in helping to solve doubts, as well as guides in fostering collaboration among students.

Final comments

The experience was motivating for most of the participants; the novelty of working with the new communication technologies as well as the flavor of communicating with people around the world fulfilled the expectations of both teachers and students. Besides, some of the students improved their knowledge of computers, which gave them a feeling of personal empowerment. By developing metacognitive strategies, they gained insights in their own nature as human beings as well as knowledge of others. Moreover, the development of new strategies for sharing their views with classmates and teachers, and for using the new technologies allowed them to communicate with people in other parts of the world, thus joining a more global community. In fact, they learnt from each other and about different peoples and cultures.

This English for Academic Purposes communication technology approach was rewarding not only for the students who could successfully fulfill their expectations but also for the teachers who were able to meet the new challenge.

This first experience was successful and it paved the way for further research on telematics and language teaching.

Bibliography

1. Kern, R., (1996) Computer mediated communication: using e-mail exchanges to explore personal histories in two cultures. In Warschauer, M., (Ed.) (1996) Telecollaboration in Foreign Language Learning, Proceedings of the Hawai'i Symposium. U.S.A. Second Language Teaching & Curriculum Center.
2. Loyo, A., Rivero de Magnago M., McCormack, A. (1999): "El Correo Electrónico como Medio de Interacción Multicultural. In Las Lenguas Extranjeras en una Integración Multicultural, Universidad Nacional de Río Cuarto:161-164.
3. Vygotsky, L.S., (1978) Mind in Society: The development of higher psychological processes. Cambridge.Harvard University Press.
4. Warschauer, M., (Ed.) (1996) Telecollaboration in Foreign Language Learning, Proceedings of the Hawai'i Symposium. U.S.A. Second Language Teaching & Curriculum Center.

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Instructional Design and Self-directed Learning in the EFL Classroom

Recent developments

A lot has been said about the role of educational technology as a stimulator of real communication and, as a result, as a facilitator of language learning. It is amazing to notice how technological innovations have come to influence the teaching and learning process. In the last years, the so called "digital revolution" brought the computer into the classroom in order to support and enhance pedagogical practices. As a result, multimedia, e-mail communication, and Internet navigations are becoming more widely used in different educational levels, and are thought to have a positive effect on language education, motivating students, promoting learning, and changing classroom interaction. As Hanson-Smith pointed out, "...as computers become our new tools, we will find that the technology demands new kinds of student-teacher relations: students must become more autonomous, active learners, and teachers must relinquish some of their power and authority -not to the computer, but to the students themselves" (1997:8).

Teachers' inquiries

Educational technology, then, seems to be a well established area, closely connected with and informed by pedagogy and educational psychology. Nevertheless, whenever there is a need to make decisions and justify the use of technology-mediated learning, teachers are confronted with more than one dilemma. Can technology-mediated instruction be implemented in all learning environments? What aspects should we take into account when designing, developing, implementing, and testing materials? Is computer-assisted learning simply appealing and fun? Does it present any other advantage for EFL/ESL students? Which would be the positive aspects of self-directed learning as compared to the traditional form of instruction? With the objectives of clarifying these points, several issues of instructional design should be considered, and the advantages of technology-based learning and self-instruction and their potential for influencing the classrooms of tomorrow should be discussed.

To begin with, it is important for teachers to bear in mind that when designing instruction they should take the whole situation of teaching and learning into account. According to Keirns (1999), instructional design has to be based upon theoretical notions (what, where and how to teach) and practical aspects (creating, using and testing materials). In addition, teachers should decide which learning theories will inform their choices, how the objectives and content will determine the use of instructional strategies, and what learner characteristics will have an impact on design. Teachers should also be well-informed as to how to integrate various abilities for developing materials, and as to what criteria of assessment they can use at the evaluation stage.

These considerations show that the design and use of instructional technology can be implemented in any course, if carefully planned and evaluated in relation to each educational context. From my teaching experience, I have learned that not losing sight of contextual factors contributes to define needs and positively influences teachers' choices. Take, for instance, the case of multimedia. More often than not, the use of this type of materials in an English for Specific Purposes class, as the one I teach for university students, would involve a previous design of the material, since commercialized products usually do not address the needs of these courses. For such a situation, it is the teacher who will be in charge of creating and implementing instructional material. At present, there are some teachers already involved in this demanding task, which requires specific knowledge drawn from many different fields, including technical and practical aspects regarding the manipulation of technological tools. Fortunately, the existence of more user-friendly programs for developing multimedia applications, will facilitate this task and demand less effort for teachers in the near future.

Self-oriented learning through e-mail communication

When it comes to the advantages of self-instruction, there is more than one reason to visualize technology as a facilitator of learning, especially for advocators of a process-oriented methodology and of a constructivist, learner-centered approach to learning. Computer technology is believed to provide students with the means to control their learning, to construct meaning, and to monitor and evaluate their own performance. At the same time, new technologies have the potential of presenting information and practice opportunities in different modes (sound, graphic and text), thus addressing a variety of learning preferences. What is more, computer-assisted learning gives students the opportunity to have quicker access to a great amount of information, and to interact with the content, with the teacher, among themselves, and with other people in a truly communicative and risk-free environment.

These reflections are thought to be relevant for all learning situations, and to have a vital importance in the case of foreign language instruction. Recently, I have had the possibility of implementing an e-mail communication project between my students (learning English) and American keypals (learning Spanish). This experience has been, in my view, extremely fruitful as regards affective factors, linguistic development, and cultural awareness. I think that, on the whole, both groups of students benefited from using the target language in real interactions, achieving independence in their task, developing self-instructional strategies, and gaining cultural knowledge.

Concluding remarks

To conclude, it is nowadays well accepted that the use of technologies enhances language learning as it offers new opportunities for better practice. However, the use of computer-based instruction should not be carried out without careful planning or theoretical

support. Nor should computers be seen as a substitute for teachers. Both self instruction and technology-mediated learning have to be viewed, in my opinion, as alternative means to reinforce and improve classroom instruction. In Strommen's words, "…we believe that technology in and of itself cannot be the focus of the changes that are needed in education". He goes on to assert that "the key to success lies in finding the appropriate points for integrating technology into a new pedagogical practice" (1992:5). Almost 10 years have passed since this specialist expressed this idea, and we are still claiming for needs analysis and the continuous evaluation of instructional materials. That is to say, irrespective of how advanced and complex technological devices are, it will always be necessary to assess and justify their use for educational purposes.

References

1. Keirns, J. (1999). Designs for self-instruction. Needham Heights. Massachusetts.
2. Hanson-Smith, E. (1997). Technology in the Classroom: Practice and Promise in the 21st Century. TESOL Professional Papers #2.
3. Strommen, E. (1992). Constructivism, Technology and the Future of Classroom Learning. Children's Television Workshop. Bruce Lincoln. Bank Street College of Education.

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Reading Classroom Explorer

Teacher candidates often express concern with the conventional pedagogy of their methods classes, complaining of a need to see challenging, reform-oriented teaching in action (Ferdig, Hughes, Packard, & Pearson, 1998; Hughes, Packard, & Pearson, 2000). They describe instruction that is limited to articles, books and lectures about methods of teaching reading and writing (Ferdig et al., 1998). Most universities have responded to this call, supplementing students' in-class experiences with classroom observations and internships. However, even when provided with these opportunities to 'watch' pedagogy in action, pre-service teachers often fail to see (or are failed to be provided with) teaching models that align with the focus of university pre-service preparation programs (Kinzer & Risko, 1998).

In response to these concerns, we developed the Reading Classroom Explorer (RCE). Originally a CD-ROM product for the Macintosh, the current iteration of RCE is a web-based learning environment for pre-service teachers studying literacy instruction. The goal of RCE is to provide multiple opportunities for teacher candidates to develop rich understandings about teaching and learning in classrooms where diversity of pedagogical approaches and diversity of student populations are evident (Ferdig, Roehler, & Pearson, 2001). An RCE user logging into the system is provided with an opportunity to search over 300 movie clips using four different search mechanisms.

First, they may decide to search by school or "case." RCE contains movies from ten major elementary school 'cases' from throughout the United States (i.e. Hawaii, San Antonio, Harlem, and Lansing). Students may choose to watch the entire video from a case (~45-60 minutes), or they can select specific components within that full case. A second option is to select movie clips by choosing a Theme. Much like a table of contents, the themes are broad categories divided by "Teacher", "Student", "Curriculum", and "Context." Examples of themes include "Assessment", "Planning", and "Management Strategies." Users might want to search more specifically, and thus they would chose the third option of searching by Keyword. If the themes are like a table of contents, then the keywords are the index for that book. Keywords are much more specifically designated, and include words like "book clubs" and "decoding." A fourth and final way to search is to use a free-form text search, referencing text that is either in the transcripts or the general description of a clip.

Once a movie clip is selected and the title is clicked, the user is sent to a webpage that contains the video and any related information for the clip. Using Real Player, a user only has to wait 3-4 seconds for the video to begin playing-one of the major benefits of a web-based system. The transcript, related keywords and themes, links to artifacts that may appear in the clip (e.g., pictures of students' work

shown in the clip), and any other related information also appear on the page. In order to stimulate further thought on the video, questions-and a notepad to save responses into-are provided for each individual clip.

One of the problems with a CD-ROM based product is that interaction between students is limited to those students working together, or a "share-time" provided by the teacher after using the tool. Since RCE has moved to the web, we are now able to provide students with scaffolding through social interaction. For instance, if a user wishes to see what others thought about the movie clip, he or she merely has to click on a button and anonymous responses (provided the user has granted permission) pop-up in a new window. Or, if a user has a specific question, they can go to the "RCE Discussion Forum", where messages are hierarchically saved in either a "General Room" or a room designated specifically for that students' class (provided they are part of a class). At any point in time, a student has access to all of their notes, which is important if a student decides to write and/or submit a paper online. RCE provides the opportunity for students to write papers that include links to specific movie clips discussed in their paper, and then electronically publish that paper to their teacher, their classmates, or RCE users as a whole.

Up until now, we have basically described the user side. RCE also has a "teacher" side. The teacher can log-in at any time to read student papers and to answer questions from their students. They can also go to their own discussion forum to discuss ideas (i.e. collaboration) with other RCE instructors. Finally, RCE instructors can create, save, and search saved lesson plans regarding implementing RCE into the curriculum.

