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## ABSTRACT

This document contains the following papers on international issues from the SITE (Society for Information Technology & Teacher Education) 2002 conference: (1) "The Management of Technological Change within Faculties in International American Schools" (Martine Audeoud); (2) "Going Global: Using a Website Development Project To Teach Technology Integration, Enhance Global Perspective, and Empower Students To Imagine the Teaching Possibilities in Their Own Technology Enabled Classrooms" (Candy Beal, James Clark, Marsha Alibrandi, Amanda Robertson, Judy Lambert, and Shannon White); (3) "International Leadership for Educational Technology: A Transatlantic Bridge for Doctoral Studies" (Niki Davis, Andrew Brown, Kara Dawson, Elsebeth Sorenson, Jose Luis Rodriguez, Glen Bull, Zahrl Shoeny, Christina Preston, and Victo Udin); (4) "Teaching and Learning in Information and Communication Technology and Modern Foreign Languages" (John L. Chatterton and Chris Willan); (5) "UAE IT Challenge Competition and Zayed University--Project Overview" (Jacques E. Morin and George Kontos); and (6) "Web-Based Learning: An Action Research" (Chien-Hsing Wang). A brief summary of a conference presentation on the Internet and education in the United States and China is also included. Most papers contain references. (MES)

# International (SITE 2002 Section)

Dee Anna Willis. Ed.

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## SECTION EDITOR:

Dee Anna Willis, Northwestern State University of Louisiana

It has been a privilege over the years to write the introduction to the International section of the SITE Annual. From the early days of STATE, (the Society for Technology and Teacher Education, the former name of SITE), this section has grown and flowered and changed. At first any paper from a country other than the USA was deemed "International" and arrived with exotic stamps. While I miss the stamps I don't miss converting files to a format acceptable to PageMaker, our old desktop publishing program. As STATE became SITE so the body of the organization itself became International and the criteria for inclusion in this section changed.

Today an International paper should report on IT in teacher education in two or more countries. Whether the report is a comparison or of a collaborative effort between two nations or a comparison of methods, philosophies, governmental support or lack thereof among several, the underlying criteria is "two or more" countries. Not all of the papers published in the section meet this criteria, however, there is always some slippage between a proposal and the final submission. Time allows for few alterations at this point.

More and more collaborations are occurring; many sprouted from seeds sown at previous SITE conferences and/or at the conferences of our sister UK organization, the Association for Information Technology and Teacher Education (ITTE), some watered by funding from UNESCO. It is always a pleasure to see these develop. In the past those of the more 'electronically developed' countries came at partnerships with a patronizing attitude [as an American I can say we excelled at this deplorable practice] which meant no real partnership. Today, more and more I see an equal give and take, a recognition that we each have much to share, but even more to learn from each other. This is the spirit of not only this section, but of this organization. As you read the following papers consider links you can forge across national boundaries. What do you have to share? What do you need to learn?

We have presentations and/or papers representing viewpoints from Botswana, Canada, China, the Czech Republic, Denmark, France, Germany, Ghana, Spain, Switzerland, Taiwan, United Arab Emirates, UK, as well as the USA. Several papers stand out. Beal, Clark, Alibrandi, Pope, White, Robertson, and Lambert explore the results of their students work on a website, part of a larger project: Going Global: Cross Cultural Conversations Around the World. Chatterton describes the experiences of two groups of student teachers, one in Germany, the other in the UK. Morin considers an IT challenge used in the UAE but modeled on successful ones from Stockholm and Rome.

Weber address a question that we all ask, "How does one talk of learning communities with such discrepancies of funding and the effects of terrorism in place?" Davis leads several panels with participants from around the world who begin to address the answers.

# The Management of Technological Change within Faculties in International American Schools

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**Abstract:** The management of technological change within the schools' faculties was the main focus of this study. What are some of the indispensable ingredients for success in this area? The faculty has been considered as being at the core of the Human Resource Management of these educational institutions. The study focused on 'professional development' and 'instructional leadership' primarily in terms of technology and looked for some answers to the following question: How are international school managers going to manage staff development dynamics within their institution in order to comply with a global world more and more driven by technology? The study looked for factors that affect success in the management of technological change within a school faculty. Cultural richness, connection to the community outside and a high degree of exposure to technology seem to be the major keys to the success of the management of technological change in international American schools.

## Introduction

In educational organizations, technology has generally been managed and implemented within specific business-oriented frameworks of thought and action directly influenced by the United States. However, in cross-cultural situations like in the TRI-Regional (Association of international schools regrouping 3 sub-regional associations accredited by SACS) schools, little is known as to the scope of growth in technology. The findings of this research show that international American schools succeed to various degrees in furthering technological growth.

## Summary of Findings

Given this context, the purpose of the study was to examine the *factors that influence the management of technological change* in the faculty of international American schools that belong to the TRI Regional Association. The study focused on 'professional development' and 'instructional leadership' primarily in terms of technology.

In undertaking this study, the concern was to help the TRI leadership and the school managerial teams to evaluate the factors that have been influencing the success of staff development practices in the area of technology and to help them frame decisions and recommendations for forward planning. An action-survey research model has been selected. The survey focused on the following areas:

1. The management of school culture.
2. The management of staff development in schools.
3. The management of school technology.

### Part 1: Findings Pertaining to the Management of School Culture

In order to research that question, data collected through the teachers' survey were computed according to the three areas previously defined. Respondents were asked to evaluate their school's staff

development programs against the standards established by the National Staff Development Council. Similarly, respondents were asked to assess their own technology proficiency against the national Milken Exchange standards and to describe their school culture against the two sets of culture traits identified by Wilson (1996). Frequencies were computed and averaged by school in order to get a general description of how the school is perceived against set standards. One could note the following:

1. The means assessing sensitivity to business-influenced (B) Culture traits and those assessing technological proficiency are almost identical, showing a close relationship between both areas.
2. The trends of the means assessing culture, staff development and technology proficiency are almost identical, showing that the three areas are closely linked together. In schools where there was a low level of what could be called 'cultural presence', from either B Culture or traditional (T) Culture, there was a lower level of staff development program and a lower level of technology proficiency. The richer the culture, the higher the level of technological proficiency and the higher the level of staff development.
3. The difference between the means describing Culture B traits and the means describing Culture T traits was also calculated and graphed. This was an attempt at finding out whether a high level of discrepancy between the prevalence of each type of cultural traits would have an impact on the level of technology proficiency in schools. This did not seem to be the case.

