

Evaluating Online Dialogue on “Security” Using a Novel Instructional Design

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Abstract: This paper explores evaluation strategies to gauge the impact of a novel instructional design on international community participation online. This is done by conceptualizing and devising indicators for measuring “engagement” online amongst marginalized adult communities worldwide. In doing so, a review of online evaluation literature is conducted. In comparing dialogue sessions based on an ongoing traditional model to the new instructional approach, various challenges are faced in “measuring” asynchronous discussion. While the initial findings of marginal increase in engagement with the adapted instructional approach is not sufficient to prove that the new model works, this paper demonstrates various strategies/ challenges in evaluating dialectic engagement.

Keywords: online evaluation, instructional design, community participation, international, marginalized, engagement

1. Introduction

In the last two decades, the subject of computer-mediated collaborative environments has gained attention as more individuals across the globe seek to express themselves and understand each other through diverse online avenues. Much has been made about “virtual communities” that shape themselves along weak social network ties, celebrating these novel online engagements and connectedness (Rheingold, 1993). Of course these celebrations are countered with equally vehement derisions and cautions of loss of real time and face-to-face relationships, the (de)socializations of what is seen as a new virtual public (Lipnack & Stamps, 1997). Be it celebration, caution, derision or processes of “figuring out,” there is no doubt however that online social networks are here to stay and more importantly, expand in often unpredictable ways.

Much has been researched in areas of online identity in contestation to socially constructed stereotypes (Turkle, 1995; Wilber, 1997; Kendell, 1998; Kollock, 1999; Smith, 1992) as has the role of computer-mediated communications (CMC) in the complex interplay of text, talk and learning (Warschauer, 1997) and membership through social learning amongst communities online (Kim, 2000). As online communities get more competitive and formalized in their facilitation and mediation, strategies are sought to enhance the participant’s online experiences and engagements. There is much literature on strategies to moderate formal online distance learning (Levine & Sun, 2002; Discenza, Schenk & Howard, 2002; Assié-Lumumba, 2004), metacognitive or higher-order thinking strategies to enhance such learning (King, 1992; Schwartz, Bransford, & Sears, 2005) and the use of computers as a tool to advance these strategies (Scardamalia & Bereiter, 1991; Pea, 1994; Lin, Hmelo, Kinzer & Secules, 1999).

Further, evaluation of such strategies is now a pursued field as it is looked upon as essential to the understanding and proliferating of conducive behaviors, online and offline (Kendall, 1999; Leander & McKim, 2003). However, there is limited research conducted on strategies employed to facilitate asynchronous online dialogue forums amongst marginalized adults across socio-cultural and geographic environments. In particular, instructional strategies and evaluative frameworks to guide online dialogue amongst “disadvantaged” groups are few and far between. Therefore, this paper explores the potential of an instructional design strategy amongst such participants through demonstrated evaluative measures. Specifically, the scope of this paper is to gain some insight to the following questions through specific evaluation:

1. Is there a change in “engagement” with a change in the instructional design model online?
2. Does the new (CEBLE) instructional design model enhance “engagement” within an online dialogue setting?

This paper contains three sections. The first section surveys the understandings of online community participation and its evaluation strategies. The second section contains the details of the pilot project. This entails a description of the CEBLE model and the pilot setting, research goals, comparative results of the traditional to the applied CEBLE model and an analysis of findings. The third section concludes by stating challenges, inferences, and avenues for further research.

2. Understanding online community participation

One of the main challenges in the understanding of collaborative online discourse is in its transient nature. Nentwich (2004) states that to capture the good ideas that come up within a group, it is useful to have an archives feature. Also, in describing group dynamics, he states that online communities can serve as a portal for interactive interaction, information dissemination and exchange, capable of producing a synergistic relationship among the members of the group. Hine (2000) likens such interaction to a “flow” that achieves “relative spatiality across disparate resources” within social-material networks (p.76). The nature of the “flow” as Kendall (2004) professes is influenced more by asynchronous than synchronous factors, a form of communication that involves an interval between the sender and receiver of messages. This is corroborated by Moss and Shank’s (2002) findings on asynchronous discussions on Bulletin Board Systems (BBS). Based on their findings, they inferred that asynchronous discussion could produce higher participation & quality discussion as compared to synchronous discussion (p.24). Also, they found that participants collaborated with more equity using BBS. Kendall (2004) warns us though that in evaluating socially disparate sub-cultural group participants, we should not presume that all online interaction occurs within the same homogenous cultural context separate from the different cultures of the participants who contribute to it. Furthermore, in making inferences from online data studies, Sudweeks and Simoff (1999) state that perhaps the biggest issue with CMC field research is in the near impossibility of replicating its studies. This daunting task, they remark, is currently being researched more thoroughly for furthering the validity of online evaluations.