In recent studies, data has been collected that suggests RCE is beneficial to instruction in a number of ways. For instance, evidence suggests that students using RCE, and specifically the discussion forum in RCE, are more likely to demonstrate a deeper understanding of teaching and learning (Ferdig, Roehler, & Pearson, 2001). They are also able to relate what they have learned to experiences outside of the RCE learning environment (their internship, other classes, etc.). Research is currently being conducted that explores issues of diversity, as well as dispositions and skills related to literacy instruction before and after the use of the Reading Classroom Explorer.

In the Spring of 2002, we will conduct a new study with experimental and control groups (classrooms with access to RCE and classrooms that do not receive access until the end of the study). Our global aim is to learn more about the use of this web-based learning environment in pre-service education. Specific goals include learning more about student growth of knowledge, skills, and dispositions towards the teaching of reading, understanding the benefits of web-based video in developing sustained models of excellence, and an exploration of the teaching of pedagogical and student diversity. We are looking for instructors that are interested in using RCE in their own classrooms. One of the many benefits of getting involved in RCE is that in many institutions (e.g., at MSU), the use of RCE allows students to meet many of the technology requirements for state certification (email, discussion groups, creation of hypermedia documents, website use, etc.).

We encourage all interested parties-including those who want to join our research team for Spring, 2002-to visit the Reading Classroom Explorer Online at: http://www.eliteracy.org/rce. To obtain a username and password for RCE, please email Rick Ferdig at: rferdig@coe.ufl.edu. (RCE runs on both Mac or PC, but requires access to the Internet and the latest versions of Real Player and Internet Explorer or Netscape.)

References

1. Ferdig, R. E., Hughes, J. E., Packard, B. W., & Pearson, P. D. (1998). Expanding resources in teacher education: The Reading Classroom Explorer. Journal of Reading Education, 23(4), 30-31.
2. Ferdig, R.E., Roehler, L, Pearson, P.D. (2001). Building electronic discussion forums to scaffold pre-service teacher learning: A study of the Reading Classroom Explorer. Report by the Center for the Improvement of Early Reading Achievement (CIERA). (in press.)
3. Hughes, J. E., Packard, B. W., & Pearson, P. D. (2000). Expanding notions: The effect of hypermedia and video on pre-service teachers' learning about literacy instruction. (in press.)
4. Kinzer, C. K., & Risko, V. J. (1998). Multimedia and enhanced learning: Transforming pre-service education. In D. Reinking (Ed.), Handbook of literacy and technology : Transformations in a post-typographic world (pp. 185-202). Mahwah, N.J.: L. Erlbaum Associates.

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Developing and Producing Knowledge Objects for Classroom Settings:
Wazzu Widgets

Introduction: Knowledge Objects

"What is a "Wazzu Widget?" This was a common question last year at Washington State University and one that was answered for both students and a funding agency before three instructional Wazzu Widgets were created last year. A grant provided by the Arc of Washington gave students and faculty the opportunity to develop instructional Widgets for teachers working with students who are mildly mentally retarded. The generic term for a "Wazzu Widget" is "knowledge object." A knowledge object is a small computer program that is used to teach a single concept or construct. Three teams designed and developed a knowledge object for specific students who were having difficulty mastering concepts through traditional teaching methods. This seemingly simple idea is still a novelty in most classrooms, but this project illuminated the potential for powerfully enhancing learning through the use of computing technology.

A Case Study: One Widget Production Team

Analysis and Design: Two graduate students in education and a special education teacher from a local school comprised one of the three teams. The special education teacher identified a student and a specific concept that a student was attempting to learn. At the initial meeting the team discussed the purpose of a knowledge object. The teacher, as with many educators, was familiar with large computer programs that students used primarily as independent activities and generally involved some gaming aspect. Using a computer program as a direct teaching tool was a new concept. Part of this discussion was spent on eliciting from the teacher what it was that she wanted created in order to teach the concepts to the student. That aspect of this project was unique, in that it is rare to give educators the opportunity to specify exactly what they want created.

The difficult concept selected was the process of multiplication. The general education math teacher joined the dialogue and stated that the student was not responding to the use of traditional manipulatives. For example, when asked to graph a problem such as "3 x 4 =" on graph paper, the student would color three squares across and four squares down, missing the concept of "sets" or "groups". Outlining and coloring sets incorrectly was reinforcing his misunderstanding. The team was asked to come up with a way to limit the time spent making mistakes while still providing a visual and interactive method of understanding that the algorithm "3 x 4=" represented three sets of four (or four sets of three).

At the second team meeting, the teacher was presented with a rough paper sketch of how a Widget might be used. A computer screen would serve as a worktable and virtual manipulatives would be available, as would "set holders". An algorithm would appear at the top of the screen and the student could use the set holders and objects by dragging the items to the work space with the mouse to illustrate and/or derive the answer. Further input was given by the teacher, which included such ideas as color coordinating the set box with one of the digits in the algorithm.

Multiple colored sketches were presented at the third meeting and further discussion ensued as to how a computer program could be used to more effectively teach multiplication. The teacher wanted to make sure that she could use the Widget to show that the order of operation could be reversed, and that the program would be able to check the student's response, both the numeric response and the work space. The digits used needed to be limited so that a student would not have a problem appear, such as "12 x 12=", and then be required to count 144 objects. Having a choice of objects to use on the workspace was also identified as an important factor.

Production: Using Director 8.0, the team developed a program that was aligned with the sketches and plans developed with the teacher. Once a week the team met to modify and adjust the program until, eight weeks after the initial meeting, The Arc of Washington and Wazzu had a new working Widget (see Figure 1).
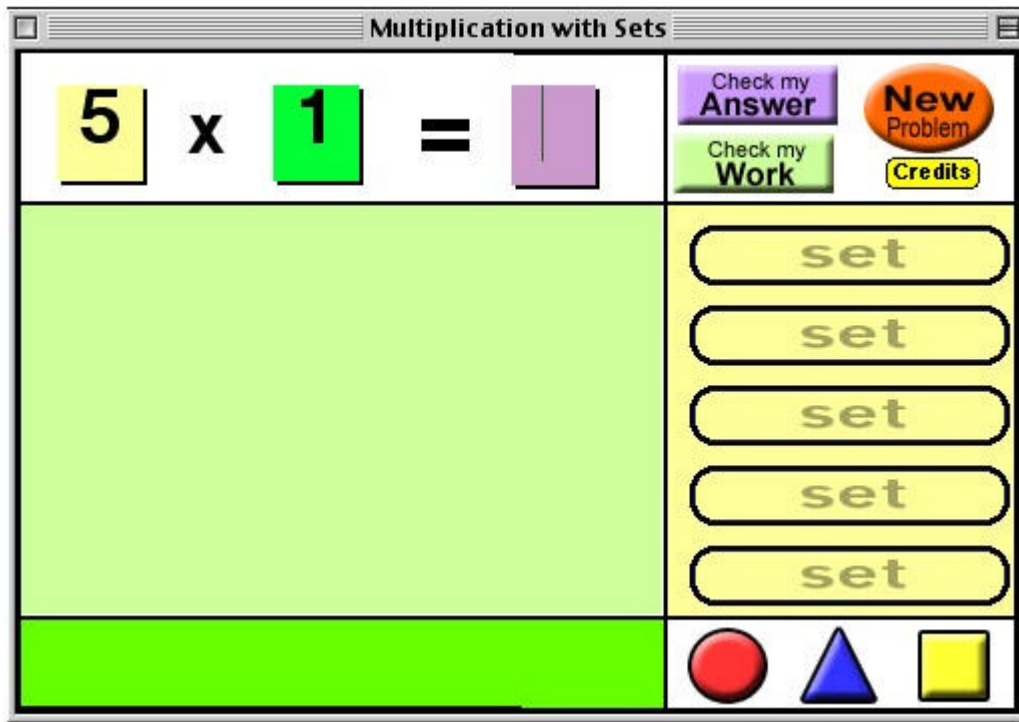
Figure 1: The Multiplication With Sets Widget

Conclusions and Discussion

The project was novel in two ways. First, teachers are not accustomed to using a computer as a direct medium of instruction. Second, teachers are not generally a part of the authoring or developing process. The widgets that were created differ from traditional educational software in that they address a specific concept and can be utilized by educators as another alternative computing technology that directly teaches. Knowledge objects, "widgets", are an extension of the use of technology. In this case a tool was created that was designed specifically to meet a teaching need that was not being met by traditional educational methods. Neither of the creators of the multiplication Widget were professional software designers: one had an interest in multi-media production and the other (this article's first author) was interested in developing her skills as an instructional designer. The creation of knowledge objects and the use of educators in the planning process appears to have the potential to powerfully impact how computing technology is used in educational settings.
The Web site for Wazzu Widgets is: http://education.wsu.edu/widgets/

References:

1. Beck, R. J. (2001). CIE Occasional Page: Learning Objects, University of Wisconsin Milwaukee Center for International Education. Retrieved May 21, 2001 on the World Wide Web: http://www.uwm.edu/Dept/CIE/AOP/learningobjects.html
2. Director 8.0 [Computer software]. (2000). San Francisco, CA: Macromedia, Inc.
3. Merrill, M. D. (1999). Instructional Transaction Theory (ITT): Instructional Design Based on Knowledge Objects. In C. M. Reigeluth (Ed.). Instructional Design Theories and Models: A New Paradigm of Instructional Theory. (Volume 2, pp. 397 - 424). Mahwah, NJ, Lawrence Earlbaum Associates.
4. Wisconsin Online Resource Center. (2001).What are Learning Objects. Retrieved May 30, 2001 from the World Wide Web: http://www.wisc-online.com/what_are_learning_objects.htm

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A Learning Community of Educational Leaders

A Cohort of Learners

It's early on a Sunday evening and the social banter is flowing fast and furious as we are slowly gathering in the Red Room. Bruce says, "Hello Lois." Lois replies, " Hi, Debbie and Bruce." Carol chimes in, "Hi everyone." Laurie asks, "Hi Carol, how was the wedding?" She replies," The wedding was really nice. About 250 people attended." Laurie inquires, "Carol, who got married?" Carol says, "My husband's daughter."