### **Conclusion to Part 1**

It appeared from the data collected and analyzed that teachers who have had the *strongest local cultural background* (i.e. who were non-certified, and/or tenured and/or locally hired) were those who have *benefited the most from their school's staff development programs*. Their goal was to increase their level of technology proficiency. Furthermore, their technological growth came from the fact that they *have been deeply affected by exposure to Culture B traits in their school*.

In contrast, *administrators* seemed to be the only category of respondents who have *capitalized on Culture T traits* to further their proficiency level in technology.

According to data collected, *certified teachers* might belong to a category of teachers that presented similar characteristics as the *non-tenured and/or import hired teachers* and showed a high level of technology proficiency. They must have drawn their abilities in technology *from other sources* than those analyzed in this study.

### **Part 2: Findings Pertaining to the Management of Staff Development**

School administrators' perception of their staff development programs was 44% above median and 20% more favorable than the perception of certified teachers. Pearson's correlation coefficients showed a correlation of 0.21 between technology proficiency and staff development programs for administrators, whereas for certified teachers that coefficient was -0.37.

Non-certified teachers, in spite of, and perhaps because of, their low level of technology proficiency and especially of their low level of job security, have had a greater desire for professional growth than certified teachers. Thus they have been much more sensitive to staff development programs. This may have accounted for the higher correlation coefficient of 0.565 between staff development programs and technological proficiency.

Tenured teachers have had a positive perception of their schools' staff development programs whereas non-tenured teachers have had a negative perception of their schools' staff development programs. Staff development programs seemed to positively influence tenured teachers in the area of technology growth, but did not seem to have much of an impact on non-tenured teachers. An explanation may have been found in the fact that tenured teachers have worked several years with the school and might view technology growth and professional growth as more needed or desired. Furthermore, non-tenured teachers may have been in the school for a shorter period of time. Generally, the majority of them have come from an international background and thus they may have been less in need of and more critical of staff development programs. They may have had more extensive or formal exposure to technology during their previous professional experiences.

Furthermore, non-certified teachers were the ones that have made most use of and perhaps have valued most their school's staff development programs. The Pearson correlation factor between staff development programs and teachers' technology proficiency was the highest (of all categories) for locally hired teachers. On the contrary, it was negative for the import hired teachers. This has confirmed that teachers hired locally were much more prone to appreciate or take advantage of staff development programs than import hired teachers. They were perhaps more eager to promote their personal growth in technology proficiency for various reasons that have not been researched in this study.

## Conclusion to Part 2

At the faculty level, there seemed to be a strong case showing that *locally hired teachers were those benefiting most from staff development programs* to increase their technology proficiency. Furthermore, they were the ones who took the greatest advantage from their sensitivity to the specific cultural traits they were surrounded with in an international American educational setting.

On the other hand, at the school level, it seemed that *the culturally richer the school climate, the higher the school's technology proficiency and the stronger the school's staff development program*. Furthermore, research showed that attention should be paid to increasing teachers' sensitivity to students' needs and to the community's needs in the area of technology.

## Part 3: Findings Pertaining to the Management of School Technology.

Technology coordinators had been asked to fill in a Seven-Dimension Progress Indicator for Technology in American schools developed by Milken Exchange on Education Technology. This framework has been designed to help technology coordinators, policy makers and researchers to assess their school's level of technology according to seven specific dimensions:

1. Learners
2. Learning Environments
3. Professional Competency
4. System Capacity
5. Community Connections
6. Technology capacity
7. Accountability.

In each of these areas, several assessment questions were asked that related to a sub-area, according to the same above-mentioned framework. Technology coordinators were asked to respond according to a Likert scal. Data were computed with a spreadsheet, and Likert values have been averaged by dimension.

It was comforting to note that the strongest area of competency was that pertaining to the learners, that is students. Schools are primarily for students, thus serving their purpose in the area of technology. All other types of indicators did not indicate a high number of schools being technologically competitive, with the weakest areas being related to community connectivity and accountability.

Attempts have been made to integrate results drawn from the teachers' survey and to correlate the level of technology proficiency as assessed by faculty members to the various indicators of progress in the survey presently analyzed. The correlation (using Pearson's correlation coefficient) between schools' technological proficiency, all background categories included, seemed to be fairly strong as far as system capacity, technology capacity and accountability were concerned. Next, when narrowing down the range of faculty members to certified teachers (as they constituted by far the greatest majority of teachers' survey respondents), the correlation coefficient between their technology proficiency and the various progress indicators was the highest in the areas of learning environment, professional competency, system capacity, technological capacity and accountability. The weakest areas seemed to be those related to the learners and to community connectivity, which may be worrisome. Finally, because of administrators' leadership role, the correlation between administrators' technology proficiency and the 7-progress indicators has been looked at. The correlation coefficient between both ranges of data appeared to be highest in the areas of learners, system capacity, community connectivity, and accountability. Administrators appeared to have stepped in to cover areas where teachers were less involved, especially in the areas concerning learners and

connectivity with the community. However, the correlation coefficient between administrators and learners was still fairly low, that is 0.208.

### Conclusions to Part 3

Survey results have shown that school administrators have a more positive outlook concerning technology plans and their success than faculty members. A possible reason may be that the total staff is not committed to the vision, plan and implementation. Instead, the total school community should be participating to the development of the school's technological vision and plan, including staff development plans, financial management and accountability related issues.

## Conclusions, Implications and Recommendations

### Culture and Technology in International American Schools

1. *Teachers who had the strongest local cultural background (i.e. who are non-certified, and/or tenured, and/or locally hired) were the teachers who benefited the most from their school's staff development programs.* School administrators should be encouraged to devise staff technology training plans that focus especially on the needs of local teachers.
2. *Teachers with a strong local cultural background also seemed to capitalize mostly on their sensitivity to culture B traits (US-influenced business-like cultural values) in order to grow in their level of technology proficiency.* School administrators would be wise to ensure that this sensitivity is enhanced in a productive way and not a factor of frustration for local teachers. The latter need to realize that building positively on their sensitivity to Culture B traits will, in the long term, give them a competitive edge in that 'global village' that their school has been increasingly connected to.
3. *The richer a school culture, i.e. with both Culture B and Culture T traits (business and traditional cultural values), the richer the staff development programs and the higher the level of the school's technology proficiency.* Therefore, school leaders investing in developing the cultural climate will see their school faculty greatly benefit from that cultural richness in areas related to technology training and technology integration into curricula delivery.
4. Another finding worth noticing is that *technology proficiency in schools rises and falls according to the level of Culture B traits in the specific schools.* Therefore, school leaders would be well advised to ensure that an appropriately high level of Culture B traits be developed and promoted in their school. This would in turn enhance teachers' understanding of the 'cultural requirements' that technological change in educational settings brings with it.
5. *School administrators seem to capitalize more efficiently on culture T traits to increase their level of technology proficiency.* They have been taking advantaged of the various opportunities for technology growth throughout their career. They have no doubt as to the necessity for them to continue to expand their knowledge and experience in that area.

