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## Editorial

# User Friendly

Donald G. Perrin

In 1983, the Lotus Development Corporation introduced Lotus 123 for the newly introduced PC; 123 was a “user friendly” spreadsheet program that integrated spreadsheet, database and graphics. The advanced features of this menu driven program foreshadowed Windows-based software with a wide array of powerful features such as popup menus, sort functions, and context sensitive help. In that era, programs of this complexity required many hours of training. Using Lotus 123 menus and context sensitive help, a person with minimal computer skills could master the program in a few hours. This software was fast, reliable, easy to use, and according to the advertising, “thinks the way you do!”

Much of the early DOS software was slow with “bugs” and programming errors. Lotus 123 was written in machine language with Forth graphics. Compared to other software for the PC, it was fast and bug free and established a high standard for business and educational computing. In 1984, Apple introduced the Macintosh computer with advanced graphic capabilities and a What-You-See-Is-What-You-Get (WYSIWYG) display for word processing, graphic design, desktop publishing, and audiovisual presentations. Microsoft responded with the Windows operating system, but it was a decade before DOS was finally replaced by Windows 95. Design limitations of the early PCs complicated the transition. Rapid advances in hardware and software promoted early obsolescence. The PC became the work horse for business and industry, but Macintosh retained its lead for desktop publishing and professional production of graphics, audio and video.

Macintosh won the hearts of educators with its friendly interface and ease in creating print, graphics, audiovisuals, and music. AppleWriter and HyperCard made it simple for teachers to create professional quality handouts and interactive audiovisual presentations. Creative features introduced by Apple Computer were quickly adopted by Microsoft, Adobe, and other industry leaders. In 1990, Steve Jobs introduced the “Next”, a “high end” workstation with Next Step, a powerful new operating system designed for education. It did not find a wide market because of its \$10,000 price tag, but its innovative features were copied and integrated into the products of rival hardware and software companies.

The PC enabled users to be independent of mainframes and slow telephone connections. It gave the user processing power, storage, and the ability to configure hardware and software for their specific needs. It became a creative tool for text layout, images, sounds, and video. It was a production tool for computer programmers, and a simulator that quickly replaced expensive equipment such as video editors and aircraft simulators. Computers continued to increase in speed and power and data storage and at the same time decrease in price. This attracted a growing market for personal computers in homes, businesses, schools and libraries.

In the 1980s, academic and research institutions had access the ARPANET, the forerunner of the Internet. In the 1990s, Mosaic (1993) and Netscape (1994) provided user-friendly interfaces for email, databases, and web sites. A Graphic-User-Interface (GUI) made it easy for anyone to navigate the World Wide Web. The Universal Resource Locator (URL), Hyperlinks and HyperText Markup Language (HTML) allowed people to interact with any website and enabled people to create their own webpages and websites. The Internet as we now know it was born.

Today, hundreds of millions of computers are connected to the Internet – the network of networks. Web-browsers with user-friendly interfaces connect us to millions of computers in over 200 countries. Broadband communications make networks fast and reliable. The Internet is a source of interactive learning materials with rich content, research tools and databases, and a plethora of opportunities for synchronous and asynchronous communications.



**Editor's Note:** Technology solves many logistic problems for students, teachers, and educational institutions. With synchronous (television) and asynchronous (online) options available, all stakeholders are interested in what it will do to further their individual and collective goals. Each plays a role that contributes to successful application. All must "buy in" and invest time to learning how to use these technologies effectively. Evaluation helps us to optimize the system, or find better approaches for the future.

## **Interactive Video Conference Technology: Benefits and Challenges arising from its use in a Caribbean Island State University College.**

**Mark A. Minott**  
Cayman Islands

### **Abstract**

The aim of this evaluative study was to determine the benefits and challenges of employing interactive video conference technology (IVCT) at the local state University College of the Cayman Islands (UCCI) thus suggesting ways of improving its use as a teaching and learning tool at the local university college. Participants' responses were triangulated to gain an overall view of the benefits and challenges of employing IVCT. Interviews and questionnaire responses suggest that students and the institution benefited. Students had access to various courses without the added cost of travel and being away from jobs and family. While it was assumed that the institution experienced financial savings, this needs to be periodically scrutinized to ensure a balance between perceived savings and significant new expenditure. Challenges experienced include the fact that IVCT made additional demands on staff. Teachers had to change their modus operandi, manage the equipment and be sensitive to the camera and the students at the remote site while delivering a lesson. This study, however, brings into sharp focus, the challenge faced by staff and institutions in dealing with 'immature' students, and the additional challenge of doing so at a distance.

**Keywords:** technology, higher education, cayman islands, students, staff, remote site, distance learning.

### **Introduction and outline**

While the literature on interactive video conferencing IVCT highlights its effectiveness in higher education all over the world, there are no known writings which examine the benefits and challenges of utilising this technology at the local state University College of the Cayman Islands (UCCI). There is also no known written evaluation of its use locally since its installation and implementation in 2008. Therefore, to fill this literary gap and to evaluate the use of this technology, this study was launched. The aim is to ascertain staff and students' perception of the benefits and challenges of utilizing interactive video conferencing technology IVCT at the UCCI thus suggesting ways of improving its use as a teaching and learning tool at the local university college. By triangulating staff interview and students' questionnaires data, an overall understanding of what constitutes benefits and challenges was constructed. Potential solutions to the challenges are provided.

This paper commences with a survey of literature which highlights potential benefits and challenges to the use of IVCT in higher education and establishes a framework for the study. This is followed by an outline of the research process, discussion of the findings, conclusion, and avenue for future work.

## Literature Survey

Interactive video conferencing technology (IVCT) is aptly defined by Bello, Knowlton & Chaffin (2007) as live two-way audio and full motion, with two-way video communication between sites in different physical location. Institutions, students, and staff benefit from and are challenged by the use of this technology. These benefits and challenges are documented in the literature presented.

### ***Benefits and challenges of IVCT for Institutions***

Featured quite prominently in the literature is the idea of cost in relation to institutional use of IVCT. Freeman (1998), points out that IVCT reduces the overall cost to universities and colleges running multiple sites by reducing the need for teaching and administrative duplications. Specifically, as Canning (1999) points out, it reduces or eliminates travel time for staff between sites and compensates for the loss of face-to-face contact. The latter part of Canning's statement is a bit worrisome, for it can be argued that having the lecturer physically present in the classroom is always desirable in regard to students' learning. This is a cause for concern as the use of IVCT decreases the chance of a lecturer identifying nonverbal, facial and bodily cues which indicate that students do or do not understand what is being taught. Again, ambiguities can be effectively resolved in face-to-face conversations by providing immediate feedback. While this may be possible with IVCT, the technology can intimidate students and prevent them from asking for clarification on difficult issues (as will be highlighted later from the study's findings). Further, it is not possible to replace actual face-to-face meeting as an important medium for facilitating life-long bonds which is one of the indirect benefits of higher education.

Field (1995) suggests that another way institutions could gain financially is to rent out the IVCT to external users, thus making it possible for others to access the equipment and the attending benefits.

While cost saving seems to be an obvious benefit to institutions employing distance education technology, which includes IVCT, Forster and Washington (2000) see as a misconception the idea that distance education programmes which make use of various technologies is less expensive than traditional programmes. The writers suggest caution, for savings in one area, for example faculty travel to the remote site, must be balanced against significant new expenditure on logistical support which is required for basic programme operations. In other words, the overall cost of utilising IVCT and other technologies may increase when installation, maintenance and renting of remote sites are required (Canning, 1999).

The main benefit of IVCT, however, is that it allows institutions to offer courses to smaller or isolated campuses (Canning, 1999). This effort, however, can be frustrated by technical problems in initial set up and ongoing operational errors. For example, video images running slower with numerous technologies in use, system breakdown, time for set up and shut down of the system 'eating' into time allotted to cover teaching material and a sense that doing things in a class which utilises technology, including IVCT, simply takes longer (Freeman, 1998, Kinnear, McWilliams and Caul, 2002, & Field 1995). Solutions to these challenges are not easily discerned but require further research, and must be examined in light of existing situations and circumstances unique to individual institutions. There are, however, a number of actions to take and instruments to utilise which could facilitate smooth flowing and effectively delivered lessons via IVCT. These are outlined in table 1, along with rationale and suggestions for implementation.



**Table 1**  
**Facilitating lesson delivery via IVCT**

Actions	Rationale and Suggestions
<b>Limit the size of the group at the remote site.</b>	IVCT is ideally for small groups of geographically dispersed students (Canning, 1999).
<b>Use a microphone with a homing beacon</b>	A microphone with a homing beacon worn by instructors and is detected by a video camera in the room allows for the 'tracking' of the instructor visually and auditorily. This is important because remote students need to see and hear the linked classroom and the instructor also needs to see the remote audience clearly.
<b>Tie the microphone into the video system</b>	Tying microphones to the video camera targeting system facilitate interaction with minimum disruption.
<b>Room design</b>	Design rooms to help students to enter and leave without crossing in front of the camera (Deadman, Hall, Bain, Elliot and Dudycha 2000).
<b>Placement of Video Cameras</b>	Place video cameras away from the line of sight of the students in the classroom - preferably suspended from the ceiling or affixed to the walls of the room.
<b>Limit staff movement</b>	Placing a camera and microphone at a control station limits the lecturer's roaming, to the camera's field of view and audible range for the microphone (Deadman, Hall, Bain, Elliot and Dudycha 2000).
<b>Staff Training</b>	Training of staff should not be limited to the operations of the instruments but include how to prepare quality learning material, proper planning of sessions, ways to improve presentation/teaching skills, voice technique and how to foster interaction between presenter and audience (Field, 1995).

### ***Benefits and challenges of IVCT for Students***

One benefit of IVCT to students already mentioned in the foregoing discussion, is that, it provides learning opportunities to non-traditional groups, including those in geographically remote areas or those unable to gain access to learning due to time and location rigidities inherent within traditional tertiary education courses or family commitments (Canning, 1999). Students do learn via IVCT, for it facilitates interaction (Crawford, Sharpe, Gopinathan, Nghoh & Wong, 2002). Lea (2001) points out that interaction aids students' learning because they draw from the learning of their peers when constructing their own knowledge. Freeman (1998) also encourages lecturers to build into their lectures more opportunity for students to ask and answer questions. There is also a social dimension to communication via IVCT. Freeman (1998) states that simple interactions, like seeing and waving to their cross campus colleagues during lectures, were seen by students as valuable. Also, organised competitions between campus groups during the lecture fostered interest and concentration and a sense of cross-campus interaction (Canning 1999).

The use of IVCT also facilitates equity in learning because no student group is advantaged because they have the 'better lecturer' or the lecturer who is running the subject and writing the exam (Freeman, 1998). As important is the fact that IVCT increases student motivation and better

instructor-student and student-student communication about key concepts and skills (Bello, Knowlton & Chaffin, 2007)

Freeman (1998) and Field (1995) also identified a number of challenges in the use of IVCT as it pertains to students. This includes the fact that students at the remote site may treat lectures like a television session; they are more likely to chat and walk in and out of the lecture. These disruptive behaviours can affect students' concentration and learning. This is exacerbated when lecturers are unable to control the remote group and are unable to identify disruptive students at the remote site.

Another challenge to students, especially at the remote site, is the reduction of personal and physical access to lecturers. For instance, after a class, they are unable to discuss important issues privately with lecturers. Some students may avoid making a valuable contribution because of the IVCT; sometimes projecting their image makes them feel self-conscious. Students at remote sites may find it difficult to initiate interaction because they are not as easily seen or heard. A solution for these challenges is to alternate live lecturers between main and remote campuses. This has negative cost implications and /or there may be the need for a chairman or coordinator at the remote site during each class who acts as a teacher assistant.

### ***Benefits and challenges of IVCT for Staff***

Benefits of IVCT to staff involve the fact that it reduces the inconvenience of being away from their resources and they also gain incentives to be better prepared to meet students' learning needs, which involve thinking about the needs of students at the remote site (Freeman 1998). IVCT also encourages staff to be more meta cognitively cognizant of the teaching and learning process (Bello, Knowlton & Chaffin, 2007), and lectures and presentations can be made without being physically present at the remote location (Field 1995)

Staff, however, found some aspect of IVCT challenging. For example, Canning (1999) points out a massive increase in stress or pressure caused by the issues related to working/teaching. Specifically, these issues include: a greater need to prepare materials and plan for effectively using them, a greater reliance on other people to make a lecture work, restriction on lecturing style, being restricted to a particular spot in the lecture hall, technical problems, difficulty in gauging how a presentation is being received, and to establish some kind of rapport with those on the receiving end (Field 1995 and Freeman 1998).

As indicated in the preceding discussion, this literature survey points to the potential benefits and challenges of the use of IVCT in higher education all over the world; however, there are no known writings about the benefits and challenges of using this technology in the local context, that is, the University College of the Cayman Islands (UCCI). Additionally, there is no known formal written evaluation of the use of this technology at the college since it was installed and implemented in 2008. Therefore, to fill this literary gap and to evaluate its use locally, a study was carried out between September and October 2009.

### **Research background and methodology**

The University College of the Cayman Islands is the state institution which provides a range of undergraduate and postgraduate programmes. Currently, there are approximately 1300 students enrolled in the University College (this number includes students on the main campus and the remote site, Cayman Brac or the 'Brac'). Since 2008 the University College has used IVCT to enable students on the neighbouring island of Cayman Brac to access courses. This occurrence fulfills a part of the University College mission statement which is to be responsive to the needs of the local community.

Lecturers at the main campus who taught via IVCT, the IT coordinator, and the remote campus director (n=18) were interviewed via the college intranet email system. The response rate to the email interview was 77%. Students (n=30) at the remote site whose classes are facilitated by IVCT were asked to voluntarily complete an online questionnaire; the response to the questionnaire was close to 50%. To begin the data collection process, the surveys were developed and placed on a questionnaire web hosting site. The remote campus administrator and director were contacted and asked to direct students to the website. The hosting site webmaster developed a data collection system that funneled response data received from the respondents to a spreadsheet that could be manipulated during the data analysis process. All information received from the surveys was held confidential. Generally, the questionnaires were completed fully and accurately. Both staff and students were asked the following questions:

- What do you consider to be the benefits of using IVCT at UCCI?
- What do you consider to be the challenges of using ICVT at UCCI?

The following question was added to the student online questionnaire: Is there anything else you would like to say about IVCT at UCCI?

From the qualitative data provided, the researcher identified comments that had been repeated not only by an individual respondent, but by multiple respondents. The more words, phrases, or concepts had been repeated, the greater importance they were presumed to play. These words, phrases and concepts were categorised into themes (Powell and Renner 2003). Categorical aggregation was also used, where a collection of instances was sought with the hope that issue-relevant meanings would emerge (Creswell, 1998). By triangulating the results of staff interviews and students online questionnaires, an overall understanding of what constitutes benefits and challenges to the use of IVCT at the local university college was constructed. The results are presented in the following sections.

## Results

### ***Staff comments***

Staff felt that there were benefits to students, the institution and themselves. For example, one member said, “Students on the Brac now have access to college courses for the first time without having to relocate...” Staff opinion differed on this point only in regards to terminology when qualifying the statement. For example, some spoke of IVCT giving students on the Brac access to ‘classes’, ‘education’, ‘course offerings’, ‘college education’ and ‘tertiary level education’.

Another perceived benefit was savings for students who would normally have to travel by airplane to the main campus. The institution also saves, for there was no need to employ additional faculty for the remote site. While several members of staff focussed on benefits to students and institution, two pointed out that IVCT also benefited staff, for it forced those who would otherwise not engage with IVCT and other technology to do so, and this “helps the educator to be on the cutting edge of distance education”.