No, this gathering is not at the Red Room in the White House. It is in the Red Room of WebCT as the class warms up for a weekly discussion. Our group is a cohort of ten educational leaders who are part of a doctoral program in learning technologies. This pilot program is being offered through New Mexico State University (NMSU) with the support of the Regional Educational Technology Assistance Program (RETA at http://reta.nmsu.edu). Nine of the participants work in rural settings throughout New Mexico, with one student from Puerto Rico. All of the RETA cohort participants work as an administrator in a public school, in the New Mexico State Department of Education, or at the university level.

As a veteran school superintendent, joining the RETA cohort has been one of the most exciting challenges that I have faced in a long time. This whole group process has been very invigorating and has helped me to look more critically at technology implementation in our schools (RETA newsletter, Volume 3, Spring 2000).

Over the past two years we have had both face-to-face and online opportunities to become friendly and familiar with each other. Near the beginning and end of the fall and spring semester classes we meet at NMSU for three-day weekends. All other class meetings, assignments, business, and postings are done online. During the summer, we attend a three-week intensive session on campus. Based on our group's class experiences, the RETA cohort students definitely agree that the combination of the face-to-face and online formats offers the benefits of both learning environments.

By meeting face-to-face we have accelerated the process of developing collegiality and trust within the group. Through sharing and learning together, both on and offline, the RETA doctoral cohort has become a true community of learners.

Learning in an online environment has also furthered the development of our abilities as technologically literate educational leaders.

Esteban: This pioneer cohort is getting first-hand experience with exemplary learning facilitators and with a powerful medium that has the potential to transform access to education in New Mexico (RETA newsletter, Volume 3, Spring, 2000).

Technology is dramatically changing access to education, however, our RETA cohort group has discovered that the online environment can transform the learning experience itself.

A Web of Learners

To tap into the different learning experience afforded by online environments, a distance-mediated course should not simply be a matter of school as usual. "The Net's creation of a new environment for learning is expected to lead to a new vision of learning that is geared to a mode of information interaction different from that of the past" (Duchastel & Turcotee, 1996, p.2). Palloff and Pratt (1999) further define the new online learning process as one that emphasizes collaborative interactions among students and not just between the instructor and the students.

Instead of a wagon wheel of separate spokes radiating out from the instructor at the center, imagine a complex spider web with threads going every direction connecting all the participants. Interacting with each other, as well as the instructor, not only multiplies the learning potential, but also supports collaboration among the students.

David: The process of using the WebCT environment as a formal learning environment has accelerated my understanding of how important it is to not only have functional online tools but to develop a sense that there is a responsive community to thoughts and ideas (Bulleting posting, Spring, 2001)

In addition, computer-supported collaborative learning enhances team performance through tools for communicating each person's ideas, structuring group dialogue and decision making, recording the rationales for choices, and facilitating collective activities (Dede, 1996).

Indeed, many of the learning activities in our online classes are designed around group work. On one level, information is shared. At a second level, knowledge and meaning are co-created. Furthermore, "When students are engaging in a learning process through the use of technology, they are also learning not only course material but something about the learning process and about themselves" (Palloff and Pratt, 2000, p.62). Chris Argyris (1992) refers to this as double loop learning, because it involves critical self-reflection and the formation of new understandings.

Maria: I find myself engaged in a process of self-analysis that leads to the reformulation of a position based on the input of others because I have the time to reflect, not only on my own thoughts, but the thoughts of others (Bulletin posting, Spring, 2001).

Palloff & Pratt (1999), believe technology mediated learning promotes authentic learning experiences. It increases experiential learning by breaking down the barriers of traditional instruction and building learning communities.

The creation of a learning community supports and encourages knowledge acquisition. It is the vehicle through which learning occurs online. Moreover, it creates a sense of excitement about learning together and renews the passion involved with exploring new realms in education. Based on Palloff & Pratt's (2000) experience, online learning communities provide scope for more participation as they allow time for students to think and articulate their comments.

Michael: I recognize that I am much more cautious about what I commit to writing than statements I would normally make in the course of a face-to-face discussion. It is for this reason, I believe, that I return to my postings with some regularity to self-assess my progress and how well I articulated my thoughts".

The constructivist learning environment is predicated on the assumption that individuals learn best not only through designing their own learning experiences within a context, but also in situations that involve others in pursuit of a common goal. Teachers

who participate in learning communities learn to apply new ideas and information to problem solving and therefore are able to create new conditions for students. These online instructors believe their curricula are limited only by their creativity (Blair, 2001). They point out a number of advantages of online courses over traditional face-to-face.

Bruce: In any case, I plan to more fully implement effective online strategies to better develop the cognitive processes of the students I work with (Bulletin posting, Spring, 2001)

Besides the many informational resources that can be integrated into the class, instructors believe there are advantages resulting from the psychological aspects of the medium itself. There is a deeper level of thinking and discourse and the students are more willing to engage their peers and professor more actively (Smith, Ferguson & Caris, 2001). Over the past two years, the RETA cohort students have found that deep reflection and dialogue are two of the most enriching parts of our online learning experience.

Carol: As we mature together as online learners, individual postings are more carefully crafted and tempered with a unique perspective before they are publicly shared (Bulletin posting, Spring, 2001).

Although convenience, flexibility, and access may have initially attracted the RETA doctoral students to an online learning program, the impact and benefits have resulted in experiencing a different structure of learning (Killion, 2000; Palloff & Pratt, 1999). We feel lucky to have participated in a well-designed and effectively implemented program incorporating such a strong online learning component. Based on our experience, we know online learning environments are extremely effective if they invite each student to collaborate, reflect, dialogue, construct, and join the community of learners. In fact after reading Palloff and Pratt's (2000) book entitled Building Learning Communities in Cyberspace Effective Strategies for the Online Classroom, one of the cohort exclaimed, "That's what we've been doing all along!"

Technologically Literate Educational Leaders

If the actions initiated by the RETA doctoral students back at their work sites provide any indication of impact, then the RETA doctoral program is achieving its goal of advocacy development of administrators (Technology Challenge Innovation Grant, 1998). The following comment is from Linda Coy, one of the authors of this article, and Superintendent of the Grants/Cibola County Schools in Grants, New Mexico.

Having the opportunity to acquire technological knowledge from the doctoral cohort experience has been a "godsend". As a school leader, having access to best practices for technology implementation, is critical for wise and appropriate decision making for your district (RETA newsletter, Volume 3, Spring 2000).

Ms. Nancy Velázquez is the second author of this article and a fellow RETA cohort student. She teaches online courses and works at Inter-American University in Aguadilla, Puerto Rico.

Through this community of supportive collaborators with a common goal, I have felt empowered to promote this type of setting within my institution. As the Director of a Title V grant, I have fostered the creation of online learning communities for faculty and students.

Ms. Susie Bussmann is the third author of this article and a fellow RETA doctoral student. She works as the RETA Project Coordinator at NMSU in Las Cruces, New Mexico.

My fellow RETA cohorters are an invaluable resource. Their support has helped me to prepare for the upcoming series of RETA administrator workshops. Naturally, some of these sessions will be online. Inspired by the benefits afforded by my own participation in an online learning community, reinforces the importance of providing this opportunity for other educators.

References

1. Argyris, C. (1992). Organizational Learning. Oxford, UK: Blackwell.
2. Blair, J. (2001). Teacher training programs turn to cyber space. Education Week, 20(22), 1, 14.
3. Bulletin board postings. (2001). Current research in learning technologies (EDLT) 607. New Mexico State University, Spring

Semester. Las Cruces, NM.

Dede, (1996). Emerging Technologies and Distributed Learning. The American Journal of Distance Education, 10(2), 4-36.

4. Doctoral cohort reflections. (2000, Spring). Regional Educational Technology Assistance Newsletter, 3-5.
5. Gonzales, C. (1998). Regional educational technology assistance program. Technology Innovation Challenge Grant. United States Department of Education: Washington, DC.
6. Killion, J. (2000b). Log on to learn: To reap the benefits of online staff development, ask the right questions. Journal of Staff Development, 21 (3) [On-line]. Available: http://www.nsdc.org/library/jsd/killion213.html.
7. Palloff, R., & Pratt, K. (2000). Building learning communities in cyberspace: Effective online learning strategies. San Francisco, CA: Jossey-Bass Publishers.
8. Smith, G.., Ferguson, D., & Caris, M. (2001, April). Teaching college courses online vs. face to face. T.H.E. Journal, 28(9), [On-line]. Available at http://www.thejournal.com.

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(collaboratively developed with Nancy and Linda)

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Professional Preparation to Facilitate an Online Course

Introduction

As a veteran teacher educator who has spent the last ten years preparing undergraduates to use educational technology in America's public schools, I was recently struck by the anomalous situation that I was in. I was preaching educational technology to hundreds of students every year, but had only made one small attempt at teaching electronically. Further, in a recent unpublished research study, I found that in the geographical area served by the traditional university where I teach, between 80% to 90+% of new teachers, veteran teachers and school administrators believed that teacher/school administrator preparation courses should be offered online (Betz & Desiderio, unpublished).

With the help of a friend who referred me to the University of Phoenix (UOP) Online, I applied for and was accepted into the UOP Online training program for creating "facilitators" of online courses. The intention of this case study is to give readers an inside account of how a major, online university prepares traditional instructors, professors, and teachers to become online facilitators.

Preparing for Online

The preparation to enroll as a faculty candidate in the UOP Online Training course was in and of itself a significant step. An application for employment, resume, letters of recommendation, and social security card were submitted. Following notification of acceptance as a Faculty Candidate, I was notified of the particulars of the full probationary process. First, there was a proficiency test in using Outlook Express. Outlook Express is a free email program that works with the popular web browser, Internet Explorer, and in this instance, I received a CD-ROM from UOP that contained both. The Outlook Express proficiency test consisted of an online tutorial that teaches Faculty Candidates how to configure both email and newsgroup accounts as well as how to use and format email messages.

The next step was to receive a user I.D. and password that allowing me to access restricted areas of the UOP web site. The UOP Web Site, which, along with Outlook Express, serves as the portal for both students and faculty to conduct business with UOP. Telephones and fax machines are also available for problem situations but are rarely used.