### Leadership, Management of Staff Development and Technology in International American Schools

School leaders should take the following elements into consideration as they lead and manage their schools' human resources.

1. *Certified teachers (who seem to belong mostly to the non-tenured and/or import-hired category of teachers) draw their abilities in technology from other sources than those analyzed in this study.* They do not appear to need to be the prime focus of schools' staff development programs in the area of technology. However, they *may constitute resources and leadership potential* in the area of technology that are available to the school.
2. *Students are the most technologically proficient members of school communities.* However, their teachers need to become more sensitive to ways of integrating technology into their curriculum

delivery. This would ensure that their curriculum delivery would adequately prepare students to meet the challenges of this new 21<sup>st</sup> century. Therefore, the school leaders' role should be to *ensure that their technology coordinators are being constantly kept abreast of the possible implications on education of the latest technological advancements.*

3. *Staff development plans should emphasize a higher degree of hands-on exposure to technology* in order to promote a higher level of 'technological know-how'. But it also seems more important that teachers' technological staff development plans aim at demonstrating, modeling, making resources available to teachers on the multiple ways and means by which teachers can integrate technology into their curriculum delivery. Teachers should be given opportunities to be able to become knowledgeable as to the specific assets technology may bring to their own areas of study. This may also take place when schools have subscribed to professional magazines that include reviews of technological advances. It also may necessitate for *technology coordinators and school leaders to take a pro-active role* to discover what technological advances have been made that may be applicable in various educational fields.
4. Schools need to focus on *connecting more closely and consistently with the community outside* in order to provide their faculty and students with more resources and partnerships that will strengthen the general schools' technology programs. According to the findings of the survey, school leaders step in adequately into two areas where teachers seem to be lacking: focus on learners and community connectivity. Schools would greatly benefit from reconsidering how they manage their external relationships with the community in order to increase the technological resource base on which they can operate.
5. Schools need to *develop accountability procedures* in regard to technology management in order to be able to measure progress, both in the quality of curriculum delivery and financial management. This would enable school leaders and community to supervise the coherency of the various aspects of technology management.
6. Schools should make it a *priority to develop and monitor their technology vision and plans* as a tangible way of monitoring technology growth in their institutions. This should take place while involving all the stakeholders of the community in developing these management tools.

This study hopefully contributed to analyze some of the characteristics of the management of technology international American schools in the TRI Association, a further step towards effectively managing technology in international American schools.

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## **Going Global: Using a Website Development Project to Teach Technology Integration, Enhance Global Perspective, and Empower Students to Imagine the Teaching Possibilities in Their Own Technology Enabled Classrooms**

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**Abstract:** The Great Ghana Website is part of a larger project, Going Global: Cross Cultural Conversations Around the World. The website project seeks to help graduate and undergraduate students enlarge their global perspective while developing technology skills for the classroom. The site was developed to supplement a video conversation between a University of Kentucky professor and her doctoral student from Ghana. Their conversation examines what they see as the mismatch that may occur when cultures, values and relationships between developing nations and benefactor nations are dissimilar. To better understand the cultural divide, a website was developed to inform students about the culture of Ghana.

Teaching is never the same day to day. Educators must be ready for unexpected opportunities and be willing to take advantage of them when they occur. The Great Ghana Website grew out of two such opportunities. One occurred at the National Council for the Social Studies Convention in November, 2000. We chose to attend a session that paired an American professor at the University of Kentucky with her doctoral student who was from Ghana, but temporarily studying at the University of Kentucky. They enacted a cross cultural conversation they had written that compared and contrasted the cultures of the United States and Ghana. The exchange was as powerful as it was enlightening. We believed that it would be informative for teachers who were preparing to teach about Ghana to their students. We also believed that to see and hear the exchange was much more powerful than just reading it. We flew in the educators from Kentucky/Ghana and spent the day filming their conversation. As we worked, they offered new information and opinions that proved invaluable in preparing the viewing guide for the video.

The second opportunity came in the person of a former Peace Corp worker. She is the wife of one of our Masters students. When she heard of our interest in Ghana, she volunteered to tell us her stories about her Peace Corp years spent in Ghana. At first, we planned to tape them so that they might be used in classrooms around the state. Later, we determined that because of their richness we could include activities that were inspired both by her stories and the digital pictures we took of her artifacts from Ghana.

After both of these treasures had been taped we examined possibilities for dissemination. How could we best get them to teachers and students and what form should they take to ensure they were used to their fullest? It was decided that a website would be built to include information about Ghana as well as the taped conversation and stories. The viewing guide would also be put on the website.

The website development process by graduate and undergraduate teacher education students was highlighted by a formal study of what makes a good website - design, font, format, appropriateness for the audience, reliability and variability of material presented, etc. Students surfed the net and evaluated examples of website design. We discussed issues of copyright, permission, credits, etc. Students also studied the teaching and learning

approaches that best meet the needs of early adolescents. This helped them understand how students learn and enabled them to craft effective and appropriate lessons. Students viewed the videotaped conversation, heard the Peace Corp stories and saw digital pictures of artifacts brought back from Ghana.

The website was planned to include the following five parts:

- \$ The first part would have information - population, economics, climate, etc. that was accessed through GIS (Global Information Systems). This part also included a tutorial about GIS, what it is and how to use it.
- \$ The second part included the Peace Corp stories. Each story was written on two different reading levels. Because all members of the target audience (seventh graders) are not always reading on grade level, both seventh and third grade reading levels were included. Preservice teachers selected four stories and wrote each on the two different levels.
- \$ The third part was completed by graduate education students, many of whom are seventh grade teachers. They wrote activities to accompany digital pictures taken of artifacts brought back from Ghana. The activities were intended to sharpen middle school students' observation and reflection skills.
- \$ The fourth part was a retelling of folk tales from Ghana. The folktale segment was prepared by preservice teachers who will student teach elements of African history. They chose several well known Ghana tales, illustrated them and rewrote them on two different reading levels.
- \$ Finally, the fifth segment included the viewing guide which sketched background information about the long standing relationship between Ghana and the United States and suggested ways to best enjoy the video. The video was prepared to include scenes from Ghana. The video will serve as an ancillary to the seventh grade social studies textbook and will be used primarily by teachers as background information to prepare them for their study of Ghana with their students.