Identified challenges were categorised under the following headings: technical difficulties, maintenance and other costs, teaching and learning dynamics, additional demands on staff and students, class size, and disturbances. Challenges identified were prefaced with phrases such as, “It is a pain in the neck”, “I don’t think it will ever work well”, and “I cannot think of one practical benefit for students...” All staff respondent (n=14) identified the fact that the equipment will malfunction. This is aptly stated by one member: “As is always the case with equipment, there is always a chance the equipment will fail and this may act as a deterrent to student enrolment at the remote site”. Another staff member pointed out that the unpredictability of the IVCT equipment can cause frustration, especially for those in the Brac.

Others identified the frequency of malfunctions with such phrases as, “It does not always work and this semester in particular”, “it frequently does not work”, “Last year for example, we had the issue with ... sound”. Also identified was the nature of these malfunctions, for example, “the sound not working”, “inability to see students on the remote site and to present a power point show simultaneously”, and “phone line down and technical glitches”. Staff also acknowledged that malfunctions impact students’ learning. One member said, “Whenever the system malfunctions, the students suffer because I need to go find help, which might not be readily available”. Another, making reference to the failure of equipment, pointed out that “When it does happen, valuable [teaching] time is lost and may never be regained”. The IT coordinator pointed out:

Technical difficulties are 95% user error, but lecturers either ignore the error (thus ignoring the Cayman Brac students), or try to fix the error themselves, further compounding the problems. Very few lecturers seek out assistance or further training on the technology without it being forced upon them

Only one member highlighted as challenges, the high cost of the equipment, maintaining the system, and the financial and time constraints which prevent more frequent visits of staff to the remote site. Also highlighted is the fact that it can be a challenge for a lecturer to travel to the remote site for a ‘live session’ thus transforming the main campus into the remote site. One respondent stated:

Sometimes [visits to the Brac by staff] can cause more difficulty for students and lecturers. This happens when you have a huge group of students left back on the main campus, many of who are immature themselves, and the lecturer is in the Brac for the class, sometimes teaching one, two or three students.

The demands that IVCT made on staff were many. These include trying to “keep students in two different locations interested and learning” and “Splitting attention between the Brac and the local class”. A member of staff elaborates on this point when she states:

It is impossible to make eye contact with the students in the Brac. If I want to feel like I am looking at them, I must look at the camera, but I am not seeing them at the same time. [By doing so however] I try to make the students feel like they are a part of the class but it can be difficult sometimes.

Another staff member noted other demands:

Performing for the camera-being always conscious of positioning oneself so that the ‘Brackers’ can feel that they are in the loop and are being spoken with or to. Limited spontaneity - one has to plan and scan or fax off way before the class, if the students are to get the material on time. So a brainwave, fifteen minutes before the class might not work as they [students on the Brac] might be disadvantaged if the material cannot get to them pronto.

Further challenges are noted as “Not being able to interface with students for any feedback, as well as with the staff at the remote location”, and the fact that “communicating with the remote site depends on the use of other technologies such as fax, email, and the computer, and this required ‘a change in gear’ for some staff”.

The maturity level of students presented yet another challenge to staff. Students just out of high school were seen as lacking the maturity to engage fully with IVCT, especially when taking foundational subjects such as English, Mathematics, Science and Spanish classes, which require a degree of individual assistance. Demands on staff also include taking on the role of managing the

equipment, which is “extra work and require extra classroom management skills, extra time, and attention”. One staff member expands on this idea by stating:

Staff at the main campus needs to find extra time to plan and get material to the Brac ahead of class time and this also means advance planning, sometimes days ahead of the class (the ideal situation at all times, but realistically, very challenging for many lecturers)

Staff reports that IVCT seems to restrain or, it appears, to intimidate (in some way) students on the main campus hindering them from being themselves. There is also the fear that “distance students may not receive the same attention as the local students, possibly creating a fairness issue both for the class discussions and also for testing”.

Class size was also another concern. Statements such as “bigger classes also means more noise” seem to characterise staff responses. One member said, “I find it easier to work with both campuses when the group before me is small - not more than twenty, for example”. This is of particular importance when having to deal with “immature students on the remote site, who frequently miss classes or hide by sitting under the camera so as not to be seen by the lecturer, or who arrive late for classes”. Finally, one staff member highlighted disturbance such as infrastructural failures at the remote, for instance the noise of the air conditioning unit malfunctioning and being amplified by the microphone system or the accidental ringing of mobile phones also amplified by the microphone system, and having to stop classes to remedy these situations.

### **Students' Comments**

Students' comments on the benefits of IVCT focused on savings for the institution and benefits to themselves. The institution saves on aeroplane fare for lecturers, and lecturers do not have to duplicate lessons, thus also saving time. The small number of students at the Brac site justifies the use of IVCT. It makes obsolete both the need for additional tutors to be employed to teach such few students and students having to travel to Grand Cayman. Another identified benefit is the interaction between students on the main campus and the Brac site and especially between those who held differing cultural points of view and ideas. One student said that the use of IVCT encourages “better debates and classes feel more like a real college”.

Challenges identified by the students focussed on the technical and teaching/ learning dynamics. Technical challenges identified include “electrical outages or disruptions in internet connection”, unclear video transmission and inappropriate lighting in the room at the main campus, which makes viewing the white board there difficult, and “set up and maintenance costs”. At times, the sound quality becomes distorted, thus affecting their ability to concentrate during lessons. Challenges in the teaching/ learning dynamics involve not being able to turn in work at the same time with students on the main campus. Students point out: “Class notes must be emailed to you and you cannot receive immediate response”. Also, there was a relational challenge, as one student points out, “You do not develop a one-on-one relationship with your fellow students or teacher”. Asking questions during sessions were difficult for some students. One said, “It feels like you're interrupting the class [at the main campus], if you have a question”. Another said, “sometimes it is uncomfortable because when you participate it seems amplified”, still another said, “the discussion part of the class is the challenging part because I don't know when to talk. It feels like I am watching the class rather than part of a class”. Despite these challenges, students thought that the use of IVCT should continue, and there was the need to offer additional classes via this method. Some thought IVCT is workable, but just needs to improve or keep up with technological changes. Others expressed a genuine appreciation that they are able to have classes at the remote site.

## Discussion

### ***Benefits of IVCT at UCCI***

The obvious benefits of IVCT identified by students and staff were course accessibility for students on the remote site and financial savings for the institution. While these findings are not surprising, they lend support to the established literature on IVCT, from a country not yet explored by other researchers, namely, the Cayman Islands. Also, while financial savings is a benefit, there is the need to periodically scrutinize expenditure on logistical support, maintenance and soft and hardware upgrades. Saving in aeroplane fares and accommodation for lecturers to visit the remote site must be balanced against significant new expenditure (Forster & Washington, 2000). This is important in the present economic climate, where there is a focus on being thrifty.

The study also brings into sharp focus (as a benefit) the fact that IVCT at UCCI forced lecturers who are normally anxious about technology to engage with cutting edge technology. One way of reducing staff anxiety in this area is to provide training in the operation of the IVCT. However, training of staff should not be limited to the operations of the instruments, but include how to prepare quality learning material, proper planning of sessions, ways to improve presentation/teaching skills, voice technique, and how to foster interaction between presenter and audience (Canning 1999 & Field, 1995).

### ***Challenges of IVCT at UCCI***

Technical difficulties and malfunctioning of equipment were major sources of irritation to both staff and students. While there seems to be a general agreement that power outages, periodic disruption in internet connection, and issues with sound and video are inevitable, the frequency of these occurrences is of grave concern. What is required is greater vigilance and availability of technical staff, especially during the times when the IVCT is in use. Another solution would be to provide specific training to staff in how to 'troubleshoot'. This idea is supported by staff, one of whom wrote: "There is a need for specific training of instructors who use the system, not just the brief sessions in how to use the equipment..." This would reduce the demand on the technical team, especially when classes are held outside of regular working hours. However, additional training may be viewed by staff as extra work (considering all they are required to do in a given day), therefore, extra training should be provided only on request by staff members. Another option is to use the first class or portions of each course using IVCT for the training of both lecturers and students in the workings of video conferencing - where to sit, how to interact, how to get the students or lecturers' attention.

The impact of IVCT on the teaching and learning dynamics was another area of challenge for both staff and students. For students, the main challenge was the lack of physical interaction between themselves and the lecturer and their inability to build one-to-one relationship with fellow students and lecturers. The literature in the foregoing discussion identified this as a challenge, especially for students at a remote site. A solution is to alternate live lecturers between main and remote campuses and arrange for students from the remote site to visit. However, this needs careful thought when being implemented especially when they may be immature students involved at the main site. In such situations, the solution may also include having a chairman or coordinator physically present and in the session at the remote site.

Also mentioned were the demands that IVCT made on staff with regards to the teaching/learning dynamics involved in trying to maintain students' interest at both sites and having to split their attention between both. The fact that IVCT limits staff spontaneity was highlighted as well. Further, communicating with students at the remote site depended on the use of other technologies such as fax, email, and the computer and these technology-related activities, coupled with the need to be well prepared and the inability to be spontaneous required a change in lecturers' thinking and behaviour. This required change was also a source of stress (Canning,

1999). These observations highlight the fact that technology does influence thoughts and behaviours (Hoffman, Patterson, Carrougher & Sharar 2001, and Robillard, Bouchard, Fournier, & Renaud, 2003). While these challenges may seem formidable, training and continued engagement with IVCT will improve the ability of the staff to cope. One should also consider the fact that the inability to maintain students' interest could be attributed to a number of factors, but the underutilization of appropriate teaching methods should not be overlooked (Downing, 1997).

Another challenge reported by both staff and students was the fact that IVCT seems to restrain, or appears, to intimidate students in some way but especially those at the remote site. A student respondent clarified this by stating, "It feels like you're interrupting the class [at the main campus] if you have a question". Freeman (1998) encourages lecturers to build into their lecture more opportunities for students to ask and answer questions and Canning (1999) encouraged the use of organised competitions between campus groups during the lecture as this fostered interest and concentration and a sense of cross campus interaction.

The maturity level of students presented a unique challenge to staff, especially where students were viewed as having just left high school and lacking the maturity to engage fully with IVCT, particularly when taking courses such as English, Mathematics, Science, and Spanish which require a degree of individual assistance. Freeman (1998) and Field (1995) in their study help to clarify this point when they highlighted the kind of behaviour exhibited by students. For example, they may treat lectures like a television session. They may be more likely to chat and walk in and out of the lecture, and these disruptive behaviours affect students' concentration and learning. As indicated in the preceding discussion, this situation is exacerbated when lecturers are unable to control the remote group and are unable to identify disruptive students at the remote site.

**Table 2**  
**Summary of Challenges and Solutions**

<b>Challenges</b>		<b>Solutions</b>
<b>Technical difficulties:</b>	Frequent power outages, periodic disruption in internet connection, distorted sound & video Equipment.	Greater vigilance and availability of technical staff. Provide specific training to staff in how to 'troubleshoot'.
<b>Teaching &amp; Learning dynamics:</b>	<b>Students:</b> inability to physically interact with lecturers and to build one-to-one relationship with fellow students.	Alternate live lecturers between main and remote campuses and arrange visits to the main site for students from the remote site.
	<b>Students:</b> IVCT restrains or intimidates students	Provide more opportunity for students to ask and answer questions.
	<b>Staff:</b> maintaining students' interest at both sites. Limits spontaneity. The use of various communication instruments, require a change in thinking and behaviour.	Training and continued engagement with IVCT will improve the ability of staff to cope with these challenges.
	<b>Staff:</b> students lacking the maturity to engage fully with IVCT and needing special assistance with selected subjects.	Chairman or coordinator being physically present at the remote site. Arrange individual virtual face-to-face time for students needing assistance.

Here too, a solution may be having a chairman or coordinator be physically present at the remote site and to arrange individual virtual face-to-face time via the IVCT for students needing assistance. This however, will need to be built into staff teaching time and schedules and could be difficult to schedule when others need to use the equipment for other classes.

Table 2 provides a summary of the challenges and solutions of using IVCT at UCCI. This gives ease of reference to those who would use the data to influence policy and action. For it is by addressing these challenges that the fulfillment of the underlying reason for the study will be realised: i.e. improvement in the use of IVCT as a teaching and learning tool at the University College of the Cayman Islands.

## Conclusion and avenue for future work

The challenges brought on by the use of IVCT at UCCI are many and affect both staff and students. Additional demands are placed on staff to change it's modus operandi, manage the equipment, and to be sensitive to the camera and the students at the remote site. Students are mainly challenged by the technical aspects and the teaching and learning dynamics. In light of these and other challenges, it behooves institutions considering the use of this technology to carefully evaluate the problems and solutions identified in this, and other similar studies.

Also of significance is the fact that this study was carried out in the early years of the use of this technology at the local college. It would be of interest to the local University College to carry out this same process in a few years to ascertain whether the currently identified benefits and challenges remain or have changed. The degree to which staff has matured in use of the tool, and students' continuous engagement with it are important factors when considering the effectiveness of IVCT as a teaching/learning tool. Also, future study could examine the impact (if any) of being physically located on the Brac and the degree to which studying 'at home' positively affects students' learning. This could be compared with students from the Brac who are studying on the main campus. Finally, the small sample size of this study suggests that the findings should not be generalized but the ability to generalize the findings was not the original intention of this study.

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**Editor's Note:** This study reminds us that, like audiovisual aids, the web is initially a supplement for traditional face-to-face-teaching. Our first attempts at distance learning emulate the lecture-demonstration-discussion model. Students feel isolated and interaction is minimal. As advantages of the web become apparent - anywhere-anytime learning; greater opportunities for student-to-student and student-to-teacher interaction; and extended learning resources - we graduate to new concepts of communication, teaching and learning where the student has greater flexibility and control of the learning process.

## **Examining the Levels of Web-ness of Online Courses at the University of the South Pacific**

**Javed Yusuf**  
Fiji

### **Abstract**

The University of the South Pacific (USP) is a regional university serving twelve Pacific island nations with 14 regional campuses around the Pacific. USP uses a range of media such as face-to-face, print materials, online learning management systems (Moodle), audio/audiographics and video conferencing, audio/video tapes, CDROMS and DVDs for the delivery of its courses with an institutional goal of delivering all of its courses through the web. It uses Moodle, a free and open source learning management system. The level of "web-ness" of courses using Moodle varies among courses from web supported (basic), to web enhanced (hybrid) and to web based (fully online).

This study examines all USP courses that utilized Moodle in Semesters 1 and 2 of 2010, classifies and quantifies them according to their level of web-ness. The main research question was how many USP courses used Moodle as a web supported, web enhanced or web based classroom. Results suggest that while there was slight increase in the overall use of Moodle at USP moving from Semester 1 to 2, most courses still utilized Moodle for basic course support. The paper then follows through with discussions on findings and recommends options for future research.

**Keywords:** Moodle, USP, levels of web-ness, web supported, web enhanced, web based, online learning and teaching, learning management system

### **Introduction**

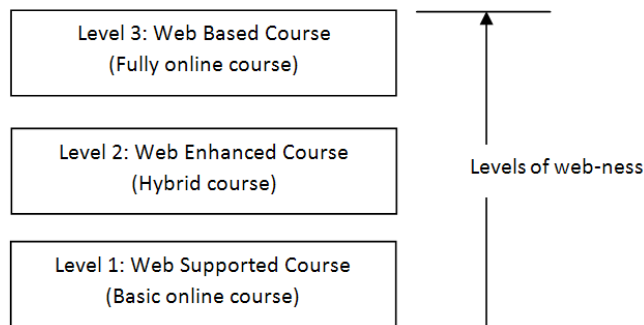
The University of the South Pacific (USP) is the only regional university of its type in the world. It serves twelve Pacific island nations (Cook Is., Fiji, Kiribati, Marshall Is., Nauru, Niue, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu and Samoa) with 14 regional campuses around the Pacific. The main campus is located in Suva, Fiji. It offers an average of 487 courses per semester in either face-to-face and/or distance and flexible learning mode. These courses are delivered using a range of media such as print materials, learning management systems (Moodle), audio/audiographics and video conferencing, audio/video tapes, CDROMS and DVDs with an institutional goal of delivering all of USP's courses through the online mode.