Having received a user I.D. and password, I, like all Faculty Candidates configured one email account and several newsgroup accounts on the UOP server. The template for offering UOP courses usually includes eight newsgroups. The newsgroups are identified by the course name and the date that the course will begin. Only students listed in the class roster can subscribe to the newsgroups. The newsgroup format works very well within Outlook Express, primarily because of the "preview pane" that allows readers to quickly flip through messages by highlighting message titles in the top viewing pane, while speed reading message contents in the bottom viewing pane. The newsgroup method proved to be much easier to use than web-based, course software, such as WebCT and Blackboard,

which require each message to be fully opened and fully closed.

The designated newsgroups for the UOP Online Training course are as follows:

1. Faculty-Training.02-15-01 Group A. This is the main newsgroup for the class, having read-and-write access for candidates and facilitator, which is used to conduct the business communications of the course.
2. Faculty-Training.02-15-02 Group A.-Assignments-write-only This newsgroup is used for submitting assignments and can only be viewed by the Facilitator.
3. Faculty-Training.02-15-02 Group A. Chat Room This group is used to discuss informal issues not related to the course.
4. Faculty-Training.02-15-02 Group A. Course Materials Here the Facilitator posts assignments, lectures, syllabus, and work-related messages. Only the Facilitator can post messages to this group.
5. Faculty-Training.02-15-02 Group A. Learning Team A These four newsgroups are used as collaborative work rooms for cooperative learning groups in the course. The cooperative learning groups, called learning teams, are mandatory.
6. Faculty-Training.02-15-02 Group A. Learning Team B
7. Faculty-Training.02-15-02 Group A Learning Team C
8. Faculty-Training.02-15-02 Group A Learning Team D

Finally, in case the Faculty Candidate cannot access the computer(s) on which he/she has configured Outlook Express, web access is available from the student's UOP portal at the UOP web site.

The Faculty Training Course-Content

The Faculty Training Course lasts four full weeks, and candidates are evaluated after completing each week, before receiving one of three summative verdicts: promoted to a Mentorship course, in which they will facilitate their first course for UOP; retained for a second Training course; or dismissed from the program. The content of the four week course is as follows.

Week One. Orient candidates to the UOP Online philosophy and to the UOP learning model. The importance of online tone as it supports the UOP character is emphasized. Several readings and assignments are included.

Week Two. Prepare candidates to facilitate on online course for UOP and introduce them to the concept of online learning teams or cooperative learning groups. These groups are a part of every UOP course.

Week Three. Provide candidates with information needed to facilitate an online course. UOP uses the term "facilitator" to describe their instructors, a term that carries many ramifications of meaning for practice.

Week Four. Provide candidates with information related to evaluating student performance in online courses and to bring closure to the training course.

The Faculty Training Course-Ground Rules

The ground rules for participating in the online Training course for UOP Online relate to the concept of participation. To pass the Training course, candidates are required to officially participate on five of the seven days of each week of the course. Candidates are required to thoughtfully read and respond to course readings, assignments, and discussions, as well as visibly participate in cooperative learning groups or learning teams. One line email messages do not constitute valid participation in the Training course. Substantial contributions are required, consisting of several meaningful sentences and/ or coherent paragraphs. Candidates who do not register full participation course are usually not allowed to proceed to the next step in the UOP Online Candidate Orientation process, the Mentorship.

Taking the Faculty Training Course

I took the Faculty Training Course during February and March of 2001. Each week opened up new vistas of thought related to my role as a professional education and classroom instructor. At the completion of the course (which I passed!), I reflected, if all online courses could generate the learning that I received in the Faculty Training Course, then the future of online education is a surety.

Reference

1. Betz, M., & Desiderio, M. (unpublished). Educational technology in teacher education: 2001.

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Training & Mentoring Faculty Candidates for the University of Phoenix

Introduction

As distance education schools offer more undergraduate and graduate degree programs, more individuals are exploring the possibility of taking Internet classes. Computer-mediated or online education is becoming more popular among today's students. In 2000, the University of Phoenix (UOP) had an increase of student enrollment of 84%. Currently, 30, 000 online students are taking undergraduate and graduate classes that are facilitated by 2,500 instructors. The writer works for the University of Phoenix as the area chair for their MAED program in curriculum & technology, teach online graduate classes, trains and mentors faculty candidates and conducts peer reviews of veteran faculty members.

Training & Mentoring Online Instructors

Faculty candidates at UOP receive four weeks of training prior to their mentorship. The class provides extensive opportunities for individuals to become familiar with Microsoft's Outlook Express software program that is used for the online classes. The candidates learn about the essence of computer-mediated education by reading relevant lectures, respond to weekly questions and online scenarios, work on team projects, study UOP academic policies and observe online classes. It is an intensive training but candidates appreciate their trainers who share guidance and insights on the teaching and learning process. The class is an essential component in equipping individuals with basic knowledge and skills to facilitate their first online class.

The UOP training program for faculty candidates is designed to prepare individuals to be effective online facilitators. Bischoff (2000) notes that online instructors are provided instruction in four primary areas:

1. maintain visibility
2. give regular feedback
3. provide high-quality materials
4. remove obstacles to student retention (p. 58).

Trainers assist candidates in the four instructional areas and help them make the transition to working online. A second element in the training process involves the use of mentors who are veteran faculty members. Mentors assist individuals by helping them prepare for their first class by providing advice on how to create a syllabus, lectures, a personal biography and course notes. The mentor will stay with the candidate throughout their first class and offer advice and feedback (i.e. student surveys) by using frequent email notes.

Create a Detailed Class Syllabus

A good lecture is concisely written document that should affirm course objectives while personalizing the online experience. Bischoff (2000) recommends that lectures should "draw on text readings, work experience, and outside sources, the online instructor crafts a thought-provoking and polished piece based on the theories covered in the assigned readings (p.67)."

Instructors can promote student interaction by developing a detailed syllabus for their classes. It will provide clear instructions for their online students while offering them a time management device to integrate schoolwork into their busy daily lives. Also, the syllabus plays a vital role in helping students understand the teacher's expectations and establishes a foundation for positive learning experiences. The syllabus requires special attention because instructors need to effectively share their content expertise. Fullmer-Umari (2000) a faculty member at the University of Phoenix recommends that teachers should consider using seven key elements in their syllabus:

1. Course description and overview of subjects covered during the class
2. Teacher' biographical sketch that highlights both professional and personal experiences
3. Teacher contact information (e-mail addresses and telephone numbers)
4. Assignment schedule for each week of the course (papers, readings, etc.)
5. Review of university/class policies for attendance, grading, participation, late assignments, tests and specific details on

academic honesty.
6. Request for student biographical sketches to be e-mailed to a class online newsgroup
7. Discuss frequently asked questions about assignments and computer problems.

The syllabus does help bring structure and sets the tone to the online educational setting. Adult learners appreciate having a detailed syllabus because it gives them a sense of security and enables them to direct their studies. Yet, it is important online classes should give individuals the opportunity to have enough control to influence the educational process. Obviously, the degree of personal control varies in every learning situation. Teachers give students instructional influence based on factors such as their knowledge of the subject matter and the type of learning assignment. Computer-mediated education is self-paced and students are given various opportunities to create relevant and interesting work. The distance education format challenges teachers to develop a learning environment that places more responsibility on the student to accomplish academic tasks with minimal teacher assistance. Students are treated as adults who are capable of effectively learning new ideas and academic disciplines (Kasworm & Bing, 1992). It requires having teachers who design relevant lesson plans and are willing to experiment with innovative educational methods. It is an open-ended learning model that will bring some anxious moments to the best online teachers.

Conclusion

Administrators need to explore relevant ways to educate new and existing faculty members to the online learning environment. Instructors vary in their level of online experience; therefore their facilitator skills must be supported and encouraged through formal and informal professional development activities. A good training and mentoring program will affirm high academic standards and help instructors create friendly online learning communities (Palloff & Pratt, 1999).

References

1. Bischoff, A. (2000). The elements of effective online teaching: overcoming the barriers to success. In (K. W. White & B. H. Weight (Eds.), The online teaching guide: A handbook of attitudes, strategies, and techniques for the virtual classroom. Boston: Allyn & Bacon.
2. Fullmer-Umari, M. (2000). Getting ready: The syllabus and other online indispensables. In K.W. White & B. H. Weight (Eds.) Online teaching guide: A handbook of attitudes, strategies, and techniques for the virtual classroom (pp. 57-72). Needham Heights, MA: Allyn & Bacon.
3. Kasworm, C. E. & Bing, Y. (1992). The development of adult learner autonomy and self-directedness in distance education, Report No. CE 063 391, Springfield, VA: DYNEDRS (ERIC Document Reproduction Service No.ED 355 453).
4. Palloff, R. M., & Pratt, K. (1999). Building learning communities in cyberspace: Effective strategies for the online classroom. San Francisco: Jossey-Bass.

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Macrodmedia Authorware to DHTML Tutorial Conversion
Can the interactivities be duplicated?

Abstract

This paper focuses on the methods used to convert an online application tutorial from Authorware to DHTML format. It discusses some of the problems associated with duplicating interactive behaviors that were created in Authorware, and explores solutions used to overcome these problems. The replicated tutorial was coded in HTML and JavaScript, using Macromedia Dreamweaver. The completed tutorial is functionally and aesthetically equivalent to its Authorware counterpart.

Keywords

Web Programming, HTML, DHTML, JavaScript, Layers, Macromedia Dreamweaver, Macromedia Authorware.

Introduction

The online tutorial consists of multiple lessons for the Department of Defense, Wide Area Workflow - Receipts & Acceptance, (WAWF-RA) System. The WAWF-RA application is a web-based interactive system designed to provide all users in government, contracting, and industry, an electronic means for processing the necessary documentation in order for the government to make payment on a vendor's invoice. The system also allows users to track the status of the processing. In short, the system provides for global visibility, speedier processing and more accurate transactions.

In order to make the WAWF-RA tutorial more attractive and more widely used, the stakeholder wanted to create a tutorial that would train prospective and new users on the features and requirements of the application. The agency had been relying upon stand-up training, and desired to reach a wider audience by providing the training on the web. A contract was awarded to Concurrent Technologies Corporation of Largo, Florida. CTC had been doing training for the agency, so the company had the knowledge and experience needed to convert the tutorial to CBT for delivery on the web.