This website development approach is based on learning theory and on-going research that suggest that students who are novices in the area of technology, when partnered and in a supportive, risk free learning environment, have a more positive learning experience using technology, become technology empowered, and are thus more likely to incorporate the use of technology in their own lessons and classrooms.

## **International Leadership for Educational Technology: A Transatlantic Bridge for Doctoral Studies**

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Andrew Brown, London University Institute of Education

Kara Dawson, University of Florida

Elsebeth Sorenson, Aalborg University, Denmark

Jose Luis Rodriguez, University of Barcelona, Spain

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Christina Preston, MirandaNet & London University Institute of Education

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### **Abstract**

Leaders in education in universities, schools and services to education and vocational training, are challenged in their leadership of new technology. This round table aims to raise awareness of the efforts of 3 European and 3 USA graduate programs of technology in education and teacher education, who are prepared to revitalize leadership through sharing of their graduate communities through a project recently funded by the European Commission and the US Department of Education.

The ILET project aims to permit experts in multimedia, cultural studies, and distance education to develop a certificate in *Intercultural Educational Technology* within Ph.D. programs of the six partner universities. The planned components of the certificate are: comparative study of educational technology systems, policies, and applications; language and cultural learning activities before, during, and following a semester of study abroad; project work and/or internships that require application of theories and technological skills to real life challenges of digital and cultural divides; and an intensive international course at the major professional conference to induct students into the international professional community. An Intensive International Course may bring together students and faculty and incorporate study and reciprocal mentoring in future Society of IT for Teacher Education conferences.

The project will enable our multi-disciplinary consortium to educate a new cadre of leaders with experience in today's global context, while taking care to include both sides of the digital divide plus commercial partners. Student selection will positively discriminate to redress inequalities of the digital divide. In addition, students will be encouraged and supported to undertake project work on related issues of national and international importance for agencies such as UNESCO. Exchanges of faculty and staff aim to ensure coherence in curriculum, assessment and support services. Preliminary exchanges and research indicate promising flexibility with innovative web-based learning strategies (see for example Davis, 1999; Bronack Kilblane, Herbert & McNergeny, 1999) ; and Davis, Nilakanta & Li, 2001).

The consortium is committed to creation of a prestigious knowledgeable community of alumni who value their continued collaboration with faculty and students in an online

learning environment that Oracle has created for learners across the UK, USA and beyond. The Universal Forum of Cultures in Barcelona 2004 will showcase the global service of this project worldwide. This transatlantic project is potentially the first stage in an ongoing global program with additional partners and students.

#### The Round Table Agenda

The 3 collaborating universities in the USA (Iowa State University, University of Virginia and University of Florida) and their 3 partner universities in Europe (University of London Institute of Education, Aalborg University in Denmark and University of Barcelona in Spain) already recognize that there will be many challenges in this collaboration. Obvious issues of the Danish and Spanish languages are accompanied by additional less obvious language challenges: English misunderstandings between the UK and USA and the need to value minority languages of Danish and Catalan. The local cultural differences provide an exciting and challenging mix for faculty and graduate students who will travel, and they will also be visible online. Cultural differences in academic structures and organizational behavior have already been raised in pilot activities. Memoranda of Understanding will be developed to clarify the collaborative activities and mutual support. Selected MOU and other guiding documents will be shared with the round table for review and comment.

The development of a learning community across universities has been the focus of graduate work and pilot activities between several partners, particularly Iowa State, London Aalborg and Virginia (Davis et al, 2001; Sorensen & Tackle, 2001). Other partners include the educational community of leaders in information technology in education who have been creating a learning community and mentoring resource for others called MirandaNet, founded and led by Christina Preston, with support from many organizations including Oracle (Preston, 2000). Examples of the artifacts, environments and associated research will be available for review to stimulate discussion.

Thirty students and twelve staff will study abroad and collaborate with many more in the project's innovative web-based learning environments, supported by professional communities and commercial experts. Significant challenges are expected in recruiting students and faculty to work abroad for a semester and to become comfortable in foreign and international learning environments.

The project aims to broaden the impact of the EC and US cooperation by 'training the trainers' of faculty involved in open and distance learning. While many graduate students in the USA do become future faculty, the lack of turnover in Europe provides additional challenges for that continent. Managing extension of collaboration and dissemination of the project may also prove challenging, but the partners are committed to this and the round table will provide a means to listen to our future audience at an early stage, because the three year project commenced in October 2001.

The round table aims to promote discussion of travel, both real and virtual, and collaboration between programs and institutions in a way that promotes international and inter-cultural education.

# Teaching and Learning in Information and Communication Technology and Modern Foreign Languages

*This paper examines the experiences of two groups of student teachers working together to encourage the use of ICT in language teaching.*

*Student teachers specialising in Information and Communications Technology (ICT) have worked with a group of Modern Foreign Language (MFL) students, within university-based sessions and on teaching placement, to support the development of ICT-based language learning activities.*

*This has recently been extended to include working, via a computer-moderated conference, with a group of students in the University of Gießen in Germany.*

*A rich range of activities is developing, including the use of the conference to exchange school materials, lesson plans and 'native speaker' recordings of school pupils talking about themselves, their interests, school life etc.*

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## Student teachers and the development of ICT- based language learning activities.

### Introduction

As we enter the fourth year of this project, we have been encouraged to build on the success of earlier years and to extend the range of ICT-based activities and experiences available to the 'Modern Foreign Language' students as they work with the 'Information and Communication Technology' students.

Previously (Chatterton, J. and Willan C. 1999, 2000, 2001), the two groups of students have jointly developed appropriate ICT-based MFL teaching materials within the university and have then used the materials to teach French, German and Spanish in local secondary schools.

In this phase of the project, a number of ICT and MFL students have been paired for their school placements so that we are able to examine the extent to which the departmental structures and attitudes affect co-operation in teaching. The work is being further developed with the use of a computer-moderated conference, using FirstClass™. This phase involves links with student teachers at the University of Gießen, in Germany, and will involve the exchange of ideas and the development of materials using English school children as 'native speakers' for the development of materials in German. The final paper will include the experiences of the current intake of students with these materials.

### Student Teachers and School Placement

All the students taking part in this study are postgraduates, following a one-year professional training programme leading to 'Qualified Teacher Status'. The majority have worked for a number of years before deciding to train as teachers. All such courses are 36 weeks (180

days) long and a total of 120 days must be spent in schools. Details of the placement pattern and the structure of the course can be found on the PGCE Information Technology website (Chatterton, J. 2000).