Since 2001, USP have been utilizing WebCT and Plone-based EDISON systems as its Learning Management System (LMS). In 2007, the University's senior management selected Moodle as the single LMS for USP. Moodle is a free and open source LMS which is being widely adopted by thousands of educational institutions and has an ever growing worldwide community of developers and users. Since its inception at USP, Moodle have become the most used and is an essential system of the University with approximately 7500 users daily (USP Learning Systems Manager, personal communication, January 18 2011). Use is anticipated to exponentially grow even more in 2011 after a directive from the University's Deputy Vice Chancellor (Learning, Teaching and Student Services) mandating that all lecturers use of Moodle as part of their course

delivery in 2011. However, the levels of web-ness of courses using Moodle varies from basic web supported courses to blended (hybrid) web enhanced and fully web based courses.

This study examines all the courses that utilized Moodle in Semesters 1 and 2 of 2010, classifies and quantifies them according to their level of web-ness. For this study, three levels of web-ness were considered: web supported (basic), web enhanced (hybrid) and web based (fully online). This is further explained in the literature review section of this paper. The main research question was how many USP courses used Moodle as a web supported, web enhanced or web based classroom. It elaborates on the methodology and checklists that were employed to determine the level of web-ness of a course in Moodle followed by findings and results. Discussion of findings tries to identify and rationalize obvious trends and recommends topics for future research.

## Literature Review



*Fig 1: The levels of web-ness used in this study to describe the relationship between a course and its online components*

The recent advances in technologies, in particular the advent of LMSs, have made it easier to provide online learning and teaching experiences and becoming “increasingly important part of academic systems in higher education” (Morgan, 2003). Most universities have adopted some kind of LMS (Falvo & Johnson, 2007; Narwani & Arif, 2008). However, opinions are divided as to what is the best learning environment online, whether it is fully web based or web supported Wu (2004). Schmidt (2001) states that a combination of online and traditional classroom instruction has become the most popular way to use internet’s learning and teaching tools which is the hybrid or blended delivery where the web is used to enhance the face-to-face learning and teaching. As Wu (2004) noted, most of the time, the way the web is utilized in a course is not clear to learners or even lecturers. Thus, learners and lecturers are not able to fully understand their relationship between the use of web (LMS) and the course learning outcomes. For this study, the different types of relationships between a course and its online component are considered as the ‘levels of web-ness’. The level of web-ness indicates how the web is used in a course and what percentage of learning and teaching occur using the web. Because the University of the South Pacific (USP) does not have an institutional definition to describe levels of web-ness in its courses, this study distinguishes three levels of web-ness: web supported (basic), web enhanced (hybrid) and web-based (fully online).

The first level, a web supported course, makes a very basic use of the learning management system. Basic materials about the course and/or lecturer are placed on the web for ease of access to course information. Use is mainly for knowledge presentation and to make course documents, lectures, and other static information, available to learners (Bento & Bento, 2000), and to link to class management resources such as course announcements (Woods, Baker & Hopper, 2004). It is important to note that the use of web in a web supported course is neither relevant nor necessary to achieve any explicitly stated course learning outcomes (Gandell, Weston, Finkelstein and

Winer, 2000) and thus almost 95% or more of learning and teaching occurs face-to-face. For this study a web supported course, at minimum, contained the following elements:

- *Course administrative information:* Course outlines and guides, course goals and learning outcomes, etc.
- *Lecturer information:* Lecturer contact details, information about the teaching team, etc.
- *Course notes* – handouts (Word or PDF files), PowerPoint notes, etc.
- *Additional resources* – readings, reference guide, links to external web, etc.
- *News forum* - course news and announcement forum.

The second level of web-ness, a web enhanced course, makes use of Learning Management System (LMS) tools to incorporate various online activities, enhance learning, and support course management and delivery. According to Colis and Moonen (2001), this model of course delivery is a hybrid of traditional face-to-face and online learning so that instruction occurs both in the classroom and online, and the online component becomes a natural extension of traditional classroom learning. Previous studies suggest that this hybrid model of course delivery holds significant benefits for learners and lecturers (Bento & Bento 2002; Black, 2001; Papo, 2001; Saunders & Klemming, 2003; van de Ven, 2002; Woods, Baker & Hopper, 2004) and Ge, Lubin, Zhang (2010) states that increasing number of universities utilize LMSs for blended or hybrid learning. Gandell et al. (2000) posits that the use of LMS in a web enhanced course is integral and relevant, contributing to the achievement of some of the course learning outcomes and thus could have a fair amount of impact on learner’s learning performances. From a course design and delivery perspective, a hybrid course can lie anywhere between the continuum anchored at opposite ends by fully face-to-face and fully online learning environments (Rovai & Jordan, 2004) and “finding the right degree of web enhancement is a great challenge” (Schmidt, 2002).

Component 1: Content delivery

Course notes – handouts (Word or PDF files), Powerpoint notes, etc
Additional resources – readings, reference guide etc, links to external web
Course news, announcement forum
Multimedia content – Audio, video, images, animations, lab demos

Component 2: Administrative support

Course outline/guide/ I & A
Lecturer information , contact details etc
Course goals/outcomes
Assignment drop boxes, submission
Grade books
Online tutorial/group sign up (use of choice tool)

Component 3: Assessment

Online Quizzes
Online activities
Glossary building
Use of lesson tools
Course evaluation (feedback or survey tool)
Discussion based assessment

Component 4: Community building

Active Discussion forums (discussion forums per course topics/units/week)
Social cafe
Ice breakers
Group based discussions
Synchronous chat
Quickmail, Instant messaging
Wikis, blogs,

**Fig 2:** The LMS tools and course elements are categorized using Schmidt’s (2002) four fundamental components of a web enhanced course

This study assumed that in a web enhanced course, most course activities were occurring face-to-face but certain activities were online using the LMS tools. Schmidt (2002) describes four fundamental components of a web enhanced course; administration, assessment, content and community. This description was used by this study to determine if the level of web-ness of a course to be web enhanced (hybrid) as shown in Figure 2. In this study a web enhanced course contained at least 60% or more elements of each component in conjunction with significant face-to-face components.

Finally, the third level of web-ness, a web based course or a fully online course, is where all the learning and teaching experiences occur on the web. There is no face-to-face element and there is a significant use of LMS tools. All course materials, instructions, discussions and assessments are done online (Mann, 2000). The web is both relevant and necessary for achievement of all course learning outcomes, and thus has a great impact on learner's learning performances (Gandell et al., 2000).

This study used the definitions and categorization of the three levels of web-ness mentioned above as the yardstick for determining the web-ness of a course on Moodle.

## Methodology

The main research question of this study was how many USP courses used Moodle as a web supported, web enhanced or web based classroom. Collection of the initial set of data consisted of retrieving the master list of all the courses that were offered by the University in Semesters 1 and 2 of 2010. This data was obtained from the USP's Office of Planning and Quality. In addition, the master list of all courses on Moodle for the same time period was obtained from the USP's Learning Systems Manager together with administrative access to each of these courses. These two lists were then compared and organized by course subject and faculty.

To get the next set and the most important data for this study was to individually examine all the courses on Moodle for Semesters 1 and 2 of 2010 to determine the level of web-ness of each course. Approximately, five weeks were spent doing this, with an average of 20 minutes spent on each course as it was thoroughly examined according to the set criteria (discussed previously in this paper) to determine its level of web-ness. The data collected was analyzed, classified and quantified as the total number of web supported, web enhanced and web based courses on Moodle for Semesters 1 and 2 of 2010. It is important to note that for this study a particular emphasis was given to the use of Moodle tools in a course to deduce its level of web-ness rather than volume of online learning and teaching or the appropriate and/or innovative online pedagogies. Even then, it was sometimes difficult to determine a course's level of web-ness, particularly for web-enhanced courses because of its four components with each component having its own set of elements. This uncertainty was solved through the application of the previously mentioned cardinal rule: a web enhanced course had to contain at least 60% or more elements of each component.

In this study, only active courses on Moodle for the studied time period were considered. There were some courses which had Moodle course 'shells' but the course page or 'shell' was blank or empty. Also this study did not include trimester based courses offered by USP.

## Results

The University of the South Pacific had offered 491 courses in Semester 1 and 482 courses in Semester 2, 2010. In Semester 1, about 30% or 149 courses of the total of 491 courses offered used Moodle and in Semester 2, about 37% or 179 courses of the total 482 courses offered used Moodle as shown in Table 1. The summary shown in Table 1 is irrespective of different courses' varying levels of web-ness.

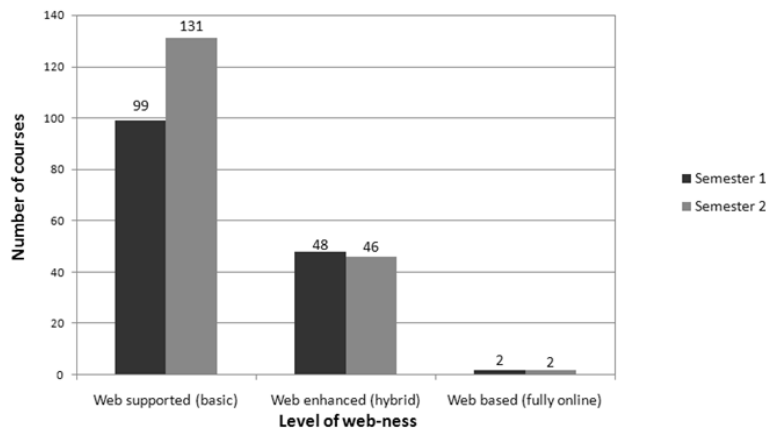
**Table 1**  
**Total number of courses offered and total number of courses using Moodle at USP in Semester 1 and 2 2010.**

	Semester 1	Semester 2
Total number of courses offered by USP	491	482
Total number of courses utilizing Moodle	149	179
% of Moodle usage	30.35%	37.14%

Table 2 and Figure 3 show the summary of the number of courses on Moodle according to the levels of web-ness for Semesters 1 and 2 of 2010.

**Table 2**  
**Total number of web supported, web enhanced and web based courses at USP in Semester 1 and 2 2010**

Level of web-ness	Semester 1	Semester 2
Web supported (basic)	99	131
Web enhanced (hybrid)	48	46
Web based (fully online)	2	2
Total	149	179



*Fig 3: Total number of web supported, web enhanced and web based courses at USP in Semester 1 and 2 2010 (in bar graph)*

From this study, it was found that in Semester 1, from a total of 149 courses, 99 courses were web supported, 48 courses were web enhanced and just 2 courses were web based. For Semester 2, from a total of 179 courses, 131 courses were web supported, 46 courses were web enhanced and just 2 courses were web based. Similar data is presented on Table 3 but is further elaborated as a percentage of the total courses offered.

**Table 3**  
**Total number of web supported, web enhanced and web based courses as a percentage of total number of courses offered at USP in Semester 1 and 2, 2010**

Level of web-ness	Sem 1	% of total course offered in Sem 1 (n=491)	Sem 2	% of total course offered in Sem 2 (n=482)
Web supported (basic)	99	20.16	131	27.18
Web enhanced (hybrid)	48	9.78	46	9.54
Web based (fully online)	2	0.41	2	0.42
Total	149	30.35	48	37.14

## Discussion

The results of this study provided some interesting insight in the varying levels of web-ness in courses using Moodle at USP. The results indicate a slight increase (6.8%) in the overall use of Moodle, irrespective of the differing levels of web-ness, moving from Semester 1 to 2 despite a slight reduction in the total number of courses being offered by the University. Moodle was used for 37.14% of the courses in Semester 2 compared to 30.35% in Semester 1. As a direct result of this, there was an increase in the web-supported courses from Semester 2 over Semester 1. Moodle was used for 131 (27.18%) of web supported classroom courses in Semester 2, an increase of approximately 7%. Reasons for these two interrelated trends are explained below.

First, the increase can be attributed to increase in awareness and training workshops carried out at regular interval by USP's Centre for Flexible and Distance Learning (CFDL). CFDL provides series of training workshops on online learning and teaching to lecturers on a regular basis. Ellis & Phelps (2000) suggest that academic staff development that seamlessly incorporates both technical skills and pedagogies ought to serve to model quality teaching practices within any LMS, and, thus, CFDL training workshops integrate pedagogy with technology rather than just providing hands-on practical/technical training. Tremendous work has also been put into raising awareness of Moodle usage at the University since its inception in 2007. Showcases, faculty road-shows and seminars have been organized in the past by CFDL. In July 2010, CFDL hosted a week-long Moodle Forum which enabled lecturers, instructional designers and education technologists to share their experiences. The Forum which was opened by Martin Dougiamas, the founder of Moodle, was well received by the USP community.

An additional reason for increase in the use of Moodle in Semester 2 may be due to the 'word of mouth' or 'catching the bus' effect which is a direct result of increasing awareness of Moodle use. Morgan (2003) reported similar phenomena at the University of Wisconsin System in USA stating the influence of peers' recommending an LMS or by setting examples using the technology were some factors that promoted the adoption of LMS among lecturers. It is also important to point out that pressure or persuasion from USP's Head of Schools and Faculty Deans was another reason for the growth in Moodle usage in Semester 2, 2010. The use of Moodle and online learning and teaching in general also carried 'more weight' when lecturers applied for salary increments in staff reviews, which perhaps was also another reason.

Although there was an increase in Moodle usage (due to reasons outlined above), much of the use concentrated on content presentation or as web supported classroom (an increase of approximately 7%). A similar result was also found by Shemla and Nachmias (2007) when they studied the purpose and extent of usage of course websites at Tel-Aviv University in Israel,



noting that lecturers conceived course websites to be content providers rather than communication facilitators only realizing, to a limited extent, the pedagogical potential. This is due to the fact the lecturers engaged in design and delivery using LMS face challenges in a variety of areas: technology, logistics, organization and delivery (Dabbagh, 2001) and using Moodle requires technical and pedagogical skills, patience, and dedication. Thus, it is understandable that lecturers new to Moodle will take time to really get in the grips of using LMS as web enhanced or web based classroom, and are “generally much slower to adopt the more complex or interactive parts of the LMS” (Morgan, 2003) thus starting off with the basic use of Moodle in web supported classrooms.

One other trend obvious from the results is that the number of web enhanced courses remained same (48 courses in Semester 1 and 46 courses in Semester 2) and remained very low (Approximately 10% of the total courses offered at USP). This can be attributed to the fact that most lecturers are fairly new to Moodle and to the concept of online learning and teaching. However, their use of Moodle seems to evolve over time, i.e. starting from a basic web supported course, gaining more experience and confidence along the process and, after using Moodle for 2 or 3 semesters, then they start to use more dynamic and interactive Moodle tools in their courses. Morgan (2003) in a study of Faculty’s use of LMS at the University of Wisconsin System in USA noticed a similar situation, reporting that:

*Once faculty starts to use a LMS, their use of the technology tends to grow. Nearly, two thirds of the faculty surveyed said that they used a LMS more extensively than they first started using the technology. By far the most important reason given for the growth in their LMS use was that, over time, they began to see the increased uses for it in their teaching. (Morgan, 2003, p. 3)*

Finally, the results suggest that despite the increase in courses using Moodle (approximately 7% of courses), the number of web based or fully online courses remained the same and very low (2 courses, approximately 0.4% of the total courses offered at USP). There could be several reasons for this trend; however, the major factor could be that most lecturers at USP are not yet experienced and skilled enough to deliver fully online courses, facilitate online learning and teaching, and to nurture sense of community. And also, perhaps, the web based or fully online model of course delivery may not be preferred by the learners in the region because there are still disparities in terms of internet connectivity, information literacy and access to ICT in the region. On that note, Sikora and Carroll (2002) reported that online higher education students tend to be less satisfied with totally online courses when compared to traditional courses.