CTC describes itself as an independent, nonprofit, applied research and development professional services organization providing management and technology-based solutions to a wide array of clients representing state and federal government as well as the private sector. They operate from more than 20 offices throughout the United States with a staff of over 1000 skilled professionals.

The Process

The WAWF-RA tutorial metaphor is an office with a filing cabinet, file folders, and an exit door. The recreation of the graphically rich and highly interactive tutorial was to be converted into static HTML, with the use of layers. Images appear and disappear as the user interacts with the page. The introductory and navigational pages have a total of 15 layers, and that is with only one of the seven modules active. The finished tutorial would probably contain 40 or more layers. Each layer contains an image element. One layer is the office background, which consists of the office, a file cabinet and a plant (Figure 1). Initially, I wanted to place collections of images, such as the file drawer fronts with module labels, in a table within one layer. That did not allow for proper positioning of the elements against the background. That plan had to abandon that in favor of having each image reside within its own layer (Figure 2).
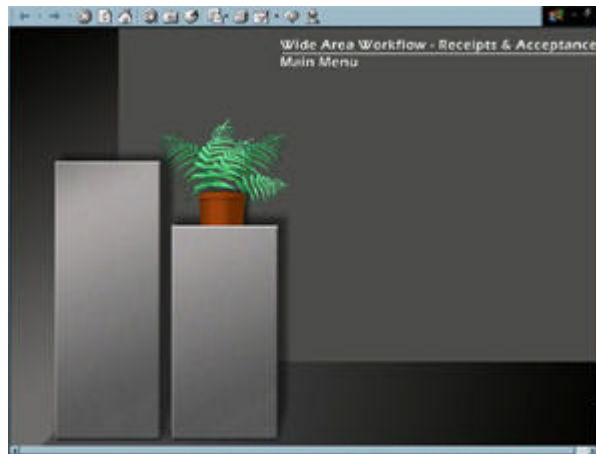
Figure 1: Office background occupies Layer 1
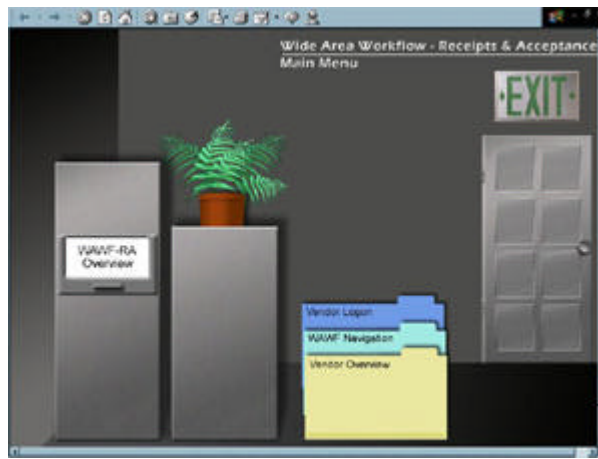
Figure 2: Images are placed in individual layers, and can then be positioned precisely against the background

Layers not only allow for accurate positioning on the page, but they also allow for the swapping-out of images. Dreamweaver provides two built-in functions for swapping images "Swap Images" and "Show/Hide" layers. Dreamweaver provides a list of events and behaviors that can be selected; then, Dreamweaver generates the JavaScript code to make the behavior occur. For example, when a user mouses-over the working module, "Vendor Document Processing," the color scheme changes indicating that the link is active. When the user clicks on the Drawer, the drawer opens and a set of file folders appear giving a selection of subtopics from which to choose. Again, mouse-overs indicate the active topic. When the user selects the active topic "Vendor Logon," the file indicates that it has been selected and the scene hangs momentarily with the help of Dreamweaver's built-in timeline function (Figure 3). The exit door is fully functional. The exit sign lights-up onMouseover, and, when clicked, the door opens (Figure 4).
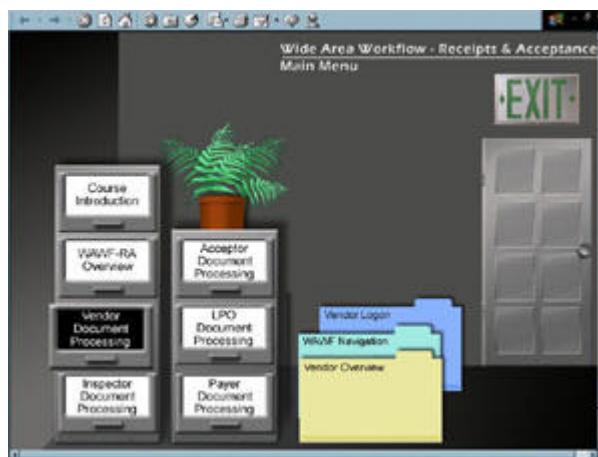
Figure 3: Swap-out images appear when user selects a module
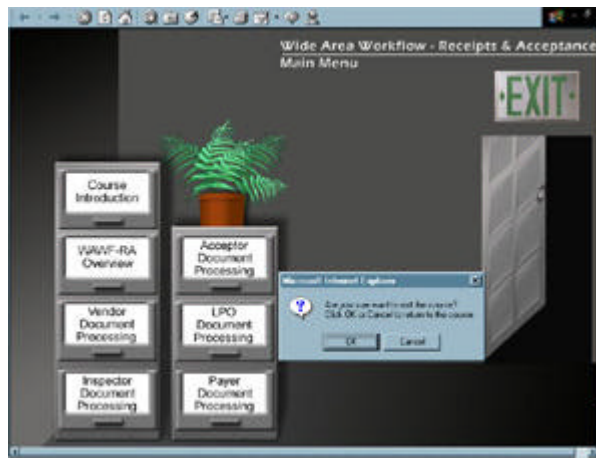
Figure 4: When user attempts to leave, a confirm box appears giving options to continue or to exit

Layering is a page realtor's dream. With the "Show/Hide" layers function, several storyboards can be combined onto one page. The tutorial is simulation based: it is designed to teach by doing. Users are asked to click a certain button or hyperlink. If the user makes an incorrect selection, a remedial message appears and the button or hyperlink is highlighted with an arrow. It is unfeasible to transport the user to a new page with every interaction; that would be frustratingly slow for the user. With layers, everything is kept on one page. Again, "Show/Hide" layers" was very helpful. Finally, each lesson is followed by a review question. If the question is answered correctly, a reinforcement layer appears. If the answer is partially correct, a remediation layer appears. Finally, if the answer is incorrect, the answer is given and the user moves on to the next lesson, the next page.

One interesting trick that I used on a multiple-choice question was to draw an image map on each answer response. This was a simple process in Dreamweaver, since the question and answer choices had already been saved as graphic text. Each map covers a separate answer choice (Figure 5), and when clicked, shows the proper remediation or reinforcement graphics and text (Figure 6).
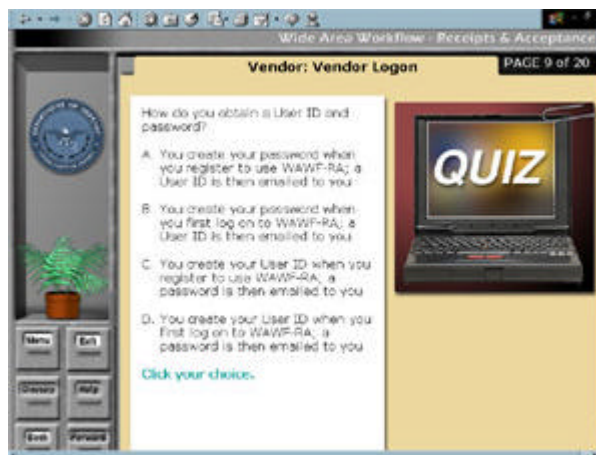
Figure 5: Review question screen with area maps drawn around each answer choice
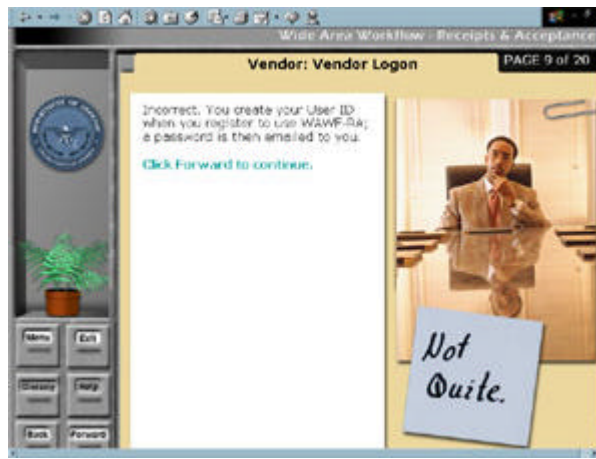
Figure 6: An incorrect answer swaps-out remediation text and graphic

Another Dreamweaver function, "Swap Images," allows for a similar effect as the "Show/Hide Layers" function. I found it very useful when trying to simulate the effect of clicking on a submit button, for example. The un-clicked and clicked states of a button are visually dissimilar. The designer wanted the tutorial to be as real as the application, and so insisted that the button effects be real. When the user clicks a button, the swap image function shows the down state of the button.

Dreamweaver is, literally, a coder's dream. The software makes it very easy for the coder to open a "Behaviors" window and then select the behavior, e.g., "Show/Hide Layers" or "Swap Images." An event is then selected, for example, onClick or onMouseOver. Dreamweaver generates the necessary code and the page is ready for action. Well, not quite that seamless. Dreamweaver is good at generating the code, but is not very smart about placement of the code. This is where some of the problems occurred.

Problems

Dreamweaver is unpredictable about the placement of the code that is generated when using the "Behaviors" window. I found the most predictable placement of the functions was within "<a href = "#" … onClick = …" The pound sign (#) serves as a dummy URL and a container for the onClick or onMouseOver event and the associated behavior function. The beauty of Dreamweaver is the supply of ready-to-go function coding. A certain amount of experimenting with code placement is necessary to make interactions occur predictably.

On one page of the tutorial, there are many graphic layers piled one on top of the other. Each user action triggers either a remediation or a link to the next page. I could not create an image map because it would trigger a remediation when the wrong area of a graphic was clicked. I resolved the problem by creating a transparent dummy image that holds a link to the correct action when just the right area of the graphic is clicked.