Typically, the professional year cohort consists of approximately 360 students training to teach any one of a range of subjects at secondary school (High School) level. The students will undertake placements in two of our partner schools - we typically use around 120 schools, so the average is three students per school. Of the 360 students, about 18 will be studying ICT and a similar number in MFL. Both subjects are regarded as "shortage subjects" as it has been difficult to recruit enough trainees in these areas for some years. Schools offer places in the various subjects, we cannot demand them, and this makes 'pairing' students in ICT and MFL problematic: schools have to offer places in both subjects. Each student is placed in two different schools during the year, teaching a 50% timetable on the first placement and a 75% timetable on the second placement. For the students in the ICT and MFL groups, working together to develop materials and lessons is not compulsory, nor is this aspect assessed. However, the students have shown great enthusiasm for the work, both individually and as a group and, where we have been able to pair them on placement, they have made marked efforts to work together and in some cases have effectively introduced the use of ICT in language lessons in schools where staff have been reluctant to take on the work involved. This is now changing as the new National Curriculum requires all subject areas to make use of ICT in teaching and learning.

## ICT and Modern Foreign Languages

Government regulations (DfEE 1998) for the training of teachers require that all student teachers become competent in the use of ICT to enhance their subject teaching and more recent changes to the National Curriculum (DfEE 2000) have complemented these by insisting that ICT become an explicit part of teaching and learning in every curricular area. The UK government, through the National Lottery, has provided funding of £230 million (\$322 million) to train teachers, not in the basic skills of computer use, but in these much more complex areas: using of ICT in teaching and learning, planning and assessment and in the teacher's own continuing professional development. The expectation is that all teachers will at least meet the ICT competences laid down for the training of new teachers in all subject areas and over all phases of education. At the same time, the government is spending some £500 million (\$700 million) on the provision of hardware for schools and every school is gaining a 2MBit broadband connection to the internet, with a nationally supported school-web structure— every school has a website address and every teacher and pupil is to have a personal email address.

To be effective, ICT must be used genuinely to support and develop MFL skills and the ICT must not be just to entertain or to fill time. Many examples of poor practice have been seen where, for instance, pupils spend 30 minutes drawing a picture, then use only a few words or a single sentence to describe it. Part of the standards requirement for student teachers is that they learn to judge when it is appropriate to use ICT and to recognise and evaluate subject gains amongst the various motivating elements, which are not necessarily subject related, that using ICT still provides in the classroom. Learning to work effectively with ICT in the classroom is of concern across national boundaries and education systems. The following two quotes from the *French National Educational Resource Centre (CNDP, 2001)* for example, shows that they too are faced with the same range of opportunities and concerns.

"Démarches pédagogiques  
Les cédéroms n'ont pas vocation à remplacer  
l'enseignant, c'est l'enseignant qui a recours à cet  
outil pour les besoins de sa pédagogie et qui les  
intègre dans sa progression."

Pedagogical steps.  
CD ROMs' job is not to replace the  
teacher, it is the teacher who  
makes use of this tool for his  
pedagogical needs and integrates  
them into its progression

"Correspondance scolaire

Par la messagerie électronique, la correspondance scolaire ou individuelle gagne en souplesse et en rapidité: rien de tel pour préparer des rencontres réelles!"

through email school or individual communication becomes quicker and more flexible - there's nothing like it for preparing for real life encounters!

Materials developed as part of this project have proved to be beneficial from a language learning perspective as well as being enthusiastically received by the school pupils. The school staff have also been keen to retain the materials for their use with other classes. At the same time, ICT staff within the schools have recognised the value of the materials in providing much needed cross-curricular support for the use of ICT.

## The Shared Sessions

It was clearly important, for both groups of students, that they developed the skills and attitudes which would enable them to match the government's requirements for the award of Qualified Teacher Status.

The IT students were asked to evaluate the needs of the linguists and to plan and deliver sessions which would enable the MFL students to cope with the ICT demands of their course and to focus on the development of school-classroom materials. For both groups of students, these experiences would enable them to meet many of the required criteria and would, hopefully, encourage co-operation in the school setting. The current group of students will be trying their materials in local high schools in January and February 2002.

Sheffield Hallam University School of Education takes part in an exchange programme with the University of Gießen, in Germany, and Gießen students form part of the MFL group in the first semester of each academic year. In October 2001 we established a joint computer moderated conference, allowing students in each country to discuss experiences of learning to teach and to exchange materials. Because of the way the two courses are organised, much of the initial traffic has been from England to Germany: this should be redressed in the year progresses.

## The School Experience

In the second semester (February to June) of the 200-2001 cohort, we were able to pair MFL and ICT students in three schools and in the first semester of the 2001-2002 cohort (September to January) we were able to pair students in five schools. With the first group we were looking for activities that were both useful and practicable given the local circumstances in each school.

Being paired on placement allowed students to try to take their good practice into a real setting. While the students were able to work together, in some schools the extent of the work was markedly affected by pre-existing relationships between the departments, the perceptions about the ICT infrastructure within the school and by the attitude of some school staff to the 'usefulness' and 'reliability' of ICT in general. Nevertheless, the student experience was sufficiently positive to encourage us to develop the model further and to extend the pairing into the new academic year, starting September 2001.

As teachers have become more aware of the reality of the new curricular requirements, MFL students are being actively used as change agents within language departments: teachers are seeing the students as a useful resource to help to update their own (the teachers') skills. This has happened in many schools, not just those where ICT and MFL students were paired. The links to Gießen have been used by students who are currently on their first placement: personal information and descriptions of school life have been exchanged and, more interestingly, pupils within the schools have been recorded (sound only) and the resulting mpeg files have been sent to the conference to provide native-speaker examples

for the German students to use. This aspect is currently being studied and results will be available for the final paper presentation.

## Gains — skills and attitudes

In the second placement of last year's cohort, which ran until the end of the course in June 2001, it was noticeable that MFL students were making significantly increased use of ICT in their teaching. This was apparent from the students own teaching files, lesson plans and evaluations and from the comments of their mentors (usually the head of languages in the placement school). Last year both the ICT and the MFL courses were inspected by 'OfSTED', the Office for Standards in Education and in both cases the joint group work was praised (OfSTED 2001 (a), OfSTED 2001 (b)) and the languages inspector praised the MFL students' ability to apply their ICT skills to MFL teaching. Exit evaluations by last year's students showed that they, too, valued the experience: they regarded it as one of the most useful/interesting aspects of the course. It has proved to be a significant motivating factor in student evaluations and both student-teachers and experienced school staff reported that pupils in schools were motivated by the lessons and materials produced by the students and that they (school pupils) made real gains in language experience.