Morgan (2003) aptly highlights that one needs to understand how LMS works before one can drive it. There still needs to be lot of work done considering the fact that USP has a very ambitious institutional goal of offering most of its courses fully online. But the slight increase in the overall use of Moodle is a small step towards achieving this feat. The use is anticipated to exponentially grow even more in 2011 after a directive from the University’s Deputy Vice Chancellor (Learning, Teaching and Student Services) instructing all lecturers for a mandatory use of Moodle as part of their course delivery in 2011. With the introduction of new learning technologies in some of the USP courses such as ePortfolios (Prasad, 2010) mobile learning initiatives (Kumar, 2010), open educational resources, game-based learning activities (Totaram, 2010), integrated third party applications (Bhartu, 2010) and podcasting, there are signs that more courses will begin to use Moodle in web enhanced or web based classrooms.

## **Future Research**

This study has several implications for lecturers, instructional designers, education technologists, faculty and university administrators, and researchers particularly for those in the South Pacific

region. Similar studies need to be carried out in 2011 and trends should be elicited to see if there are any changes to the level of web-ness in online courses at USP. In addition, this future research should further drill-down faculty-wise, school-wise and programme-wise to identify, classify and quantify level of web-ness in the USP courses and per undergraduate and postgraduate courses. Another area for future study should look at the quality and effectiveness of the web supported, web enhanced and web based courses at USP with strong emphasis given to pedagogical considerations. The levels and volume of learning and teaching occurring online should also be studied. Moreover, future research in this subject should also consider interview data, surveys and questionnaires from lecturers and course designers at USP to understand more about the use of Moodle in courses at USP.

## Conclusion

We can conclude that the overall use of Moodle at USP is increasing at a very slow pace. With that, there is an increase in the number of web supported courses but yet the number of web enhanced and web based courses remain very low. There are signs this might slowly change as more lecturers get acquainted with Moodle, build greater understanding of the full pedagogical potential and affordances to use it for a web enhanced or web based classroom. Further exploration, both from the perspective of lecturers and learners, needs to be carried out in this area to fully understand the various levels of use of Moodle at USP.

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**Editor's Note:** New dimensions of distance learning include remote assistance, monitoring, assessment, and feedback. These functions may mimic traditional procedures, or be enhanced by interactivity, instant replay, and other web features. The logistical advantages – to reduce travel and have real time and recorded access makes the assessment process much more responsive and efficient.

## **Electronic Assessments for Teacher Interns**

**Cecil Clark and David A. Falvo**

USA

### **Abstract**

Prior to the past decade, most teacher interns were evaluated and mentored using traditional paper-based assessments and face-to-face interactions with mentor teachers and faculty supervisors. Widespread use of the Internet for conducting instruction has recently become popular in academia (Fuller, Rena, Pearce, & Strand, 2000) and the possibility of using online tools for supervising teacher candidates has grown.

This paper explores the experience of university teacher candidates and their university supervisors in a quest to explore use, concerns and attitudes about integrated features and tools in web-based, interactive learning environments for teacher preparation. This study highlights student experiences during their teacher internship placement, their reflections on the challenges and successes using technology support and performance tools, and mostly their perceptions and attitudes about the on-line tools and resources for learning that they used during the experience.

Participants of this study (n=58) consisted of 15 to 20 members in each of three groups: supervising teachers, faculty members, and pre-service teachers. This study shows that supervising teachers, faculty, and teacher candidates (the inclusive teacher education program) have extensive interest in using electronic assessment tools, but they lack confidence that electronic assessments are more effective than traditional paper-based forms. The results indicate that the electronic assessments are much easier to use and likely require less effort to complete.

### **Introduction**

Prior to the past decade, most teacher interns were evaluated and mentored using traditional paper-based assessments and face-to-face interactions with mentor teachers and faculty supervisors. Recently, broad use of the Internet for conducting instruction has become popular in academia (Fuller, Rena, Pearce, & Strand, 2000) and the possibilities of using these online tools for supervising teacher candidates has grown. Although instructional situations and supervision processes are typically conducted in one of three environments: completely on-line without face-to-face interaction; as hybrid situations where the teacher candidates and faculty members meets face-to-face frequently, as well as on-line; and as face-to-face sessions with integrated web-based support materials and activities (Horton, 2000), the tools provide a variety of uses for supervision. The use of online tools for pre-service internship experiences helps not only in areas of assessment data, but also to provide accurate and timely feedback for improved performance and accountability. Recently, much research has been published about the impacts and effects of on-line courses and the pioneering approaches of Web-based pedagogy. The history and adaptation of the Web is labeled as a technological shift and has changed how we think about and use information (Burnett & Marshall, 2003).

Although the Web is an academic village where people learn and produce, a significant number of university administrators and faculty persist in focusing their vision on the physical campus bricks and mortar (Leonard, 2001). Perhaps not knowing how online tools, features and components (Kahn, 1997), are used for teaching and learning causes disinterest in the Web as an academic village.

This paper explores the perceptions of university teacher candidates and their university supervisors in a quest to explore their use of and concerns and attitudes about integrated features and tools in web-based, interactive learning environments for teacher preparation. This study highlights student experiences during their teacher internship placement, their reflections on the challenges and successes using technology support and performance tools, and mostly their perceptions and attitudes about the on-line tools and resources for learning that they used during the experience. Further, this study explores how on-line assessment and integrated learning tools are used not only to deliver the content of a course, but also to help learners explore issues related to the way interactions are developed in the unique environment of field experiences. The data shows how the university supervisors, mentor teachers and candidates reacted to the implementation of online assessment of practicum experiences. Although this study primarily explores teacher education, we conducted this study to explore issues that may contribute to the knowledge base and practice of merging Internet technologies with education and teaching in general.

### **Early Field Experience and Teacher Education Program**

Participants in this research were teacher candidates, university faculty, and mentor teachers at a Mid Atlantic, Historically Black College and University that is a State Land- Grant University. These participants were associated with an NCATE approved Teacher Education Program. This university was originally established as teacher-preparation institution and places a high priority on teacher quality and k-12 student learning. The university continues to be a primary institution for statewide teacher preparation and has cultivated strong working partnerships with local K-12 school districts. As a Historically Black College/University (HBCU), the University has a tradition of quality teacher preparation programs, having received its initial Middle States accreditation in 1947. The institution has been well regarded for its teacher education program and more recently, for development of its Masters and Doctoral studies in Educational Administration, Leadership, and Supervision. The teacher education programs are accredited by National Council for Accreditation of Teacher Education (NCATE). The conceptual framework for teacher education affirms the goal of developing highly qualified teachers for the twenty-first century with diverse populations.

The teacher education program is fully described in web based documentation and printed sources of information including the University Catalogs (University Publications, 2010). The program combines a balance of theory and applied practice, while providing quality teaching experiences with an emphasis on diversity and special needs. The learning environment is flexible and student centered where the faculty view candidates as both learners and professionals who contribute to intellectual capital of the university. In addition, the faculty maintains collaborative agreements with schools districts, agencies, and companies who will potentially employ graduates of the program. This helps to keep the curriculum current, innovative and highly engaging for program stakeholders.

All students in this study were admitted to the Teacher Education Program (TEP) as a result of filing an application with the Council for Professional Education (C.P.E.). The Council for Professional Education is an advisory body to all Teacher Education Programs (TEP). The Council is composed of representatives from each department at the University with a teacher education curriculum, the Education Department Chairperson, the Director of Student Teaching, the Coordinator of Field Experiences, Primary Program Coordinator, Early Care and Education Coordinator, Special Education Program Coordinator, Secondary Education Program Coordinator, Content Area Program Coordinator, students and other appointed University representatives. The Education Department is the administrative body for the Professional Education Unit and the Council for Professional Education (CPU).

The Teacher Education applicants were recommended by a faculty member, academic advisor, and respective departmental chair. All applicants were required to have a cumulative grade point average of 2.5 or higher on a 4.0 scale and were expected to take the PRAXIS I by the end of their freshman year and pass all three sections the PRAXIS I by the end of their sophomore year. Satisfactory performance on the PRAXIS-I is a prerequisite for admission to the Teacher Education Program. The chair of the Education Department with a designated committee will reviews each application for admission and submits a list of students for final approval to the Council for Professional Education(University Publications, 2010).

Prior to student teaching, all education majors must participate in early field experiences (EFE). Field experiences are required for designated content method classes and courses within the Education Department. At this stage, these students are introduced to using the online tools for EFE assessments. Students are expected to be professional: dress appropriately, be on time, maintain appointments, and meet expectations of the course given by the instructor. The field experience begins with a course titled Philosophical Foundations of Education. Students are expected to obtain between 60-100 clock hours of field experiences depending on the program and academic department. These hours are in addition to student teaching internship. Students must keep a log of their hours and submit copies to both the Early Field Experience coordinator and to the faculty teaching the EFE course. There are four phases to field experience: Phase 1 - observation, Phase 2 - observation with minimal participation, Phase 3 - practicum, and Phase 4 – student teaching internship placement. Candidates will participate in each phase and have a variety of experiences at different age levels within diverse populations of k-12 students (University Publications, 2010).

The student teaching internship occurs during the last full semester of enrollment prior to graduation and is considered the culminating experience for students in Teacher Education. Internships consist of a 14 week, on-site placement with a minimum of 65 days and or 200 clock hours. Students are not permitted to register for additional courses without approval from the Council for Professional Education (CPE). Candidates who successfully complete student teaching then apply for an Institutional Recommendation for Certification through the Office of Clinical Experiences. Students' preferences are taken into consideration in making student teaching assignments; however, final determinations of placements are at the discretion of the Director of Student Teaching and/or Chair of the Education Department (University Publications, 2010).

### **Electronic Tools for Assessing Teacher Candidates Competencies**

The National Center for Education Research, Institute of Education Sciences is engaged in empirical research about structuring classrooms for improved student learning (USDOE, 2009). Much of this research also supports integrated assessment for better teaching and learning (Darling-Hammond, 2010). For example, tests and quizzes are tools for identifying content that has been learned and content that needs to be learned in a formative way. The empirical research also validates that quizzes help to introduce topics and to promote learning by re-exposing students to information. Researchers are exploring educational tests and measurements as they apply to the modern classroom and how these tools are used to address the individual needs of diverse students and students with special needs (Allen, 2006).

Topics related to this research often include performance and portfolio assessments, best practices in educational measurement, authentic assessments, technology for assessment, and contemporary issues such as the impact of “No Child Left Behind.”

In her study of the use of technology for teacher field experience, Snider found that interns and mentors teachers were receptive to technology integration into the field work. However, many

participants stated concerns about the lack of modeling good use of technology in the public school classrooms and the lack of access to instructional technologies by teachers and students in these schools. Snider's study indicates a transition stage for many teacher preparation programs. This particular transition entails student teachers/interns and faculty mentors moving from traditional tools to web-based and technology-based instructional technologies and assessments.

Educators need skills and knowledge about measurement and assessment to address the complex issues and challenges in today's classrooms (Astin, 1996). Technology provides various advantages for implementing an assessment plan and for addressing specific needs of each individual learner. Foundational knowledge about the essential psychometric concepts combined with skill in implementing assessment technology enhances the effectiveness of teachers and administrators. Assessments are essential for best practices in education.

Mayer explored using information and communication technologies in the practicum component of pre-service teacher education. Because these interns often feel disconnected from their university faculty and peers, using online discussion forums and web-based interaction tools provides meaningful interactions and support for these student teachers. Mayer describes these learning spaces as resources for personal and professional networking and support. In addition to formal assessments, students are able to reflect and share about their successes and challenges of their field experiences. The challenge for University Supervisors relates to achieving higher levels of reflections that might, for example, examine the outcomes, consequences and equity of professional practices.

Teachers who develop useful assessments, provide corrective instruction, and give students second chances to demonstrate success can improve their instruction and help students learn. Highly qualified and effective teachers have both the knowledge and skill to integrate assessments into their teaching, for enhanced student learning (Guskey, 2003; Reynolds, Livingston, & Willson, 2006).

Additionally, highly skilled and effective teachers differentiating instruction based on student growth, development, and cognitive capabilities (Kirk, Gallagher, Anastasiow, & Coleman, 2006). These teachers know the educational implications of human development throughout life span. There has been much recent research about teaching and the development of school programs, with an emphasis on identification of exceptional learners and the understanding of their educational needs. These issues include Understanding by Design (UbD), best practices for individualized learning, legal implications of inclusion, and contemporary issues in human growth and development in diverse learning environments.

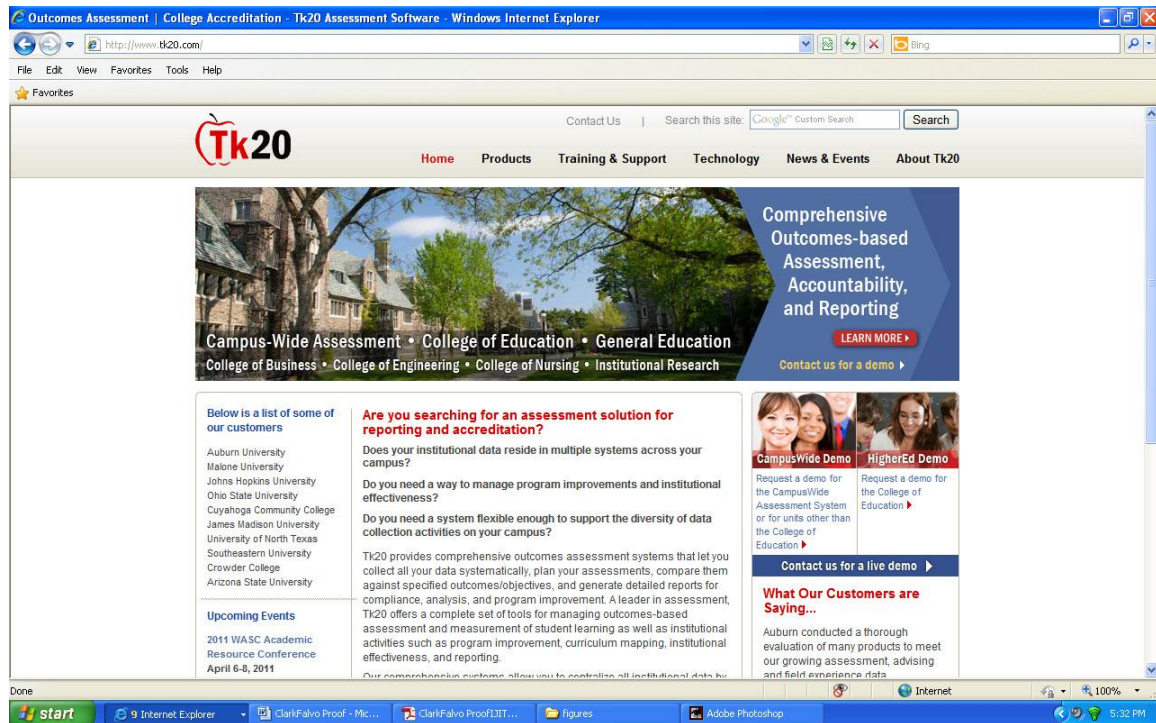
Educators need skills and knowledge about individualizing instruction to meet the specific learning needs and situations in classrooms of diverse learners. Today, educators are challenged with the demands and complexities of a wide variety of diversity among learners and high expectations for results in terms of public opinion and political regulations such as No Child Left Behind. School professionals in leadership positions need to understand the varied theoretical and philosophical orientations that significantly impact upon the principles and practices of individualized education and program development.