Forms can be very useful for multiple-choice or matching type questions. JavaScript coding can get very tricky and tedious. Dreamweaver will not generate JavaScript for handling forms. The coder must be proficient at writing the JavaScript for form handling. One script written for the last review question of the module took 27 lines of code for proper functioning. Complications arose because the question asked the user to check all that applied. That produced many possible combinations: partially correct, completely correct, or completely wrong.

Layers seem to work within the <DIV> tag both in MIE and Netscape >= 4.0; however, when inserting a form within a layer. I used the <LAYER> tag in Netscape and the <DIV> tag in MIE. This necessitates writing a JavaScript that will determine the browser and direct the user to the correctly coded page, for example: onClick = "if(navigator.appName == 'Netscape')href = '0301_2601.htm'; else href = '0301_2600.htm'."

Conclusions

Macromedia Authorware is a sophisticated authoring system for creating interactive, multimedia, online instruction; however, viewing completed presentations on the web requires downloading and configuring a web browser player, which can be complicated for unsophisticated users. Authorware uses an icon based flowchart metaphor as a development platform making it modular in nature, but it produces larger file sizes in comparison with those that are created in HTML. The initial cost of Authorware software is much greater than Macromedia's HTML editor, Dreamweaver. I found that it is possible to replicate Authorware's powerful interactivities on a standard web browser coded with HTML and JavaScript. That said, the higher cost of Authorware could be more than offset by speedier development time. Authorware has the advantage of being modular and is better suited for large projects. The overall cost of

developing the entire WAWF-RA tutorial in DHTML would probably have been much higher overall in comparison to developing it in Authorware.

Many instructional programmers feel that creating truly interactive programs requires the use of Macromedia Authorware or Flash. I have found that the use of HTML and JavaScript can produce the same types of inter-activities without requiring additional authoring skills, nor the expense of purchasing the programs. Many JavaScript functions are free to download and use. Some require commenting the author into the code. There are plenty of web sites that offer good JavaScript references and sample code. My favorite is the European Computer Manufacturers Association, ECMA, (http://eee.uci.edu/00s/36030/js/r/javascript_index.html).

One thing that I would definitely do differently, if I could continue developing this tutorial, would be to make all text, graphic text. It doesn't do a bit of good to have each image positioned precisely on the page and then have the text spilling and formatting differently from client to client. It is even possible to duplicate the look and feel of imbedded hyperlinks when using graphic text. Create the hyperlink using the standard blue underlined text. Then, draw a hot spot, image map, over the hyperlink. Duplicate the hyperlink in the standard, underlined purple. Use Dreamweaver's "Show/Hide" layers function and you have a clicked and unclicked state for a text hyperlink.

This tutorial would definitely not be accessible to persons relying on screen readers nor would it be accessible in a non-graphical browser. A text-only site should be created for these users. The use of layers and graphic text is only suitable when the target audience, equipment and software are known to support it properly.

Also, beware of the fact that JavaScript is visible to the user. When tests or graded evaluations are necessary, then some type of server-side programming is necessary. In the case of this tutorial, the review questions are not graded, so it does not matter that the user can view the source.

This was a rewarding experience for me. The challenge broadened my programming skills and convinced me that it is possible to create interaction on the web without the need for special plug-ins or players. I discovered that HTML pages do not have to be flat and lifeless. Truly meaningful interactions can be created simply and easily, and without having to learn new authoring programs or incurring the additional software expense.

Special thanks to the Project Manager, Anthony Lester, the Instructional Systems Designer, Carol Sipes, and Melissa Possley, the Graphic Artist at CTC for all of the help and encouragement I was given.

Selected Bibliography

1. Deitel, H., Deitel, P., & Nieto, T. (2000). Internet & World Wide Web: How to Program. Upper Saddle River, New Jersey: Prentice Hall. ISBN 0-13-016143-8.
2. Bradenbaugh, Jerry (1999). JavaScript Application Cookbook. 101 Morris Street, Sebastopol, CA 95472. O'Reilly & Associates, Inc. ISBN 1-56592-577-7.
3. Musciano, Chuck and Kennedy, Bill (1998). HTML: The Definitive Guide, Third Edition. 101 Morris Street, Sebastopol, CA 95472. O'Reilly & Associates, Inc. ISBN 1-56592-492-4.
4. Lowery, Joseph W. (1999). Dreamweaver 2 Bible. 919 E. Hillsdale Blvd., Suite 400, Foster City, CA 94494. IDG Books Worldwide, Inc. ISBN 0-7645-3322-3.

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Lessons Learned from a Global Implementation

Abstract

Home Depot, the world's largest specialty retailer, has been expanding internationally since 1997. Our unique culture, values, and business process is an integral part of our success as a retailer. In August of 2000, Home Depot had opened stores in Argentina. During the 18 months prior to the grand opening, associates from Argentina were recruited to work for Home Depot. Within this timeframe, a major effort to teach and educate our associates was initiated. A phased approach with multiple learning strategies was incorporated throughout this 18-month timeframe. This article describes the initial strategy applied to transfer knowledge and to build job competencies, followed by the lessons learned and the research used to create a global learning strategy.

Background

The learner population was international associates who were responsible for learning the Home Depot culture, business practices, and functional responsibilities (i.e., merchandising, finance, and accounting).

An 18-month timeline was established to implement Home Depot systems and processes. A phased approach was carried out over five phases. Home Depot processes and technologies were implemented in the following business areas: Finance and Controlling, Merchandising, and Logistics. A total of 50 international associates were trained over these five phases.

Problem

Due to a small budget, learning solutions development was limited on the project. The project team lacked enough instructional designers to create learning materials for all business areas. As a result, non-ID team members developed training for some of the business areas (there were different team members assigned to each business area). There was no initial learner analysis conducted. Different assumptions were made by each business area about learning styles of the associates. This led to learning materials that were in different formats for each business area. Associates, as a result, did not receive consistent training across all business areas.

As there was no standard approach for training, there was no strategy for support after training was completed. The location of stored training materials was not always communicated to the associates who were trained. Due to the inconsistent training across business areas and the lack of knowledge among associates concerning where training materials were stored, the helpdesk was flooded with calls once training was completed.

The two problems faced after the completion of training were the inability to measure the success of training due to inconsistent learning materials, and, the high volume of help desk calls.

Research

During our implementation process in Argentina, many learning initiatives were performed for each phase of our implementation. Learning solutions were unique across phases and business areas. In order to understand how our Argentine associates were affected by these educational initiatives, data was gathered to help quantify the viewpoint and opinions of our international associates and domestic project team regarding the learning solutions deployed. Specifically, the research conducted focused on the following as it relates to our global learning solutions:

- Instructional Strategy
- Message Design
- Help Desk support
- Online Support

Data Gathering Method

Questionnaires and interviews were used to gather information. A total of 20 questions were asked. The questions were broken down into the following categories:

1. Learning Solutions used during training
2. Usefulness of learning solution
3. Frequency of using learning solutions as a reference
4. Frequency of contacting Help Desk to solve human performance and system performance problems
5. Likelihood of using an online performance support environment

Data collection was administered to two audiences:

1. Argentine Associates
2. Domestic Project Team Members

Argentine Associates

Questionnaires were developed and delivered to associates nine months after the first store opening in Argentina. Follow-up interviews were conducted to break down and pinpoint the nature of the responses.

Data was collected from a mixed representation of associates from all business areas. There was a 55% return rate from the associate survey. Associates from the following business areas were represented:

- Logistics
- Merchandising
- General Accounting
- Merchandise Accounting

Note: 62% of the users have worked with Home Depot for more than a year, thus experiencing some aspect of formalized learning and educational development.

Project Team Member

One on One interviews were conducted with project team members from Atlanta. Questions asked during the interview were parallel to the questions presented to Argentine associates. A total of 50% of project team members were interviewed representing the following business areas:

- Logistics
- Merchandising
- Merchandise Accounting
- General Accounting
- Sales Accounting

Note: 100% of the project team members have worked with Home Depot for over 1 year, thus being involved with some aspect of training development or delivery.

Results

The results of the research conducted on both groups (Argentine associates and domestic project team members) has been consolidated and captured in bar graphs. Please refer to Appendix A _- Associate Responses and Appendix B - Project Team Responses to view a snapshot of some of these responses.

Solutions

Based on the consolidated feedback from our Argentine associates and from our project team members, there were two key solutions to the issues.

Solution 1
There was a disparity in the quality of the learning solutions designed and delivered across project phases and business areas. 51% of our associates surveyed were exposed to some form of structured learning materials (created using an Instructional Systems Design (ISD) approach), while 34% were exposed to a combination of ISD and non-ISD content. Furthermore, based on open-ended responses, because there was so much inconsistency across business areas, some learning solutions may not have covered the entire business process as well as others.