For the current cohort, even at this early stage, there is no doubt that both groups of students value the experience of working with each other. Comments made of the FirstClass™ conferences show the level of interest and the extent of help being offered during the placement. Teaching placements are inevitably stressful and students are under great pressure to perform well in class at the same time as keeping up with academic assignments, yet almost all have made the time to continue the process of developing skills begun in the joint sessions. This, as much as anything, is a clear indication that the students themselves find it significantly helpful.

Using ICT in language lessons has allowed students to explore, with their classes, areas which would otherwise have been difficult or impracticable. In one of the 'paired' schools, the language student got one of her classes to do a survey of the school, enter the results in Excel, create a series of bar charts and add text commenting, in French, on the results. Such a well integrated example of using a range of key skills<sup>1</sup> within a language lesson would be rare for an experienced teacher. It will be interesting to follow her progress next semester to see if she remains confident enough to manage similar activities without the direct support of an ICT student.

## Conclusion

As we write this paper, the individual and paired work still continues in schools for the current cohort of students. Early indications, from both students and mentors, shows that both groups are making good use of the experience. MFL students are making good use of ICT to support their planning, teaching and assessment and ICT students are becoming positively involved with other departments in their schools and are able to offer appropriate support for the development of subject-based ICT. This is a marked shift from the experiences of a few years ago.

Initial comments regarding the links with Gießen are also positive and we hope to have more definitive results by the time of the presentation: in particular the exchange of 'real' conversations between pupils and students seems to be worth pursuing.

Simple, well-targeted ICT material, designed with careful consideration of the curriculum aims and objectives, has clear benefits for pupils in schools. The supported development of such material, **by student teachers**, and the experience of planning delivering and

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<sup>1</sup>'Key Skills' are defined within the national curriculum (DfES 2001 (a)) and both the DfES (DfES 2001 (b) and (c)) and the Qualifications and Curriculum Authority (QCA 2001)

evaluating the lessons in which it is used has enormous benefits for all those involved. For the ICT specialists, the ability to help colleagues plan and deliver ICT in subject areas is crucial: for the MFL specialist the confidence gained by working with a supportive ICT colleague is vital in encouraging them to use ICT in their lessons. Each year, the skills demanded of the groups have increased and each year the students have responded with enthusiasm and success. Working together in a challenging and supportive environment has produced gains for the students that have not been matched elsewhere and we seem to have a model that is cost-neutral while bringing marked benefits

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# UAE IT Challenge Competition and Zayed University – Project Overview

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## Background

The United Arab Emirates will be hosting a regional IT competition in 2002. Based on the well known Stockholm IT Challenge (<http://www.challenge.stockholm.se/>), the UAE Challenge is an initiative of the Higher Colleges of Technology, in collaboration with the Universities and the Ministry of Education. Dubai Internet City is proudly supporting and sponsoring the Challenge. Many other national and international business organisations have also joined in sponsoring this national event. It involves the three main educational sectors, schools, colleges and Universities of the UAE. The Challenge is designed to reward excellence in the use of IT, increase links between the educational sectors, promote team-work, sharing and co-operation, and best practice in the classroom.

One of the institutions participating in this project is Zayed University.

Zayed University (ZU) is located in the Arabian Gulf Region in the United Arab Emirates. It is a four year old all female institution providing undergraduate education in an outcome based curriculum.

The university currently has over 2000 students enrolled in six degree programs on two campuses located in Dubai and Abu Dhabi in the UAE.

This paper first describes the types of projects submitted to the competition by Zayed faculty, staff and students. Second, the paper will review the competition criteria. Finally, it concludes with a review of the success of the projects in the competition as well as the impact of the projects at ZU and the potential for future integration into the regular curriculum. (The competition results will be provided during the conference.)

## Description of projects.

Each submission by ZU for this competition was supported by the respective college of department and implemented in 2001 either as test or pilot phase. The results of each of the projects in terms of efficacy in the educational technology integration at ZU is still under review. This is a summary of the projects submitted by faculty and staff.

### Description

Project 1 - ZU Magazine is a student-created web newsletter that includes articles of interest to the Zayed University community. Submitted by [amy.kayser@zu.ac.ae](mailto:amy.kayser@zu.ac.ae)

ZU Magazine is a web-based newsletter about Zayed University that was written by Module 8 students from Readiness Program using a template on [www.tripod.com](http://www.tripod.com). The website mainly talks about the students, faculty and the activities at Zayed University. Five students participated in this project with their teacher's help. The newsletter includes many topics that interest those who would like to know something about Zayed University. You can read about many subjects such as faculty biographies, students' trips, clubs, etc. Teachers, students, and other members of the university community can enjoy this project. In addition, it includes many pictures and links.

Project 2 - This is an online learning opportunity for students to learn about international management and teambuilding through direct participation in academic projects with others in an international interactive environment.

Submitted by Warren.Lee@zu.ac.ae

This is an online classroom project that unites two separate college classrooms from different cultures and countries in an online interactive international academic project that uses high technology as the media and means. The objective is to provide an "open window on the real world" that enables students to learn the basics of intercultural management, leadership and teambuilding through direct experience with peers from another culture and country. This is accomplished by forming international teams, and working collaboratively to introduce themselves and exchange intercultural information, and then to work collaboratively on an academic writing and research project using high technology and the Internet as the medium. It is expected that students will learn more about globalization, intercultural communication, the integration of high

technology in management/leadership as well as learning more about themselves and the dynamics involved in intercultural leadership. It further provides students an opportunity to communicate with teacher/instructors from different cultures and countries and to gain new perspectives on the course itself. Communication and study are supplemented by digital photos of students, campuses and campus life that further demonstrate our similarities and differences. A detailed academic project description is provided on a separate page, as are student teams with names and email addresses for each student to facilitate group and direct contact and communications. Each course syllabus is also on-line in the website, and students can compare and contrast learning requirements and course expectations across cultures.

Project 3 - A Math web site developed to provide students, faculties and peers of ZU across both campuses with a unique online course structures with reference and worked examples as well as home works assigned. Submitted by Nakhshin Karim@zu.ac.ae

This project is a web site based on Front page 2000. It covers two courses of Mathematics ( Algebra and Pre-Calculus) being taught by Ms. Karim and other instructors at ZU. The basic Index of the web site includes, for each course: the outline of the course, MS Power Point Presentations for each topic, assessment of the course (Quizzes and Exams), and references and related websites that students and faculties might use. Students can refer to this site and have the opportunity to acquire what they need. Feedback from students are felt to be the good measure of being useful site for them to strengthen their capabilities in the subject Maths courses.