Everhart and Hogarty (2009) discuss the use of online assessments to document preparation levels and identify strengths and areas for improvement in teacher preparation programs. In addition to helping interns maximize their experiences in the field, electronic assessment tools have the potential to guide program improvement at the University level. Rieg and Wilson (2009) found that University faculty members ranked in-class applications and problem solving activities, small group discussions and brainstorming as effective instructional strategies for students engaged in field experiences. However, the results of this study indicate that professors are not always using in their classrooms what they deem to be the most effective of instructional



activities, especially in terms of enhancing practicum experiences. The University faculty members in this study rated tests and quizzes as being less effective in assessment when compared to attendance, projects, and class participation.

Ma and Rada (2005) explored the use of a Web-based Accountability Model (WAM) for assessment and leaning in a teacher education program. Their research helped to redesign teacher education in terms of curriculum, program, and operation. In particular, the use of online performance tools provided a systematic form of accountability and assessment of teacher candidates.



**Figure 1: TK20 Assessment System Home-Page**

TK20 is an assessment, accountability and management system to help colleges and universities meet requirements for accreditation. TK20 stands for "Technology in Kindergarten through Age 20." This system provides a standards-based form of assessment tracking for data management for the PEU. Participants in this study used TK20 as the primary assessment tool in terms of competencies and requirements of the program and eventual certification. Teacher candidates are able to upload artifacts and assignments into the web-based system. Faculty and mentors are able to grade projects and assignment using grading rubrics.

Faculty and mentor teachers also assess student teaching performance and lesson planning using online assessment forms specifically designed for each teacher education program. Additionally, student dispositions are self-assessed and assessed by teacher education faculty and mentor teachers. All data is managed within the TK20 system and is used to assess performance and to assess the education department's performance in terms of standards for accreditation of their programs.

## Teacher Work Samples

The Teacher Work Sample assessment instrument is the product that was produced through the efforts of the Renaissance Partnership Project. The 1999 US Department of Education Title II

grant focused on the enhancement of teacher quality for teacher preparation programs. The eleven founding institutions wanted to create a system that would properly measure a candidate's ability to impact student learning. The senior capstone helps to create an instructional snapshot of a unit that interns deliver to student in the classroom (University Publications, 2010).

Teacher preparation institutions across the nation experience some of the same unique challenges. This collaborative effort from the original members of the Renaissance group is a prime example of a true partnership that has been very successful. Regarding this University, the local and surrounding school districts have embraced the work sample as a valuable teaching tool. The mentor teachers have become very familiar with the components and how it is utilized in the classroom setting.

The screenshot displays the TK20 CampusTools HigherEd interface within a Windows Internet Explorer browser. The page title is "University Education Department". The navigation menu includes Home, Courses, Artifacts, Portfolios, Surveys, Advisement, and Field Experience. The "My Courses" section is active, showing tabs for Current Courses, Previous Courses, Future Courses, and Pending tasks. A table titled "Courses Taught" lists several courses with columns for Number, Course Title, Section, Outcomes, Status, Subject, Term, Time, Location, and Credit Hours.

Number	Course Title	Section	Outcomes	Status	Subject	Term	Time	Location	Credit Hours
EDUC-331A	METHODS TCHG SCIELEMMID LEV	1	<a href="#">View Outcomes</a>		EDUC	201103 - Spring 2011		1/ EH/ 1st floor/ 241 241	3.0
EDUC-344	INSTRUCTIONAL TECH IN ED	1	<a href="#">View Outcomes</a>		EDUC	201103 - Spring 2011		1/ BOA/ 1st floor/ 206 206	3.0
EDUC-344	INSTRUCTIONAL TECH IN ED	1	<a href="#">View Outcomes</a>		EDUC	201103 - Spring 2011		1/ MH/ 1st floor/ 203 203	3.0
EDUC-655	PHILOSOPHICAL FDNS OF ADULT ED	1	<a href="#">View Outcomes</a>		EDUC	201103 - Spring 2011			3.0
EDUC-659	ADULT LRNG CHAR & ALT DEL SYS	60	<a href="#">View Outcomes</a>		EDUC	201103 - Spring 2011			3.0
EDUC-683	USING TECH TO ENHANCE STU LRNG	60	<a href="#">View Outcomes</a>		EDUC	201103 - Spring 2011		1/ EH/ 1st floor/ 111 111	3.0

Figure 2: Sample of TK20 Interface

One of the key segments of the capstone is the learning goals the students. Here the interns must align the goals with the learning goals of the participating district. This ensures that the goals of the work sample are the same goals of those of the classroom teachers. Teachers are very mindful of the standards by which students will be expected to master. State and Federal mandates have prompted teacher to be more aware of student achievement.

The classroom teacher of record is ultimately held accountable for the academic progress of their students. This is one of the realities that we want to infuse into our internship and the minds of our students in the program.

## Method

This mixed methods study explored the use of online electronic tools for supervision of pre-service teacher education students while they engage in field experiences including student teaching. Primarily the study investigated how these tools were integrated and how the faculty, supervising teachers, and students perceived the tools in terms of support for the experience. Data

for the study were collected via access to reports in the TK20 system, and through a series of surveys conducted to ascertain perceptions about the effectiveness of the electronic support tools.

## Results and Conclusions

Participants of this study (n=58) consisted of 15 to 20 members of three groups, which were Supervising teachers, faculty members, and pre-service teachers. Of the 58 participants, 39 were females and 41 participants reported prior experience using electronic assessment tools and most of the participants had experience using educational technology.

**Table 1**  
**Results of Likert Scale Questions**

Item Description	Student Interns			Mentor Teachers			University Supervisors		
	(N)	Mean	SD	(N)	Mean	SD	(N)	Mean	SD
Use of Electronic Assessments	28	3.2143	.68622	16	2.9375	.68007	14	3.2857	.82542
Good Use of Technology	28	3.1071	.49735	14	2.8571	.53452	14	3.2857	.82542
Assessments Enhance Student Learning	28	3.0000	.72008	16	3.0625	.44253	14	3.1429	.86444
TK20 Is An Effective Tool	24	2.5000	.78019	15	2.6667	.61721	24	2.5000	.78019
TK20 was Easy to Use	25	2.3200	.94516	16	2.3750	.88506	14	2.7143	.99449
TK20 was Valuable	23	2.4783	.79026	15	2.4000	.91026	14	3.1429	.77033
Paper Based Assessments Preferred	27	2.5185	.80242	16	2.5625	.89209	13	1.7692	.59914
Assessments were Easier Via TK20	24	2.2500	.73721	15	2.8000	.77460	14	3.2857	.61125
Field Experience More Effective	23	2.2609	.81002	16	2.1875	.91059	13	2.8462	.98710
Directions Adequate	24	2.7500	.79400	15	2.5333	.63994	13	2.6923	1.03155
Grading Criteria Meets Objectives	22	2.9091	.61016	14	2.7857	.57893	12	2.9167	.79296
Creativity using Differentiated Instruction	22	2.5909	.73414	15	2.4000	.73679	12	2.8333	.93744
Language is Clear and Concise	21	2.9524	.58959	14	2.7857	.42582	12	2.7500	.75378

Most participants (90%) felt that electronic performance assessments make good use of technology for learning and many (85%) believed that these tools enhance student learning. However, participants were less confident about effectiveness of TK20 as an assessment tool and almost half of them reported that TK20 was difficult to use. Although 64 percent of the participants reported that electronic assessments were easier to use than traditional, paper-based forms, 54% felt that the electronic assessments did not help make the field experience more effective.

Among the three particular groupings (Student Interns, Mentor Teachers, and University Supervisors) results from all three groups were in support of electronic assessment tools. The three groups were less confident in the effectiveness of TK20, where there mean scores were mid-range on the scale. All three groups were in the same range when asked about the ease of use of TK20. Interestingly, only the University Supervisors group felt that TK20 was valuable. Even so,

all three groups did not prefer the traditional paper-based assessments. The University Supervisors rated the ease of use of TK20 assessments the highest, while Student Interns gave the ease of use of TK20 the lowest rating. The Student Interns and Mentor Teachers indicated less confidence in TK20 making the experience effective compared to the University Supervisors.

Scores were relatively similar on the last three Likert items on the survey. Both directions and clarity of language in the system were rated slightly above average. Similarly, objectives and creative use of differentiated instruction were both rated slightly about average by all three groups.

Both the Student Interns and the Mentor Teachers highest ratings were for using electronic assessments, stating that these assessments are a good use of technology, and that they enhance the learning experience. The University Supervisors highest ratings were for using electronic assessments, stating that these assessments are a good use of technology and that assessments were easier by using TK20.

This study shows that teachers, faculty, and teacher candidates (the inclusive teacher education program) have much interest in using electronic assessment tools, but they are less confident that electronic assessments are much more effective than traditional paper-based forms. However, the results indicate that the electronic assessments are much easier to use and likely require less effort to complete.

Future research and improvements should focus on how electronic assessment tools may be used to improvement the teacher education program. One idea that has been explored is to expose candidates to our electronic tools much earlier than in previous years. Students would start to submit assignments and learn the critical functions of TK20 data collection system in their freshman courses. This would allow students to build a comfort zone by the time they reach their senior capstones phase.

Mentor teachers that collaborate with an early field experiences may also get an opportunity to participate in lesson preparation that utilize the TK20 system. Perhaps case-study research would be a useful tool in understanding the barriers and challenges of using and developing these tools for teacher education.

Last, because technology serves as a tool for practitioners in the educational professions, it behooves teacher educators to embrace this tool in ways that make their work with interns efficient and effective. Using technology to implement valuable assessment data enhances the teacher intern experience as well as the teacher education program.

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**Editor's Note:** With an increasing array of communication tools to support teaching and learning, teacher training institutions and school administrators must be aware of what is needed and how it will be used. Tools such as PowerPoint have become standard fare, but the question is, what else is needed by teachers and students to promote excellence in teaching and learning?

## Investigating Ways of Enhancing Online Research

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### Abstract

We live in an era characterized as 'the Digital Age' and the ways in which we engage in teaching, learning and research are evolving with the increased use of digital technologies. This paper describes a study that investigated the ways in which a cohort of Education students in Victoria, Australia engaged in online research projects using Information Communication Technologies (ICT) as the main form of communication during the research process. When an array of technologies, related resources and training are made available to staff and University students, what are the key influences that effect their adoption and application of the selected mediums? Understanding the answer to this question is important in informing instruction and technological pedagogies for distance education and research. Data was gathered from students and their research supervisors via the use of online surveys. The research identified a number of key factors that influenced people's preferences for using certain digital technologies. The study revealed that there was a tendency for people to prefer the use of asynchronous forms of digital communication. It is argued that more research is needed in this area in order to improve the application of online modes of communication and ensure that those researching via distance/technological modes are not disadvantaged in their research and learning experiences.

**Keywords:** online research, online teaching, distance education, web based, web based instruction, educational technology, asynchronous, ICT, information communication technologies, online.

### Introduction

Scholarship and research in teaching and learning have always been of utmost importance to Universities. As Information Communication Technology increasingly becomes a part of our lives, its application within the University as a form of communication, a teaching tool and a resource, amongst other things, has emerged strongly. There is a significant increase in the number of students and faculties involved in online education (Maddux, Sprague, Ferdig & Albion 2007). Many educational institutions are exploring the utilization of electronic learning environments and the study of online units (Williams 2002). The teaching methodology of higher education is changing as a result of online teaching (Greenwood 2000, Warren & Holloman 2005). The context of the study under discussion is quite unique in that the focus is upon the conduction of supervised 'online research projects', as opposed to the common focus in the literature upon 'teaching and learning online'. The study took place in a University in Victoria, Australia and focused upon the ways in which students and academics that were engaging in a wholly online research Unit of Study communicated with one another and developed their final research project assessment task.

### Context

The participating cohort of students was Education students in a University in Victoria, Australia, undertaking a core online unit of study as a part of their Degree. These students are categorized as 'Pathways' students, the majority of whom had previously completed a Diploma of Children's Services (or equivalent) at Technical and Further Education (TAFE) colleges and now were

studying their 2<sup>nd</sup> and final year at University in order to upgrade their qualifications to a Bachelor of Early Childhood in Education. For the majority of students, it was the first time that they had studied solely online. The students engaged in online research projects using Information Communication Technologies (ICT) as the main form of communication during the research process.

## Review of the Literature

There is a range of benefits associated with the conduction of online units of study. However, there is also a range of associated problems that commonly arise and issues that need to be addressed (Williams, 2002) to better promote learning and research. Prior research has identified the importance of creating a nurturing and communicative, supportive culture between students and facilitators in enhancing the online learning experience (Weller and Mason, 2000; Hara and Kling, 1999). Alexander (2001) argues that students also value prompt and informative feedback from educators, clearly communicated course expectations and high levels of online activity. Amongst recent research literature there are reports about online ‘group work’ in Teacher Education (An & Kim, 2006), the use of online lectures (Nast, Schafer-Hesterberg, Zielke, Sterry & Rzany 2009, Bassili & Joordens 2008) and the issue of ‘participation’ in online learning (Vonderwell & Zachariah 2005). Much of the research is about ‘teaching’ and ‘learning’; however, this study focuses upon online ‘research’. Niemiec, Sikorski & Walberg (1996) and Bassili & Joordens (2008) highlight the importance of ‘learner control’ in online learning environments and, in this light, this study aimed to give its participants increased control over the technological choices made for communication and presentation purposes.

Synchronous communication describes that which takes place in real time with learners and teachers involved in the communication process simultaneously whilst online. Asynchronous communication involves delayed communication and takes place between individuals over a period of time, for example via discussion board or electronic email (Joliffe, Rotter & Stevens 2001). Asynchronous communication, being a cost effective and flexible mode of communication, is typically adopted for distance learning (Williams 2002). At the end of her literature review on Asynchronous Learning Networks in Higher Education, Scagnelli (2006) concludes that there are insufficient ‘specific guidelines on how to design effective asynchronous online instruction in order to encourage interaction and learner satisfaction’ (2006:14). In order to better understand online research, teaching and practice, this project involved consciously providing opportunities for students and staff to select from an array of synchronous and asynchronous communication technologies and to gauge the influences upon the decisions made. In this manner it is hoped that this study would further the pursuit of identifying core principles for effective online communication.

## Methodology and Data Collection

This study investigated the experiences of undergraduate University students and academic staff working together using online technologies in a purposeful and effective manner to support the research process. To satisfy the requirements of this Unit all students were required to work in small groups, based upon common interest areas and to develop a topic of focus for a small inquiry based research project. The project was to be completed over a period of one Trimester (equivalent to 12 weeks) and was to be supervised online by an Academic Supervisor who had expertise in the selected area. As this was a wholly ‘online’ Unit, many of the participating students and staff were from different campuses of the University, situated in geographically distant places. All groups were expected to use online information communication technologies to communicate regularly with one another and their designated Group Leader was to communicate regularly with the academic Project Supervisor in order to establish a research



topic, research questions and a research plan that would drive them to complete the associated research tasks.