In order to serve our international population with quality products, the decision has been made to standardize all global learning solutions. Our standard approach provides a learning strategy that focuses on the business process knowledge, as well as the performance-based skills.
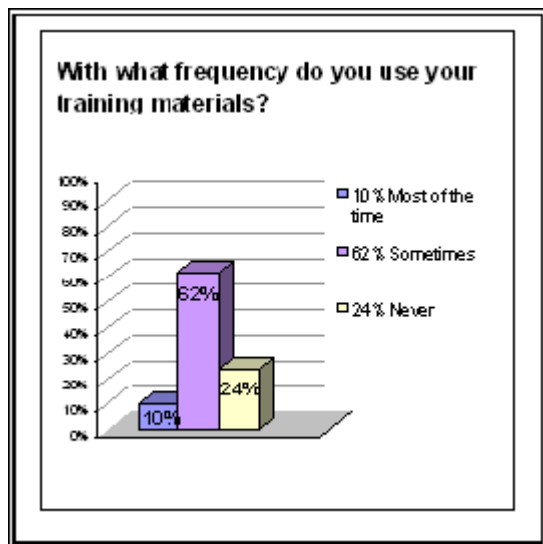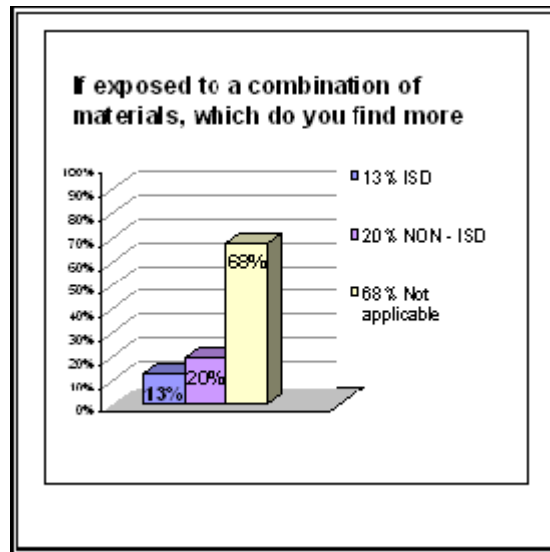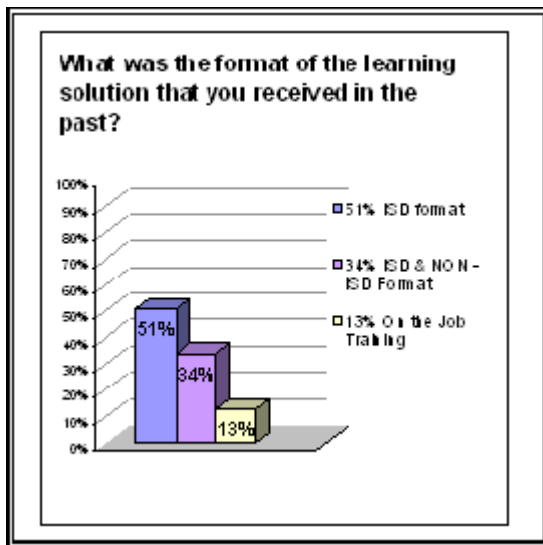
Solution 2
62% of the Argentine associates contact project team members directly when they encounter problems. 76% of our project team members' field calls directly from SAP associates. Project team members state that 65% of the problems the associates encounter are procedural related.
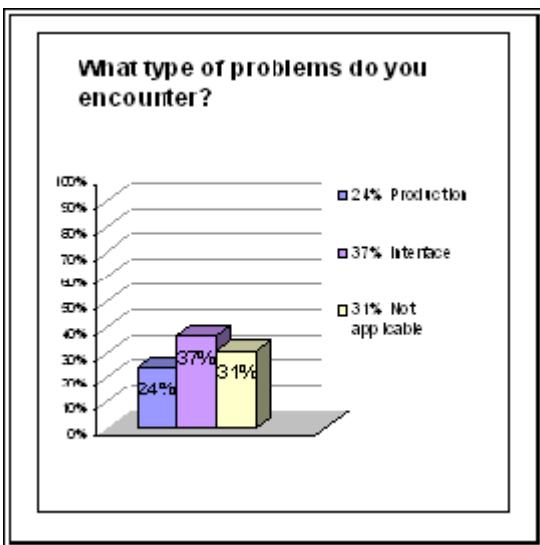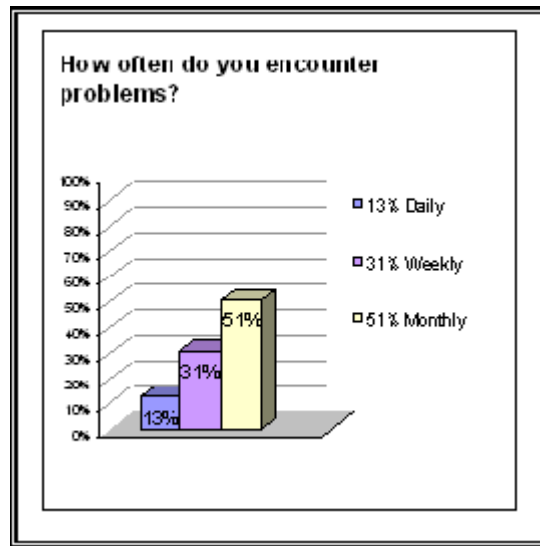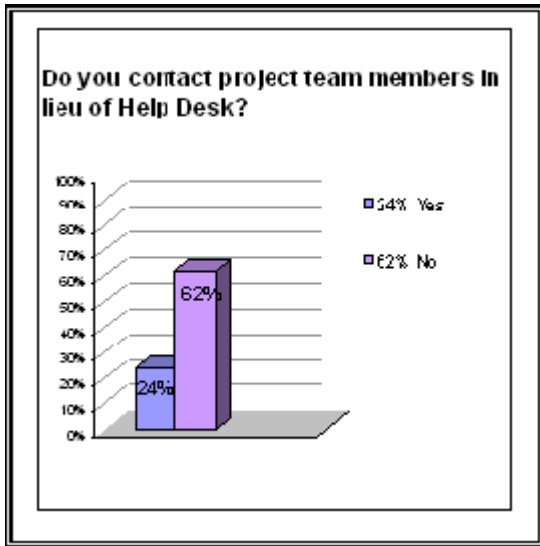
The solution to this problem serves two purposes. First, to reduce the volume of phone calls our help desk and project team members' field; we plan to change our associate's behavior to make them more self-sufficient. An online environment will be created that contains most of the information Argentine associates need to know to do their jobs. The development of a Knowledge Management site has been decided to be the vehicle to deliver information regarding production support, learning solutions, and change communications.

Secondly, since 65% of help desk calls fielded by project team members are human performance related, a standard performance-based approach will be incorporated into the design of these materials.

APPENDIX A - User Responses

The following charts represent the user response to questions asked during their survey and interview process.

Do you contact project team members in lieu of Help Desk?

- 24% Yes
- 62% No

How often do you encounter problems?

- 13% Daily
- 31% Weekly
- 51% Monthly

What type of problems do you encounter?

- 24% Production
- 37% Interface
- 31% Not applicable

APPENDIX B - Project Team Responses

Were the materials created for your area satisfactory?

- 11% Strongly Agree
- 70% Agree
- 17% Disagree
- .2% N/A

How Often Do the Users in Your Business Area Encounter Problems?

- 23% Daily
- 35% Weekly
- 35% Monthly

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Results of employing Case Based Reasoning in SYIM

Abstract

The current paper describes the results of the employment of Case Based Reasoning techniques in an educational environment called See Yourself Improve (SYIM).

SYIM was implemented in the University of Macedonia in Greece, aiming to provide personalized distance education services during asynchronous distance education sessions.

History

Asynchronous distance education is linked in the literature, with a number of pedagogical drawbacks such as, hazy monitoring of the students' performance progress, inability recording individual learning needs, lack of student modeling processes etc. (Wulf, 1996; Pernici and Casati, 1997; Relan and Gillani, 1997; Hunt 1999; Pritichard, 1998; Khan, 1997; Harasim, 1990; Hall, 1997b).

SYIM is a domain independent educational environment which has been developed in order to remedy some of the educational problems appear in asynchronous distance education (Tsinakos and Margaritis, 2001a).

Employment of Case Based Reasoning techniques as part of the SYIM reasoning component, believed to resolve some of the above mentioned problems, as some positive results of employment of CBR in education sessions has been reported by some researchers (Bumbaca, 1988; Riesbeck and Schank 1991).

CBR in SYIM aimed to automate the process of replying to the student's misconceptions, by identifying relevant misconceptions that have been already asked by other students and are stored in SYIM Educational Knowledge Base.

According to the initial implementation schema (Tsinakos and Margaritis, 2001b), when a student posts a misconception-query, the posting does not reach the tutor immediately. On the contrary a Diagnosis Process is triggered in order to identify a similar case that might be the answer on student's original posting. To achieve this, a diagnosis process applies controlled vocabulary search in addition with free text search among the contents of the "Educational Knowledge Base" where the misconceptions with further educational value are stored. Therefore two scenarios are possible:

Scenario a "No relevant case is fount": This scenario is valid when the Diagnosis Process fail to identify and retrieve a similar case. The reason for this failure may be that the student's posting is an original misconception that has never been asked in the past. In such a case, the misconception has to be answered directly by the tutor.

Scenario b "One or more relevant cases are fount": If this scenario is valid, then the retrieved set of cases is displayed to the student, in a ranked order according to their relevancy towards the posted query. Therefore the student can select among the listed cases, the most proper case which provide an answer to his query. Having done that, the process of "Reply to the Student" is automatically terminated without the interference of the tutor. Furthermore the student can vote for each case if it was really helpful or not.

If the student can not identify a proper case which answer the initial misconception (improper case), then the process of "Scenario a" is triggered.

This paper describes the process of identifying relevant misconception, emphasizing on the relying reasoning of such identification. Furthermore it demonstrates the process followed when a student posts a misconception in SYIM educational environment, in addition with some side effect benefits occurring in SYIM, such as the construction of an otology thesaurus as part of the misconception posting process.

Identification of a similar misconception

One of the most crucial problems to solve in the SYIM environment was the construction of a reasoning process that could identify a similar misconception towards the originally posted ones

This problem, of how to locate the correct information (the most similar misconception), appeared to share similar difficulties with the process of performing successful information retrieval processes in the area of database and on-line search, by the catalogers and reference librarians (Bates 1972; Borgman 1986; Connel, 1991; Fidel, 1991; Connel 1995).

The intellectual components of a typical on-line search can be analyzed in to three basic stages (figure 1).

    1. The definition of query structure.
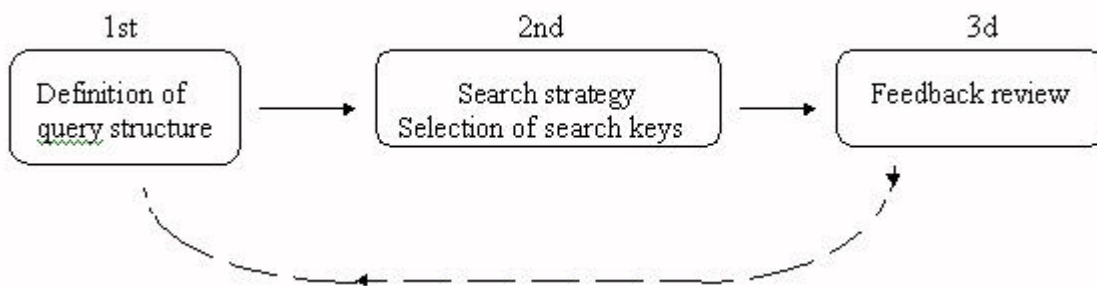   2. The selection of search keys.
    3. The feedback review.