Project 4 - At Zayed University, College of Education students complete an extraordinary integration of their total University experience by creating a digital portfolio of their work. Submitted by frederick.vansant@zu.ac.ae

The cornerstone of the new outcome based Academic Model, is the digital, or electronic portfolio. A portfolio is simply a container for a person's work. In a portfolio an artist might show a selection of her best work, an architect might show photos and plans from houses or buildings. However, an academic portfolio is not quite so simple. By definition, a student's academic experience is not limited to the work that they have done, rather, the true measure of a student's experience is the learning that has taken place. This then, requires a more defined structure, and the requirement that a student exercise considerable critical thinking about what would go into their portfolio. By bringing together evidence of the student's learning in both formal and informal contexts, the students and the faculty can more easily see the relationships all the different types of learning in the student's academic career. All students enrolled in the College of Education are required to complete a professional portfolio. This portfolio is digital, and web based. It may include web pages, documents, PowerPoint presentations, hyperlinks, images, digital audio and/or video.

Project 5 - This project is a collection of WebQuests that are problems-based units of study supported by Internet resources and have been developed by UAE national preservice teachers and aspiring educational technologists to support UAE K-12 curriculum. Submitted by f7517@zu.ac.ae

The WebQuest is a technology-supported unit of instruction that is problems-based and uses the Internet as an educational tool. It is a teaching strategy that emerges from a problem that requires a unique solution based upon available information. It contains the following components: introduction to the problem, tasks for cooperative group members, processes required for successful completion of the challenge, off-line and online resources, and an evaluation rubric for products and solutions. WebQuests are typically written for cooperative groups with each student having a specific responsibility for doing research that will support decision making and an assigned role in product development. The interdisciplinary nature of WebQuests makes use of student interests and current issues related to the subject being studied. Students at Zayed University are trained to implement technology as a tool to facilitate student-centered educational practices in the classroom. The WebQuest, once published to the Internet, is accessible and usable by all teachers and students. The faculty members submitting this project do so as a model innovative approach to helping teachers develop student-centered teaching practices, create authentic teaching materials, and appropriately use technology in the classroom.

Project 6 - A distance English course in which students collaborated to research, write, revise and post articles on a website using videoconferences, email, chat, discussion board, file exchange, phone and face-to-face communication. Submitted by [William.Radecki@zu.ac.ae](mailto:William.Radecki@zu.ac.ae)

The Cross-campus Web Newsletter course was the first distance course offered at Zayed University's two campuses in Abu Dhabi and Dubai. Twenty-two students (11 on each campus) and two teachers participated in the 10-week (50-hour) course.

Project 7 - Students from various schools around the world get together via videoconferencing technologies (PictureTel) to learn from and with each other. Submitted by [george.kontos@zu.ac.ae](mailto:george.kontos@zu.ac.ae)

The project was established to help broaden the horizons of students in a school by connecting them electronically with students in other countries. Using compressed video and audio-videoconferencing as the primary medium, the project is designed to: encourage a greater understanding of different cultures, investigate selected topics in depth, become familiar with new communication technology, and use student-centered techniques to make learning engaging and meaningful.

Project 8 - Easy-to-use authoring of multimedia capable multiple-choice and fill-in tests that randomize the order problems are presented, and also randomize the choices within each problem. Submitted by [dale.havill@zu.ac.ae](mailto:dale.havill@zu.ac.ae)

Features of Hypertester Hypertester is free to use for educational purposes. Two free downloadable applications are required to run Hypertester: (1) HyperStudio Player (submitted with this project), and (2) Quicktime. Each time a student takes the test, problems are presented in randomized order and choices within each multiple-choice problem are also randomized (A., B., C., etc.) are changed. Problems are created using a simple text file format, and then input automatically into Hypertester to create a test. A set of alternatives can be defined from which only one alternative will be randomly selected and presented to the student each time the test is run. Tests are automatically graded and can be printed or automatically saved in a results file. Multimedia content can be added to problems using HyperStudio 4, a low cost multimedia authoring application (multimedia example is submitted with this project).

Project 8 - Teacherbytes is an email newsletter and web-based resource for English language teachers in the UAE wishing to use the Internet in their instruction. Submitted by [brian.oflynn@zu.ac.ae](mailto:brian.oflynn@zu.ac.ae)

Teacherbytes converges the two most useful aspects of the Internet, the web and email to create a resource bank of ideas for teachers. Subscribers receive a regular email newsletter containing a reflective commentary, an application review or a set of topic-based links that can be used in the language learning classroom. This opt-in mailing list is supplemented by an archived web site where teachers can browse and search for ideas on using the net in their instruction.

Project 9 -

The Com 309 portal is a central resource for materials and best practices for students in a web design class. Submitted by [brian.oflynn@zu.ac.ae](mailto:brian.oflynn@zu.ac.ae).

Com 309 portal was an all-inclusive website for students in a website design and publishing class. As a one-stop shop, students could access their lecture notes and assignments, contribute their ideas, access extra internet resources, take quizzes online with immediate results and also through the site structure itself, get a view of best practices in website usability design.

### **Competition Criteria.**

The competition criteria are an important component of this paper because the same criteria can be used to evaluate the projects relative to the applicability of the innovations into the ZU curriculum. Each category as provided and detailed by the UAE Challenge is outlined into four critical areas. Each area asked the participants to provide details, as well as the answers to several key questions.

These are the areas, as provided to each participant as guidelines:

#### **1. Innovation**

An innovation must be new, exciting, interactive, exploratory, engaging. It means more than just displaying data. For example, a web site produced by students that displays traffic accident data will score less than the same web site that attempts to explain the data and draw conclusions from it, possibly using “what if” analysis. We are looking for projects that go beyond the display of data. New and exciting ways could be 3D rotational models, simulations, online games, chat, guest books, all designed to involve the participants in more than just clicking on a link and looking at text. Is this a project that captivates the attention and imagination of participants? Is there interaction and activity that engages the viewer and allows them to contribute? Are there any feedback mechanisms? In judging this section, jurors will look at the questions on the entry form related to innovation, as well as the aims of the project (how it differs from other projects of the same type). Jurors will also give consideration to the project problems, and how these problems were overcome. For projects that involve websites, jurors are expected to visit the web site.