Throughout the Trimester, all research groups had a selection of ICT communication modes specifically available to their group, offering the choice of ‘asynchronous and synchronous’ online communication. The University’s online system was supported by a Learning Management System platform called ‘Blackboard’. Each research group was provided with its own private online space which was to be utilized for communication and planning purposes. Within these spaces were the following technological tools:

- **A Discussion Board** that could be used as a private forum or email space
- **A Wikipaedia**, commonly known as a ‘wiki’, was used by each group to present their group’s work at each stage of the research. Wikis, however, are most useful as a collaborative space in which to build knowledge together and to share ideas etc. In this way they can be used for communication purposes, for the gathering and sharing data.
- **An E-Live space**, this space allows people to meet together online in real time; also considered as ‘live’ time. Using this space allows the option to converse with one another, via microphone and speakers/headsets, to share and discuss information that can be displayed through a range of Microsoft Software such PowerPoint, Word, Excel, etc., or even to see and interact with one another online via the use of web-cameras.

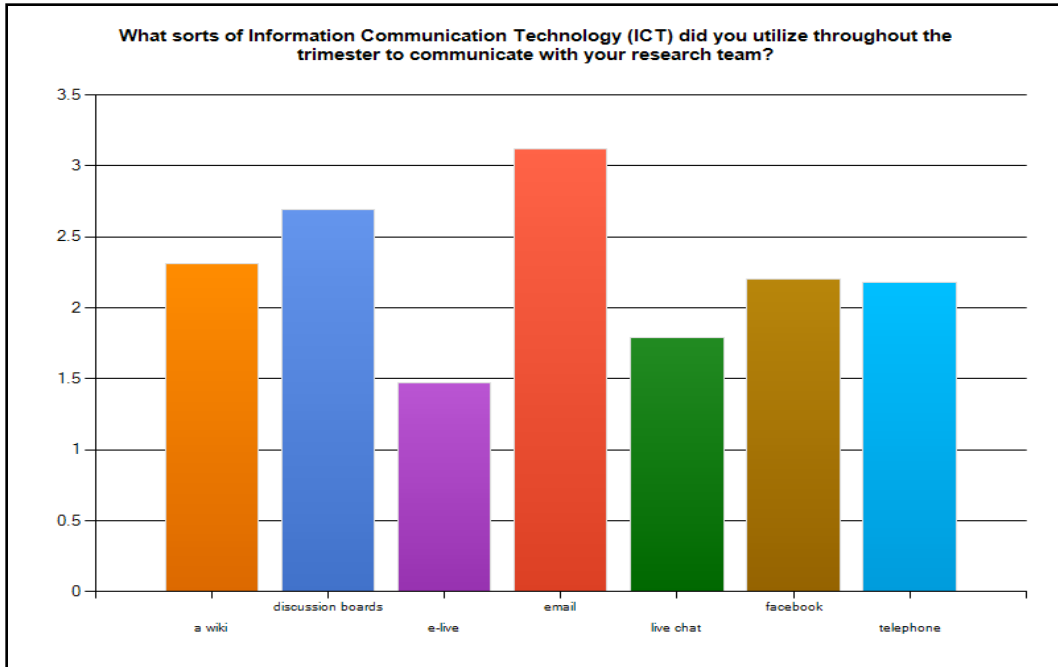
Additionally, all participants had their own pre-existing University email addresses that could also be utilized.

Data collection was in the form of “Online Surveys” with participation being voluntary and the responses anonymous. The questions were comprised of a collection of multiple choice, Leichardt scale ratings and short answer formats. This method was selected as the surveys were viewed as a means of ensuring a quick return and minimized time and effort required on the part of the participants.

Two online surveys were developed for each group; the students and the Academic supervisors. The first survey for each group was released at the beginning of the Trimester period and the other conducted at the end of the Trimester, after the completion of the assessment period. The surveys were developed as a means of receiving feedback about the array of technologies available, the reasons for the selections made and the effectiveness or ineffectiveness of this technology. In this way, successful components and core issues that arose in relation to working in an online environment were identified.

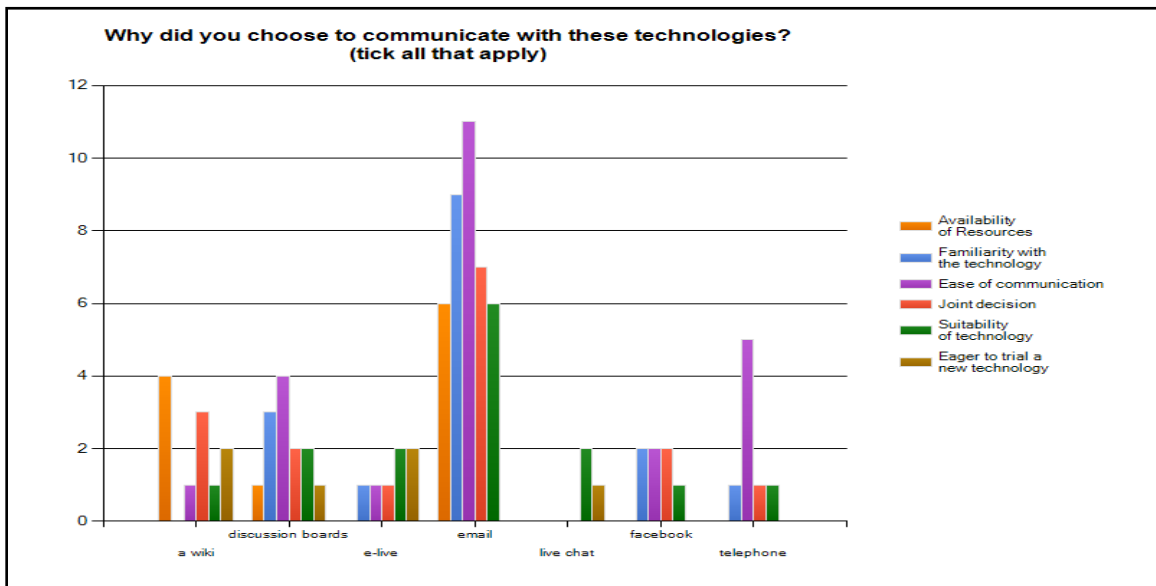
## **The Key Findings**

The research results revealed that all available modes of online communication on the Blackboard system were utilised by the students, in addition to the use of the social networking site ‘Facebook’ and communication via telephone (see below Figure 1). Furthermore, the Staff and Students agreed that it was important to be given the choice from a range of technologies in order to effectively engage in the Supervision and research processes in an online environment.



**Figure 1. Communication Technologies used.**

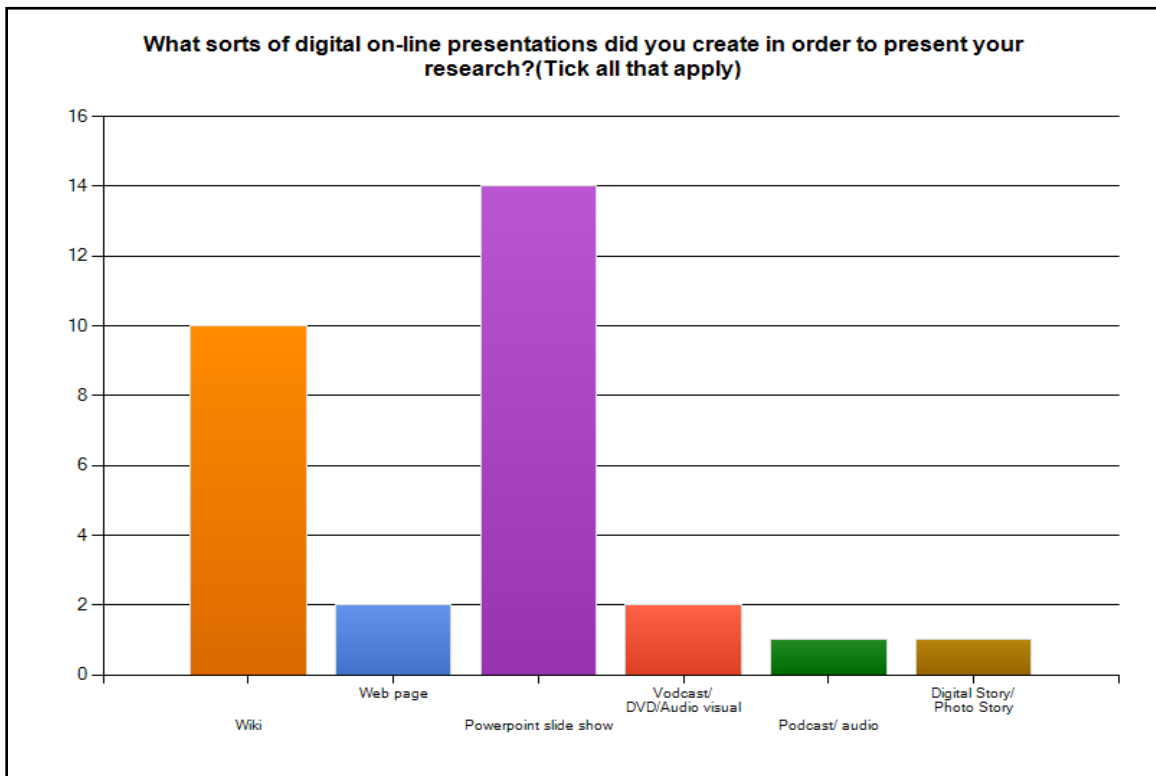
As shown in Figure 1, there was a notable preference to use familiar asynchronous modes of online communication such as ‘email’, the ‘group discussion board’ and the group’s wiki, even though there were synchronous modes of communication available. The survey results represented in Figure 2 (below) demonstrate that this preference for using asynchronous modes was influenced by group decisions to select these largely due to ‘the ease’ of using these modes of communication and people’s pre-existing ‘familiarity’ with them.



**Figure 2. Reasons for ICT choices.**

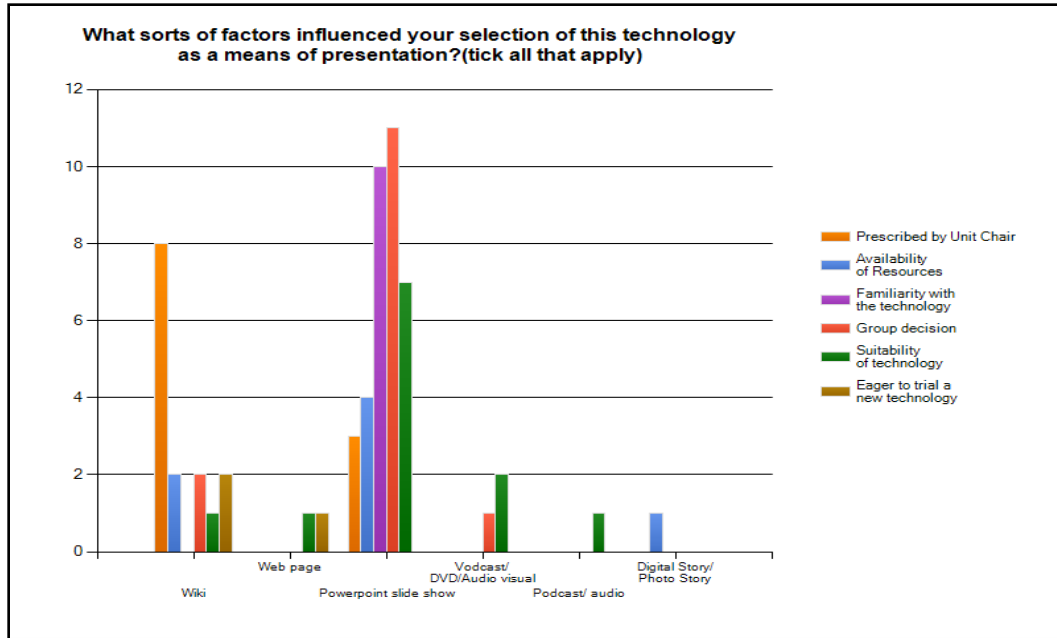
As a part of their assessment the students were required to demonstrate the knowledge that they had acquired from their research investigation in a manner in which the knowledge accrued could be shared with their profession once they entered the field of Early Childhood teaching. A range of digital options were available for them to present this information in any digital form. The preferred presentation types are represented in Figure 3, listed here in order of popularity,

- 1<sup>st</sup> Digital Slideshow
- 2<sup>nd</sup> Wiki
- 3<sup>rd</sup> Webpage /Vodcast
- 4<sup>th</sup> Digital Story/Podcast



**Figure 3. Digital presentation to present research**

The use of PowerPoint slideshows was the most popular digital means of presentation, selected via group decision. This choice was largely influenced by people’s familiarity with the technology, followed by its suitability, availability and lastly, the newness of the technology for a few people (see Figure 4. below). The second most popular mode of presentation was the Wiki, however, as mentioned earlier, each research group had its own Wiki in which they were required to develop and present each stage of their group’s research; the group members, research questions, literature review, etc. This explains the left column representing the Wiki as being prescribed by the Unit Chair of the Unit.



**Figure 4. Factors that influenced selection.**

In the survey, the students were asked to identify any barriers that prevented them from trying any of the technologies made available to them within the Unit. Seventy percent of the student participants gave responses that identified lack of familiarity with the technology and lack of time as the main factors limiting their selection of technologies. The following two quotations are examples of this,

“I was not familiar with the wiki, and as this subject prescribed it, I spent a lot of time getting familiar with it. Therefore I didn't use other technologies such as E-live, or live chat, as I was also unfamiliar with these, and didn't have enough time to learn them all. My other group members were also learning about the wiki, so we used our group Discussion Board as our main communication as we were all familiar with this”

“Time played a big factor - I felt I didn't have much time to be learning new technology methods as I had so many other tasks to complete (in University and in life)”

Murphy's (2004) study sought to measure collaboration in online asynchronous discussion and defined 'producing shared artifacts' as the highest category of the collaborative process. The student participants in this study all developed shared digital artifacts with their groups via online communication and although not reported here this may be an indicator that the collaborative process was engaged in successfully.

In summary, when an array of technologies and related resources for training are made available to staff and University students, there are key influences that effect their uptake and application of the selected mediums. This research revealed that 'asynchronous communication' was preferred over synchronous modes and that digital PowerPoint presentations were the preferred method of public presentation, largely due to the perceived 'ease' and pre-existing familiarity with these technologies, followed by the availability of the technology and its suitability to adequately fulfilling the set task. The research identified these areas as key factors that influenced people's preferences for using certain digital technologies in online research for communication and presentation purposes.

## Implications and Conclusions

Universities need to address the pedagogical issues that arise in relation to the use of online technologies and accept the responsibility to provide online Units that are innovative and characterized by excellence in learning and teaching. I concur with Warren & Holloman (2005) and Williams (2002) that more research is needed in the area of online instruction. If students are simply opting to only use 'familiar technologies' because of their perceived ease of use, then there may be other valuable, technologies that they are lacking exposure to or not learning to use. It is suggested, therefore, that Education providers build the following into their courses: the provision of time for students to become familiar with, and develop a working knowledge of a range of ICT modes, resources and tools. In this manner students will be well equipped to readily draw upon and implement these ICT's as necessary, throughout their educational life journey. Engaging in online teaching and research is a complex process, not only requiring students and staff to be prepared for the use of technology, but also the changes that it brings to pedagogical practice, altered social roles and ways of developing shared understandings.

As Universities seek to cater to students nationwide and abroad that wish to study and research via distance, online modes, it is important, that the providers of those courses seek to ensure that the learning experiences provided by the courses are relevant, innovative and responsive', to provide excellence, developing collegiality amongst its students and staff and commit to continuous improvement. It is hoped that the findings from this study assist others to refine the development of online units of study for future use and thereby contribute to the ongoing improvement of online research and online units of study.