Figure 1: Stages of on-line search.

During the first stage the search expert has to clarify both the Semantic and the Pragmatic aspect of the request. Having done that, the search expert proceeds to the second stage and to the construction of the search strategy. At this stage, the search expert has to decide regarding the selection of the most appropriate Database to be searched towards user's request and the set of terms- search keys- that will be used during the search process. The search expert has also to decide which search key has to be entered first. This final selection affects the third stage of Feedback review, where experts mediate in order to review possible unsatisfactory results.

The basic dilemma of the librarian search experts is the appropriate use of free text search or of the controlled vocabulary search, according the type of the search key. If a search key is a single meaning term (uniquely defined and specific to the concept that it represents), then using free text search seems to be the most promising choice to be followed. On the contrary in the case where the search key is a common term having a broad and vague meaning, then free text search destroys the relativeness and preciseness of the retrieval set, and thus controlled vocabulary search is preferred. The advantage of the controlled vocabulary search type, is the use of descriptors which are single meaning terms used for thesaurus construction in databases (ontology thesaurus) where many concepts are

accurately indexed under such descriptors. (Fidel, 1991).

The Process of Identification of Similar Misconception (PISM) has to combine, guidance provision to the student, in order the later to declare the most appropriate keyword that defines the Semantic and the Pragmatic aspect of the posted misconception, in addition with luck of complexity (is considered that the students are not familiar with information retrieval techniques). On the other hand, the PISM has to ensure the maximum success of the search, regarding the relativeness of the selected misconceptions towards the original posted one.

For the above reasons, PISM combines both search methods, controlled vocabulary search and free text search. Also, PISM automatically prompts the most relevant chapter of the instructional material that the misconceptions subsumes (similarly to the process of the selection of a appropriate Database) and the most appropriate keywords to be used by the student (similarly to the process of using the correct descriptor).

The process of a student posting an original misconception in SYIM environment appears in figure 2.
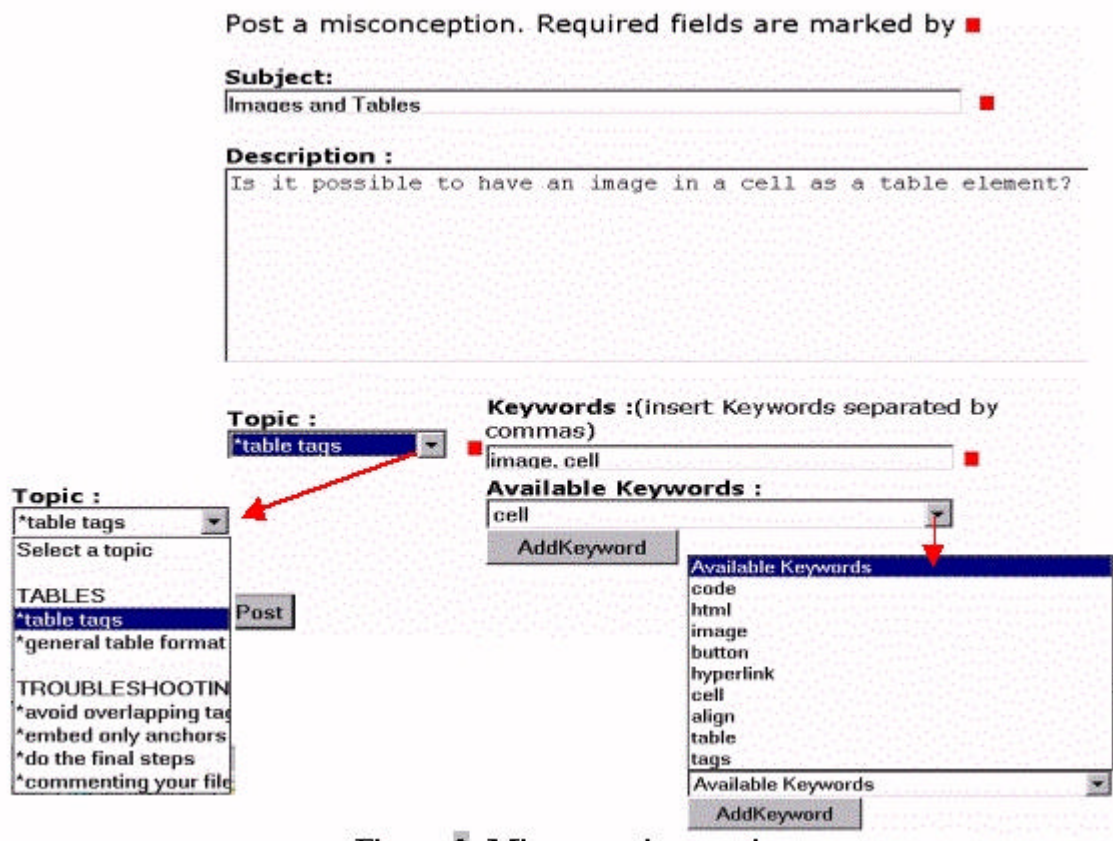
Figure 2: Misconception posting

In the above form, the student has to fill all the required fields such as the Subject of the misconception in addition with the relevant Topic and the appropriate Keyword as a search term. SYIM automatically prompts the most relevant Topic that the misconception may fit. Additionally SYIM, using the tutor constructed ontology thesaurus, prompts the most appropriate Keywords for the definition of the Semantic and the Pragmatic meaning of the misconception. Notice that the student has the ability to declare more than one of keywords. Having done all these, when the student selects the "Post" command the PISM process is triggered.

In case where the "Scenario b" becomes true, the retrieval set of the similar misconceptions are displayed to the student (figure 3).

Figure 3: Similar misconceptions retrieval set

The student is able to check the content of a misconception (which maybe the answer of his/hers misconception) just by clicking on the relevant Title (ie. "Tags in a cell"). Note that in the above Figure, both the results of "keyword search" and of the "free text search" are displayed as the PISM employs both search techniques.

In case where "Scenario a" fires, then the tutor has to answer the misconception and to decide if the current misconception has to be stored in SYIM Educational Knowledge Base, for further reference. Furthermore the tutor has the ability to modify the search key that was selected by the student in cases where the selected keyword is inappropriate. In such way the integrity of the ontology thesaurus is preserved.

Another interesting feature of SYIM, which becomes available as a side effect of the misconception posting process, is the tutor's ability to check the misconceptions that are indexed under a particular keyword of the ontology thesaurus (figure 4).

Figure 4: Misconceptions indexed under a particular keyword

The tutor is able, by selecting a particular keyword (button) of a particular Chapter (Linking), to check all the misconceptions, in full content, that are indexed under the selected keyword.

In conclusion, the employment of Case Based Reasoning as described above, acts beneficial both for the tutor and the students. The PISM process proved to be time saving, as assist tutors during their instruction by decreasing the number of the questions seeking for an answer, and by the same time it accelerates the instructional process contributing to the content comprehension on the students' side.

References

1. Bates, M. J, (1972). Factors affecting subject catalog search success, Unpublished doctoral dissertation, University of California, Berkely 1972, USA.
2. Borgman, C. L, (1986). Why are online catalogs hard to use? Lessons learned from information retrieval studies, Journal of the American Society for Information Science, 1986, 37, 387-400.
3. Bumbaca, F., (1988). Intelligent Computer Assisted Instruction: A Theoretical Framework, Internetional Journal of Man-Machine Studies, 29, pp. 227-255.
4. Connell, T. H., (1991). Subject searching in on line catalogs: An explanatory study of knowledge used, Unpublished doctoral dissertation, University of Illinois, Urbana-Champaign 1991, USA.
5. Connell, T. H., (1995). Subject searching in on line catalogs:Metaknowledge Used by Experienced Searchers, Journal of the American Society for Information Science, 1995, 46 (7), 506-18
6. Fidel, R., (1991). Searchers' Selection of Search Keys: I. The Selection Routine, II. Controlled Vocabulary or Free-Text Searching, III. Searching Styles, Journal of the American Society for Information Science, 1991, 42 (7), 490-527.
7. Hall, B. (1997b). Web-based training cookbook. New York: Wiley Computer Publishing.
8. Harasim, L. (1990). Online education: An environment for collaboration and interllecual amplification. In L. Jarasim (Ed.), Online education: Perspectives on a new environment. (pp. 39-64). New York:Praeger.
9. Khan, B.H. (Ed.). (1997). Web-based instruction. Englewood Cliffs, New Jersey: Educational Technology Publications, Inc.
10. Pernici, B. and Casati, F. (1997). The design of distance education applications based on the World Wide Web. In B. H. Khan (Ed.) Web-based instruction. (pp. 245-254). Englewood Cliffs, New Jersey: Educational Technology Publications.
11. Pritichard, C. L. (1998). The ASTD handbook of instructional technology. New York: MacGraw-Hill, Inc.
12. Relan, A. and Gillani,B. B. (1997). Web-based instruction and the traditional classroom: Similarities and differences. In B. H. Khan (Ed.) Web-based instruction. (pp. 41-46). Englewood Cliffs, New Jersey: Educational Technology Publications.
13. Riesbeck, C.K., and Schank, R.C, (1991). From Training to Teaching: Techniques for Case-Based ITS, In Eds. Burns, H., Parlette, J.W., and Redfield, C.L, Intelligent Tutoring Systems: Evolution in Design, Lawrence Erlbaum Associates, Hillsdale, NJ, pp 55-78.
14. Tsinakos, A., and Margaritis, K., (2001a). See Yourself IMprove (SYIM). An educational environment for the provision of personalized distance education services and the formulation of student models", accepted in European Journal of Open and Distance Learning (EURODL), ISSN 1027-5207.
15. Tsinakos A. and Margaritis K., (2001b). Employing Case Based Reasoning in Asynchronous distance education, journal of Learning Technology, IEEE Computer Society Learning Technology Task Force (LTTF), ISSN 1438-0625, Vol 3, (3), July 2001.
16. Wulf, K. (1996). Training via Internet: Where are we? Training & Development, 50 (5), 50-55.

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