#### **2. Transferability**

Projects are marked on how transferable they are to other educational sectors or areas. Jurors are looking for generic ideas that can be transferred. If the ideas behind the project could be used again by others then they will score high. For example, a website dedicated to preserving culture by cataloguing native birds would score high because it can also be used to catalogue other species. In judging this section, jurors will look at the questions on the entry form related to the project’s future (will it be piloted or used in other schools), are the authors willing to assist other educators start similar projects, and the questions related to how many other participants are involved (this gives an indication on transferability, a project being used in more than one location means it is transferable).

#### **3. Participation**

This section deals with how the project has involved other people. Projects that involve a lot of people will score higher than those that involve few people. For instance, a school e-newspaper that is produced by teachers and students, and has a readership of 500 has a great deal of participation. If it was read by people outside the school it would score higher. In contrast, a website produced by a teacher that is only used by their students would score lower. If the teacher took the step of sharing their web site so that other classes or schools could use it, then it would score much higher. In judging this section, jurors will look at the questions on the entry form related to the student involvement, How many students are using the project, teacher involvement, other schools/etc involvement, and how they are involved.

#### **4. User Needs**

This section deals with how the project fulfills the needs of the end user. Jurors will be looking for evidence that the project has clearly demonstrable goals and that these are achievable or have been achieved. In some instances, this can be verified by user feedback (typically guestbooks on websites that

have user comments). In other cases, it may be by supporting testimonials included in the project documentation. Jurors are also looking for the future of the project and suggestions for improvement. Projects are seen as learning exercises for those involved; as such projects authors should be able to suggest areas for improvement. Projects that meet user needs would score about average, those that are clearly exceptional will score higher. Projects that fall short of the user needs would score less. In judging this section, jurors will look at the questions on the entry form related to Project Outcomes, the lessons learned by students, suggestions for improvement, and the future plans for the project. Jurors will examine these answers with the original aims of the project in mind, to see whether these aims have been realized.

**Integration into the Curriculum - Success Factors.**

To be presented at the conference.

## Internet and Education in the United States and China

John Ronghua Ouyang, Kennesaw State University, US  
Robert Zheng, Marian College, US

Internet is growing rapidly and has a great impact on Education. Distance education has become an extremely important area of using instructional technology. The United States is one of the largest developed countries and China is one of the biggest developing countries in the world. What is the current status of Internet in these two countries? How does Internet impact on their education? Presenters are going to examine the development trend of Internet, compare the policymaking and use of Internet in education, and provide suggestions for future implementation of advanced Internet technology in the classroom instruction and the learning at distance according to the similarities and differences of the east and the west giants in the world.

In the late 1960s, the U.S. Department of Defense created a network of computers to share military data in case of being of nuclear attack. Getting into the 21st century, the Internet is accessible anytime, anywhere for people with computers that can connect to the network (Anderson, 2001). In 1999, Nielsen Media Research and NetRatings estimated that there were 35 million U.S. householders with Internet access. Now is more than 56 million. It is estimated that by the end of 2003, the number of users on the Internet will be above 300 million (Sharp, 2001).

In the past three years, Chinese Internet users have grown exponentially. According to China Internet Network Information Center (CNNIC), the Internet users in China have jumped from 2.1 million to 26.5 million from January 1999 to July 2001. Moreover, the instructional use of Internet in Chinese education has also grown rapidly. Online instruction and learning have found their ways into Chinese classrooms (He, 1998; Zhang, 2000).

The comparison of the status of Internet use in Education between the United States and China, presenters will collect up-to-date data about the expenses, educational uses, and Internet accessibilities to discuss the future Internet implementation in distance education in both countries. Instructional strategies, online designing as well as online delivering tools will also be examined for making suggestions.

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## Web-based Learning: An Action Research

Chien-hsing Wang, Graduate School of Education, National Changhua University of Education, TW

Web-based learning has been a hot topic in education. Student-centered instructional methods are highly recommended to implement web-based learning. It is claimed that web-based learning has the potential to facilitate cooperative learning, enhance group thinking, and cultivate group creativity. Therefore, the researcher will apply action research to explore the phenomena of student learning on the web.

The researcher will conduct an action research in the course "Introduction of Education." The course is designed based on the thematic curriculum theory. The issue chosen is "Network Café." Project-based learning, cooperative learning, role-play and discussion are instructional methods employed for this study. Students are divided into ten groups with 4-5 in each group. Each group must study one of the following fields: Educational Philosophy, Sociology of Education, Educational Psychology, Educational Technology, Curriculum and Instruction, School Administration, Teacher-Parents Cooperation, Parenting Education, Psychology of Adolescent, Teaching-Discipline-Guidance All-In-One [TDGAIO]. There is a roundtable meeting for five weeks. Each group member has to be the representative attending the roundtable meeting at least once. In the meeting, each group has its own role related to its study field. They have to discuss the "Network Café." issue based on the five topics: the purposes and functions of education, technology integration, adolescents and society development, parenting, school administration with [TDGAIO]. After five roundtable meetings, each group has to submit a paper based on their study, video-taping their oral presentation for the web show.

The web-based learning system for this study consists of 5 main sections: Course Content, Course Information, Class Interaction, Personal Tools, and System Tools. There are 5 subsections in Course Content Section: course introduction, course arrangement, table of content, on-line test, and assignment. Course Information Section includes 6 subsections: news, course announcement, FAQ, classmate information, ranking of courses, grade information. Students can check their grade and feedback from teacher for each assignment under the grade-information section. The system also provides the grade range for the whole class to students. Class Interaction Section has 6 sub-sections: course discussion, online discussion, group discussion, topic discussion, mailto teaching assistant, and survey-voting. Topic Discussion Section allows instructors to post topics for discussion and setup a deadline for each topic. Group Discussion is accessible for group-member-only and instructor. On-line discussion is a synchronous

communication channel. Since the on-line discussion does not provides “save” function and file-sharing function, the researcher uses the software of netmeeting for roundtable meetings. Personal Tools Section includes personal information, my courses, calendar, calculating, and two games. System Tools Section: suggestions, ranking of students, school questionnaire, and on-line help.

The subjects are 46 freshmen majoring in Special Education and 3 first-year master students from Special Education program. The data will include on-line student journals, both synchronous and asynchronous discussion contents, e-mails, surveys, teacher journal, and documentation. Data will be analyzed with the following themes: student-teacher interaction, peer cooperation, student perception and attitude toward web-based learning, technology issue, and administrative support, and the function and design of web-based instructional management system.



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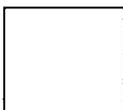


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