Universities have a responsibility to provide, maintain and improve online units of study. University students, who are required to balance work, family and study commitments for extended periods of time, appreciate the flexibility created by online study (Ginns & Ellis 2007). Given the continuing growing demand for online education (Kim & Bonk 2006) it is imperative that Higher Education institutions continue to strive to provide quality online programs.

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**Editor's Note:** It is important to explore the educational opportunities and cost-benefits offered by different technologies to determine what works best for the various teachers, students, course content, and instructional management systems. This study compares synchronous and asynchronous aspects of a system that originates lessons in a virtual classroom and a face-to-face classroom.

## **Overcoming Challenges of Distance Education: Instructional Technologies**

**Bomna Ko and Boni Boswell**  
USA

### **Abstract**

The annual growth of distance education has dramatically increased in many institutions of higher education during the last five years. Key benefits of distance education courses are convenience and flexibilities of time and space. However, numerous authors have identified challenges in distance education: student isolation and quality issues related to delivery systems (Hentea, Shea, & Pennington, 2003; Legault, 2007; Schmieder, 2008). This study presents two instructional applications, Centra and Mediasite, to respond to selected challenges in a graduate distance education course. The Centra program allows students to attend a live lecture and/or watch recordings of the lectures at a later time. The Mediasite program records and publishes a face-to-face lecture for students in traditional and also in distance education courses. The program features are reviewed to compare the benefits and selected challenges of online education, specifically: a) facilitation of interactions and live interaction, b) freedom in space, c) technology delivery problems, d) facilities and equipment, and e) availability of recorded session. This study encourages online instructors to review course needs and adopt technology tools that are appropriate for their specific courses.

**Keywords:** distance education, instructional technology, Centra program, Mediasite program

### **Introduction**

During the last five years, the annual growth of distance education or on-line education has dramatically increased in many institutions of higher education. The growth of online programs was addressed in a national study (Allen and Seaman, 2010) that surveyed 2,500 higher education institutions in the USA. Allen and Seaman (2010) reported that the majority of chief academic officers indicated that the USA economic downturn “created an increase in the demand for both face-to-face . . . courses and programs . . .with far more respondents reporting increased demand for online offerings than for face-to-face courses and programs (p. 7)”. Allen & Seaman (2010) reported that in 2008 the overall growth of the student population in higher education of 1.2 percent was dwarfed by the 17 percent growth of online education in higher education. Several factors have been identified that have stimulated this sharp increase of online education, but economic conditions appear to be a central underlying reason. Nguyen (2010) discussed other rationales for the increase in demand of online education that included the need of institutions to expand opportunities for present students as well as to attract new students who are employed or have other constraints on mobility or time. Regardless of the reasons, the expansion of online education has presented challenges to faculty to provide quality online courses and programs.

While a variety of challenges in online education have been discussed in the literature, numerous authors have identified the following two areas of concern: student isolation and quality issues related to delivery systems (Hentea, Shea, & Pennington, 2003; Legault, 2007; Schmieder, 2008). The purpose of this discussion is to present two live lecture types of instructional delivery technologies and to compare and contrast these systems in terms of the challenges associated with

reducing student isolation and selection of appropriate delivery systems. Suggestions are offered concerning how these challenges can be met to enhance the quality online education.

Before addressing the challenges of online education in relation to selected technologies, it is important to briefly review certain benefits of online education for students. From a student perspective key benefits of distance education courses have been identified as convenience and flexibilities of time and space (Hentea, Shea, & Pennington, 2003; Nguyen, 2010; Sawyer, 2000; Schmieder, 2008; Tinning & Evans, 1994). Opportunities to access learning materials when and where they choose allow students to be flexible in their schedules and physical locations. Students have the flexibility to continue course work thus expanding lifelong learning through distance education while maintaining their jobs and family responsibilities. One of the many examples of these benefits of online education was described by Tinning and Evans (1994). Their story of a full time teacher who is taking a distance education course for her graduate degree while caring for her children and maintaining a home exemplifies the conveniences and flexibilities in space and time which are inherent in online education.

In addition to maintaining these benefits, faculty also needs to address challenges in online education such as establishing effective avenues for interactions to minimize student isolation. Concerns about student isolation, primarily resulting from a lack of interactions among students and with the instructor has been voiced by students and noted by numerous authors (Angelino, Williams, & Natvig, 2007; Hentea et al., 2003; Holbein, 2008; Sawyer, 2000; Schmieder, 2008; Tinning & Evans, 1994). Schmieder (2008) emphasized that, “the biggest challenge in delivering online courses is to ensure that students don’t feel as though they have missed out educationally because they took an internet course” (p. 5). Hirschheim (2005) reported that 74% of the on line students surveyed voiced this concern. In general, most distance education courses require students to become independent learners but lack of interactions with instructor and among students can leave students lacking a sense of a learning community. As proposed by Rovai (2001), learning is facilitated by interactions between learners and promotion of interactions fosters a sense of belonging. If students develop a sense of belonging to a learning community, students are more likely to persist in problem solving and ultimately more likely to complete their academic studies. On the converse, those students who feel isolated in online courses are more likely to “feel confused or angered by assignments” (Hentea et al., 2003, p. 162) or may be unmotivated to complete a program (Ury, 2004).

Another significant area of challenge in distance education relates to issues surrounding the quality of the delivery system of course content (Schmieder, 2008; Tinning & Evans, 1994). To meet this challenge, many faculties feel the need to increase their knowledge and understanding of the types of instructional delivery technologies available so that they will be able to select appropriate technologies that fit the needs of their diverse students. This area can be related to a number of factors such as appropriateness of course content for online delivery, instructor skills in teaching and learning technologies, and the diverse learning styles of students. Effective delivery of online courses requires the teacher to choose effective teaching methods that satisfy students’ diverse needs and that increase retention rate of on-line students (Schmieder, 2008). To overcome this challenge faculty needs to employ innovative instructional delivery tools that enhance student interactions in online learning activities using web-based technologies and/or live lecture formats (Hentea et al., 2003; Holbein, 2008; Schmieder, 2008). According to Hentea et al. (2003), computer-mediated and collaborative tools in the online classroom positively impact on student performance. For example, Holbein (2008) supports use of web-based technologies such as blogging, incorporating Skype, or instant chatting, to increase meaningful interactions between students and instructor.

Live lecture format can be a powerful tool as a delivery system and for fostering interactions. It also provides avenues for both instructor and students to appreciate and capture their personalities



and interests on-line (Hentea et al., 2003). Hentea et al. (2003) supported hybrid (blended) distance education which combines best aspects of both on-line and face-to-face learning formats. A variety of instructional technologies for distance education courses exist and can be utilized to offer web-cam/microphone face-to-face instruction in a virtual environment. However, for most faculties who are new to online education, it is difficult to find and select the most appropriate media programs that meet the purposes of the course and which facilitate specific course tasks. As stated, this discussion focuses on two specific live lecture types of instructional delivery technologies that have been utilized in a graduate distance education course; Centra and Mediasite programs. Comparing and contrasting selected features of these programs in light of the identified challenges of online education are presented below.

## **Personal Background of the Use of Instructional Delivery Systems**

The physical education teacher education program at East Carolina University transformed its graduate program to 100% distance education in 2008. Change of the program format resulted in rapid growth of student enrollment in the program, but also resulted in challenges such as stimulating interactions with large number of students and the instructor, and suitability of the delivery systems for certain instructional tasks. One of the courses that focused on analyzing and applying effective teaching practices led the instructor to seek instructional delivery technologies beyond the university's course management system, Blackboard. One of crucial tasks in the course was to learn effective strategies of analyzing teaching practices. This course utilized several observational instruments that cover teachers' instructional (e.g., intro/closure, demonstration, task statement, etc) and managerial (e.g., formation, routines, monitoring, etc) behaviors. Therefore, several training sessions were required to provide students with opportunities of hands-on mock coding using the selected instruments. The instructor's demonstrations and exemplary teaching video clips were presented before students used the instruments to analyze their teaching practices. Considering the above course requirements and the need for student interactions, the instructor incorporated two live lecture technology tools into the course: Centra and Mediasite programs

## **Instructional Technology Programs**

### ***Centra Program***

Centra is a web-based conferencing program that enables students to attend a live lecture and/or watch recordings of the lectures at a later time through internet connection. Once accessing the live class session, students can receive a lecture and be engaged in several interactive activities between students and instructor and among students using several tools, such as live text chatting as well as seeing and speaking with each other through use of web-cams and microphones. Sessions are controlled and led by not only the instructors but also designated leaders among students. The instructor or session leader can load power point presentations, image files, and audio and recorded video clips, to deliver lecture. He or she can use whiteboard as used in a traditional class within this virtual classroom. Table 1 shows specific procedures to prepare and lead the session for particular instructional tasks.

Once an institution purchases the program license, the Centra Client software program can be downloaded (step 1) on the institutional users' personal computer. A session is created by the instructor's request of a specific time and day, after which the instructor informs the students (users) accordingly of the session through e-mail (step 2). The instructor can load instructional materials including power point presentation and recorded video clips before the scheduled sessions (step 3).

**Table 1**  
**Procedure of Using Centra Program**

Steps	Activities
1	Download Centra Client Software
2	Request session event
3	Load instructional materials
4	Lead live session
5	Playback recording

Students are required to log in the Centra program to attend the live session on the assigned day and time (step 4). This allows the instructor and students to have live face-to-face and/or verbal communication (question, answer, discussion, etc) in the virtual environment during the session. The program enables students to “raise their hands” (by clicking on appropriate icon) to ask questions and instructor can provide immediate feedback. One of the most helpful features of this program is that it allows the instructor to designate four students to simultaneously appear on everyone’s screen through use of their web-cams. The instructor can exchange these four students for four other students, thus rotating the students who appear live on each computer screen. Following a power point slide show which describes the assessment instrument, the instructor can answer questions about the observational instrument and then code the teaching episode (recorded episode was loaded in step 3) in collaboration with students. The instructor and students share and discuss the results of the coding to clarify use of the instrument. The live session including text chat can be recorded and saved (step 5). All enrolled students who missed or attended the live session can watch a recording of the class by accessing to the Centra program. Whenever the instructor plans to incorporate a Centra session into the online course, step 2 through step 5 will be repeated to deliver the instruction.

### **Mediasite Program**

Mediasite is used but not limited to recording and publishing a face-to-face lecture for students not only in traditional, but also in distance education courses. When several students from a distance education course are able to attend the face-to-face lectures in-campus, the Mediasite program has utilized to capture full-motion and voice of the instructor and the students in the classroom and the multimedia presentation contents on the laptop. The program, therefore, records interactions and conversations between the instructor and the students in the classroom during the class. The rest of non-participants in the classroom session can watch the class live or later on-demand over the internet.

The procedure to utilize the Mediasite program is simple (see table 2). The class can be pre-scheduled to post a list of event schedules at online Mediasite catalogs for students in the course (step1). The instructor can run the class as he or she does in face-to-face classes without pre-loading any course materials (step 2). In order to expand audio capability, the instructor wears wireless mic and several mics are placed between students in the classroom. Mediasite recorders are operated automatically or manually to capture and record the face-to-face classroom environment and contents on the laptop. For this particular course task, the instructor explains the observational instruments and shows a video clip related to the instrument. In-class students complete the instrument with the instructor and ask questions to the instructor. These dialogs and instructor’s timely feedback that can be exist in the face-to-face setting (Hentea et al., 2003; Holbein, 2008; Schmieder, 2008) are recorded and published for non-participant students of the course. Students who do not physically attend the class in the classroom can watch the class live but cannot interact with the class through this program except through e-mail. All students can

watch recordings of the classes at later dates as sessions are automatically published on the Mediasite catalogs after each class (step 3).

**Table 2**  
***Procedure of Using Mediasite Program***

Step	Activities
1	Pre-schedule the class
2	Run in-class lecture
3	Watch recording

### **Comparison of Two Instructional Technologies**

The Centra and Mediasite programs are innovative new delivery systems that can be integrated into distance education courses. These delivery systems have similar and/or different functions, therefore, both pros, and cons. Centra program allows face-to-face meeting and class in virtual environment. Students can not only receive lecture but also talk and see each other during the session through the Centra program. Mediasite program provides students with accessibility to the face-to-face class over internet. Students who cannot attend the class in the classroom can watch the class live or later on demand. Given the function, these two programs have several features to consider in relation to the appropriateness for a certain instructional content. The features are reviewed in terms of the benefits and selected challenges of online education and categorized by: a) facilitation of interactions- live interaction, b) freedom in space, c) technology delivery problems, d) facilities/ equipment, and e) availability of recorded session.

**Table 3**  
***Comparison of Centra and Mediasite Programs***

Features	Centra	Mediasite
Interactions Facilitated	Yes, immediate interactions- Face-to-face class in virtual environment	Access to face-to-face class in on-campus classroom; off-campus students can view the session live, but limited to e-mail exchanges with instructor during sessions
Immediate feedback: Live Interaction	Yes	Only for on-campus students. Off campus students can only e-mail instructor during the class.
Freedom in Space	Yes	Yes, for non-in-classroom students. No, for instructor and in-classroom students
Technology delivery problems	Possible	Very Limited
Facilities/ equipment necessary	Mic, webcam	Mediasite Recorders
Recorded Session	Yes	Yes

#### ***Live Interaction***

Need of direct interactions among students and between instructor and students in distance education is pervasively acknowledged to foster student learning (Sawyer, 2000; Schmieder, 2008; Ury, 2004). One of benefits to use the Centra program is to adopt live interactions between

instructor and students and among students during the live lecture in virtual environment. Audio and video conferencing features of Centra program support providing real time face-to-face class in virtual environment. Several built-in tools (e.g., live text chat) allow communication between the instructor and students and involvement in the class through text and verbal. Users who attend the class live can see and communicate with the class instructor and other participants in the session by using their web-cam and microphone. However, a limitation of this feature is that it allows only four students to appear simultaneously on screens through web-cam videos. Though the instructor or session leader can select and switch the four web-cam users on the screen, it is difficult to guarantee that all participants are engaged and learning the course materials when a large number of students are involved because the program does not allow capturing all students at a time. However, it must be noted that the Centra program allows immediate class interactions and communication. The instructor needs to consider this limitation and plan how to maximize the live interaction feature in virtual environment for successful use of the program.

Mediasite captures face-to-face classroom setting including full motion of the instructor and participants and the contents on laptop. Students who attend the face-to-face class interact with instructor and other students in the classroom. The instructor can at least provide timely feedback to the participants and control class pace to a rate appropriate for their level of understanding and learning of the instructional materials. The rest of students who do not attend the classroom can watch the face-to-face classroom live, but cannot communicate in the class online. If the students want to interact or ask question, they have to seek for other program tool to send a message to the instructor, such as e-mail or other instant message tools.

### ***Freedom in Space***

One of advantages of distance education is freedom in space constrain (Hentea et al., 2003; Schmieder, 2008; Tinning & Evans, 1994). Distance education allows students who cannot commute to campus can attend courses online. Both Centra and Mediasite programs are accessible from anywhere over the internet. The Centra program specially has no constraint in space for both instructor and students to participate in the session because the session is absolutely conducted in virtual environment. Mediasite program of class session can be watched through internet access from anywhere. However, instructor and participant students in the face-to-face class experience constraint in space. They have to come to a particular classroom that Mediasite Recorders are set up to record the face-to-face class.

### ***Technology Delivery Problems***

Technology issues are unanticipated and generally faced issues in the distance education that requires internet connection for participation. Instructors should consider reliability of the technology tools when they select for their students to easily access to and utilize the program. Accessibility of the technology programs can be dependent upon but not limited to the students' network connection speed at their location, and system support at their own computer. Moreover, a program can cause common problems with the program system. Instructors and students can experience several technology problems when they use the Centra program. For example, students possibly experience difficulty in log-in the Centra program system. A certain amount of bandwidth and internet speed at the students' location should be maintained consistently to prevent from audio problems and downloading problems when loading course materials for the session during the class event. Students do report experiencing audio (hearing and speaking) and visual problems (e.g., pausing their web-cam). The greatest frustration that students report during the Centra session is difficulty in access to the video clips during the particular course lecture. Once this occurs, students can neither follow the lecture nor understand the content (particular observational instrument). In contrast, students experience limited technology issues with no processing or transcoding delays while accessing the Mediasite program. The Mediasite program

captures and presents content from instructor's laptop so students can see the course materials including video clips without having to download them onto their own computers. This helps results in limited technology issues.

### **Facilities**

Both Centra and Mediasite programs require facilities and specific equipment for successful use. Students in the Centra program should prepare and use web-cam and microphone to get involved in live interaction with participants in the sessions. The participants in the session can see each other through web-cams and speak through mics. When watching Mediasite session, students do not need any special equipment providing that their audio systems are working properly on their computer. However, Mediasite Recorders and wireless mics must be set up in the classroom to record the face-to-face class.

### **Recording Session**

Freedom from time constraint is another advantage of distance education along with space freedom. Both Centra and Mediasite sessions are conducted at a specific time schedule so students can experience time constrain. However, both programs allow students to access to and watch recording of the session later on demand. Students cannot get involved in the live interaction while watching the recording of the Centra session but can watch the session and read text chat content after the event. Mediasite program of recording shows face-to-face classroom settings including full motion and voice of the participants and contents on the laptop at any time during and after the session.

### **Discussion**

Limited use of a course management system leads distance education instructors to seek supplementary technologies (Hentea et al., 2003; Schmieder, 2008). This study introduced two technology delivery programs: Centra program and Mediasite. These programs are utilized to deliver courses of instruction that require students' practical level of understanding through hands-on mock coding using the observational instruments. The course materials include PowerPoint presentation and video clips. Understanding the significant features of technology programs with respect to major challenges can help faculty select a delivery systems that is most appropriate for their courses.

These two instructional technologies allow faculty to cope with several of challenges identified by research in this area such as student isolation and suitability for online delivery. Incorporating either of these systems into online courses can reduce the level of student isolation and provide appropriate delivery of course content. Distance education students feel isolated with limited interactions with instructor and among students (Anelino, Williams, & Natvig, 2007; Hentea et al., 2003; Holbein, 2008; Sawyer, 2000; Schmieder, 2008; Tinning & Evans, 1994). Live interaction function of the Centra program allows providing immediate feedback to students in a virtual environment. Students also have opportunities to interact and communicate with the instructor and/or peers. The Mediasite program allows interactions but it is limited to interaction between participants within the classroom setting. Suitability of a course for online delivery is another challenge (Schmieder, 2008). A variety of teaching materials can be loaded and delivered through both of these technology programs such as power point presentation, word document, voice and video materials, etc. This allows expansion of course material delivery in a virtual environment over the internet. In addition, access to the recorded sessions at later dates may help foster students' learning. These two technologies provides students with diverse avenues to learn the course materials regardless of time and space constraints.

This discussion was limited to introducing two technologies for instructional delivery in distance education. However, a variety of delivery programs have been developed and utilized in distance

education courses such as Camtasia and Second Life. It is incumbent on instructors of distance education to be “conversant with new technology” (Sawyer, 2000, p. 5) and to adopt technology tools that are appropriate for their specific course goals and tasks (Sawyer, 2000). In addition, administrative and technological supports and trainings at the institutional level are essential to enable faculty to offer quality online education programs.

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**Editor's Note:** Distance learning is much more than a delivery system. Under optimum conditions, it is an environment designed to engage the student in a learning dialog; empower the student to manage his or her own learning; and share access to rich learning resources and opportunities for interaction. Motivational strategies are key to successful participation in distance learning programs.

## **The Effect of Distance Learning on EFL Learners' Motivational Strategies**

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### **Abstract**

This investigation aims at evaluating the motivational strategies of EFL learners in the context of distance learning. For this purpose, fifty adult Iranian distance learners answered the MSLQ questionnaire, the results of which indicated that the distance learning has some crucial effects on EFL learners. Moreover, some implications related to distance learners and this newly-arrived system of education are presented.

### **Introduction**

A distance education system is identified as the answer to the problems of people who don't have access to the traditional educational system and are too busy to participate in traditional classrooms. Adult students turn to online instruction because of convenience, upgrading job skills, and the preference for independent modes of learning (Giles, 1999). Moreover, technological development has influenced educational systems, particularly foreign language learning. These factors may lead adult learners to choose a distance learning system as an effective mode of learning for their specific situation. Such systems may provide a situation (separation of teacher and students as well as students and their classmates) that will affect students' motivation, autonomy, and so on (White, 2003). Based on White (2003), this isolation and absence of face-to-face contacts will affect students' motivation. This paper focuses on issues involved in the distance learning context. Motivation and strategies used by students in distance learning will be evaluated.

### **Literature review**

The traditional model of education provides face-to-face teaching and learning contexts. However, the distance context involves learners from different time zones and places, and it can be regarded as answers to a globalization issue.

There are different definitions of distance education. Sometimes the terms distance education and distance learning are synonymous. There are several definitions of distance education and distance learning:

Distance education is planned learning that normally occurs in a place separate from the teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements.  
(Moore and Kearsley, 1992: 2)

Distance learning is an educational system in which learners can study in a flexible manner in their own time, at the pace of their choice and without requiring face-to-face contact with a teacher. (Shelley 2000:651)

### ***Studies on motivation***

Candlin and Byrnes (1995) found that absence of the peer support and social aspects of face-to-face classes will affect motivation levels of learners in distance educational systems.

White (1999a) conducted a longitudinal study of novice Japanese and Spanish learners studying by distance. She considered conditions that were important for success of distance learners. Nine conditions were identified: motivation, confidence in one's capacity to cope with distance learning, quality of course materials, amount of time studying, persistence, quality of interaction with tutor, amount of interaction with tutor, knowing how you learn best, and the optional face-to-face elements in the course. In ranking these conditions in the next phase of the study in terms of their importance for success, two affective factors-namely motivation and confidence- received the highest rankings.

White (1993) found that distance learners used affective strategies more than mainstream learners. White (1993) studied use of language learning strategies of foreign language learners of French and Japanese. She found that the support from the teacher played a key role.

The following observations of Candlin and Byrnes (1995) still hold for research into distance language learning:

... very little research has been done on how distance learning teachers actually manage the learning, much less research, for example, than has been done into how classroom teachers manage the learning. What is it that distance learning teachers do and how do they do it? What characterizes teacher talk in distance learning? Such questions would provide the basis for focused and action-research based professional development of distance learning teachers (P. 17).

McLaughlin (2004) maintains that motivation is the most important factor of success and he believes that motivation must be developed in distance contexts. Susimeta (2004) studied motivation and self-regulatory skills in collaborative distance learning. The study found a relationship between intrinsic motivation and self-regulated strategies. However, extrinsic motivation seemed less supportive. Whipp and Chiarelli (2004) confirmed that some traditional self-regulated learning strategies were directly applicable to online environments. They suggested adopting and modifying some strategies in web-based environments.

Zhang, Li, Duan and Wu (2001) studied influence of self-efficacy of distance learning on learning skills. They concluded that intrinsic motivation and self-regulated learning skills were directly related to self-efficacy of distance learning. Miltiadou and Savenye (2005) investigated the effect of social cognitive constructs on motivation in online distance education. They confirmed that the effect of social cognitive constructs on motivation will lead to more success in online environment.

## **Objective of the Study**

### ***Purpose***

The purpose of this study is to investigate the effect of distance learning on the Iranian EFL Learners' motivational strategies. One questionnaire offered questions that encouraged respondents to provide their beliefs regarding the influence of distance learning on motivational strategies.

### ***Research Question***

This study asked the following question:

What are the patterns of motivational strategies used by distance learners?



## Methods

### **Participants**

Participants of this study were 50 adult EFL learners of the virtual University of Shiraz. All participants were native speakers of Persian.

### **Materials**

The main instrument in this study was the MSLQ (The Motivated Strategies for Learning Questionnaire) (Pintrich, et al.1991), which is designed for measuring the frequency of motivational strategies in distance learners. The MSLQ was used in the present study to collect data on student's motivational strategies. MSLQ delves into distance learners' motivation, i.e. achievement goals, efficacy, and control beliefs, self-regulated learning, i.e., time management, effort management, help seeking, and self-regulated strategies. The MSLQ is an 81-item Likert type self-report instrument designed for measuring students' motivational beliefs and strategy use. Pintrich, et al. (1993) found strong positive coefficient alphas for most of the internal consistency estimates of reliability within different factors. Bagheri (2007) also found reliability of 0.87 through test-retest reliability index. This shows that the questionnaire was highly consistent.

Ng (2000) also studied motivation and learning processes of students in a distance context and discussed the use of MSLQ for distance learners.

There are essentially two sections presented in MSLQ: a) motivation and b) learning strategies. The motivation section consists of 31 items assessing learners' goal for a course, their beliefs about their ability to succeed in a course and their anxiety about course tasks.

The second part of the MSLQ is based on a general model of learning and information processing. It contains three general types of scales: a) cognitive strategies, b) meta-cognitive control, and c) resource management strategies.

The learning strategies section contains 50 items: 19 items pertaining to cognitive strategies, 12 items related to meta-cognitive strategies and 19 items concerning with resource management strategies.

Based on the purpose of this study just the first part, i.e. motivation strategies, of this questionnaire was used to measure learners' motivation strategies.

### **Data collection procedures**

The MSLQ data were collected from 55 distance learners. The questionnaire offered questions that encouraged respondents to provide their beliefs regarding the effect of distance learning on motivational strategies.

### **Data analysis procedures**

After collection, the raw data from each respondent was entered into an SPSS program for the analysis. The average reported frequency of motivational strategies of distance learners across all students was calculated for each motivational strategies item.

## Results

As evident in Table 1, Expectancy components that contain Control Beliefs and Self Efficacy showed the mean of 4.27 (SD=2.3). Affective components (Test Anxiety) showed a high mean of 4.28 (SD=0.34), and Value components, which contain Intrinsic Goals, Extrinsic Goals, and Task Value, showed the mean of 3.72 (SD=2.8). Table 1 shows the scales, dimension, subscales and the items of motivation strategies.

**Table 1**  
**Motivation strategies**

Scales	Dimension	Sub-scales	Items
Motivation	Expectancy components	Control Beliefs	2,9,18,25
		Self Efficacy	5,6,12,15,20,21,29,31
	Value components	Intrinsic Goals	1,16,22,24
		Extrinsic Goals	7,11,13,30
		Task Value	4,10,17,23,26,27
	Affective components	Test Anxiety	3,8,14,19,28

**Table 2**  
**Mean and Standard deviation of motivation strategies**

Variable	Mean	SD
Exp	4.27	5.43
Val	3.72	2.8
Aff	4.28	0.43

Exp (Expectancy components), Val (Value components), Aff (Affective components)

**Table 3**  
**Preference of motivation strategies by students**

Exp	21	I expect to do well in this class	1	4.9
Exp	18	If I try hard enough, then I will understand the course material	2	4.8
Exp	12	I'm confident I can learn the basic concepts taught in this course	3	4.8
val	4	I think I will be able to use what I learn in this course in other courses	4	4.8
exp	5	I believe I will be able to use what I learn in this course in other courses	5	4.8
val	10	It is important for me to learn the course material in this class	6	4.8
val	13	If I can, I want to get better grades in this class than most of the other students	7	4.8
exp	20	I'm confident I can do an excellent job on the assignments and tests in this course	8	4.7
exp	25	If I don't understand the course material, it is because I didn't try hard enough	9	4.5
val	7	Getting a good grade in this about items on other parts of thing for me right now	10	4.5
aff	3	When I take a test I think about how poorly I am doing compared with other students	11	4.4

exp	31	Considering the difficulty of this course, the teacher, and my skills I think I will do well in this class	12	4.2
val	16	In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn	13	4.1
aff	14	When I take tests I think of the consequences of failing	14	3.9
exp	15	I'm confident I can understand the most complex material presented by the instructor in this course	15	3.8
exp	6	I'm certain I can understand the most difficult material presented in the readings for this course	16	3.7
val	1	In a class like this, I prefer course material that really challenges me so I can learn new things	17	3.
exp	9	It is my own fault if I don't learn the material in this course	18	3.5
val	11	The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grad	19	3.5
val	17	I am very interested in the content area of this course	20	3.5
aff	19	I have an uneasy, upset feeling when I take an exam	21	3.5
val	22	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible	22	3.4
val	24	When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade	23	3.3
exp	2	If I study in appropriate ways, then I will be able to lean the material in this course	24	3.3
val	27	Understanding the subject matter of this course is very important to me	25	3.3
aff	8	When I take a test I think about items on other parts of the test I can't answer	26	3.2
val	30	I want to do well in this class because it is important to show my ability to my family, friends, employer, or others	27	2.9
val	23	I think the course material in this class is useful for me to learn	28	2.8
aff	28	I feel my heart beating fast when I take an exam	29	2.4
val	26	I like the subject matter of this course	30	2.5
exp	29	I'm certain I can mater the skills being taught in this class	31	2.5

Exp (Expectancy components), Val (Value components), Aff (Affective components)

## Discussion

Generally speaking, the participants used lots of Expectancy and Value strategies. Concerning self-efficacy strategies, since they were supposed to work on their own through the program, they tried to be more responsible for their own learning. Considering the difficulty of this course, lack of teacher and face-to-face discussion, they gained enough confidence and self-belief of understanding the most difficult material presented in this course.

Regarding intrinsic goals, arousing students' curiosity to learn even the most difficult materials has the highest rank among intrinsic goals and this puts more responsibility on the shoulders of

students to try more to be ready to learn new things and understand the content as thoroughly as possible. Among extrinsic goals, getting a good grade or being successful in the final complicated evaluation leads to better material learning and understanding.

In regard with task value, the courses have high value because the learners can use them for other courses and their own purposes, so it is important for them to learn them even if they are difficult. This task value is related to their intrinsic goals that increase their motivation for learning.

Regarding test anxiety, most learners are worried about their poor performance compared with their classmates when they take a test because they don't have any face-to-face contact or communication with other students and this separation or loneliness leads to students' anxiety regarding their poor performance.

## **Conclusion**

According to the results of the questionnaire phase of this study, affective components showed the highest frequency. Lack of accessibility to enough materials, separation of teachers and students as well as students' loneliness will affect students test anxiety because they don't have a good belief about their performance and they are worried about their poor performance compared with their classmates. White (1993) found that distance learners used a wider range of affective strategies than classroom learners.

McLaughlin (2004) maintains that it is necessary to increase students' motivation to help them to be more successful in the distance context. It is important to use some of the same techniques to make distance students more motivated. It is required to do a lot more of that kind of research and it could feed into teacher training and material developments in very productive ways. Some studies have been done, but it seems that this area needs more investigation and research.

## **Pedagogical implications**

Regarding the factors which are of high importance in this study, teachers should pay more attention to learners' motivation. Measuring learners' motivation at the beginning of each semester in the distance context, teachers will make students more interested in their learning and students would be imbued with more motivation for learning. Because lack of teacher and group work affect students' motivation, some students may lose their motivation, some of them may have problems in planning and monitoring their own learning process, thus it is very important to adjust students to the distance universities system. One solution can be to administer a questionnaire at the start of the term to be informed of the students' needs, interests and their objectives about the course and to use them in the last syllabus.

When teachers try to increase students' motivation, learners will have a different view of the distance context and they will adjust their expectations based on their experience of the new learning context.

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