2.1 Evaluating online participation

There is a common understanding now that online and offline activities and spaces cannot be divorced in the study of virtual community participation. However, how to go about evaluating such activities continues to pose as a formidable challenge. Kendall (1999) exemplifies some of the dominant challenges through her three-year experiences with *Bluesky*, a text only online forum. To measure interaction within this forum, she chose an eclectic range of methods: face-to-face interviews, participant observation online, participation in face-to-face gatherings, and reading of related newsgroups and email lists. In her analysis, she concludes that while it is understood that online interaction cannot be divorced from social and political offline contexts, the feasibility and expense issue in researching both domains is often insurmountable. She also warns us to not assume that there is a natural congruence between the offline-online worlds. In other words, we cannot look at online activities as extensions of offline activities, events and social and cultural norms and values.

This thinking is echoed by Leander and McKim (2003) wherein the investigation of real-virtual spaces is rooted in the understanding of “the processes by which social spaces are held apart and blended, and how boundaries and blends are recognized in everyday practice” (p. 235). They envision though that over time, online communities will become more natural and familiar, blurring further the lines between these binaries. All the more reason to view the “place” for research online differently states Spradley (1980). Unlike offline traditional data collection at a “place,” he asks the readers to view online “place” instead as a “social situation” (p.19). The other two aspects that compose a sense of place in an online setting, he claims are its actors and activities where its physicality can be marked as a “basis for a social situation as long as the other two elements are also present” (p.19).

When it comes to examining the role of actors in computer-mediated communications (CMC), there is a special emphasis on the role of the researcher. This is a critical issue for many researchers when adapting the traditional ethnographic approach of participant observation to an online setting. For example, Kendall (2004) recommends participant observations for online interactive forums to prevent avoidance of important social contexts of online communication and interactions. However, such participation comes with its own challenges. Leander and McKim (2003) remarks on the researchers’ double bind, wherein when a researcher “observes” online, she is perceived by participants as a “lurker,” one who reads but does not post online (p.216). This is often looked upon negatively by the participants. Yet, if the researcher does not lurk but instead joins the online discussion, the problem shifts from lack of interaction to that of authenticity.

On the other hand, Moss and Shank (2002) champion the role of the researcher as also that of a participant, stating that researchers from the “outside” cannot do justice to the understanding of data. The authors attribute the close readings of the data in their study to the fact that they were from the same learning communities. They express less concern on the issue of “objectivity” as they claim that they allowed the participants to speak for themselves.

3. Online pilot project on topic of “security”

3.1 The CEBLE model

The Critical Event-Based Learning Environment (CEBLE) was chosen for this pilot project as it is designed to help community facilitators think “past the application of their schematic responses” in response to recurrent problems as well as to capitalize on the multiple and unique perspectives of its participants (Lin, Schwartz & Hatano, 2005, p. 251). Originally designed for teachers, this model provides all participants the

...opportunities to interact with people of different backgrounds, values, and goals through its multiple perspectives, and through sharing thoughts with other members of the communities. These social interactions allow teachers to gain the first-hand experience that the same problem can have many different solutions depending on the goals and values people bring with them. (p.251)

The CEBLE shell evolved from a STAR Legacy software shell. The shell includes: (a) Meet the event (b) Generate responses to questions (c) Listen to multiple perspectives offered by people of different backgrounds, goals, and values (d) Act on the perspectives by generating solutions for selected perspectives (e) Reflect on the effectiveness of one’s solutions and share their choices of perspectives, solutions and legacies with other members in the community who explore a similar event and topic (p.251).

This metacognitive thinking in the CEBLE model has been defined as “the awareness and regulation of the process of one’s thinking” and has been recognized as a critical ingredient to successful learning, online and offline (Lin, Schwartz & Hatano, 2005, p.4). In fact, this model promises potential within an online community environment given the popular belief that computer-mediated learning communities are based largely in situated cognition theory characterized by active engagement, discovery learning and co-construction of knowledge in communities of practice (Kirshner & Whitson, 1998; Lave & Wenger, 1991; Wenger, 1998). In particular, asynchronous communication is now commonly viewed as an effective tool for participant reflection and critical thinking (Luppicini, 2002). That said, this paper investigates this potential by applying this model to an online dialogue forum with participants from highly diverse, disadvantaged environments.

3.1.1 Project goals

This online pilot project was founded by an international non-profit in New York that uses dialogue for creating peace and understanding across boundaries. For the last fifteen years, they have facilitated dialogue within various settings and among diverse audiences. In the last year, they embraced the online medium as they sought to open this dialogue across international environments, particularly amongst actors that were marginalized socially, economically, politically and otherwise. The goals of this dialogue as professed and made explicit to the participants by the non-profit were mainly three fold:

- To generate a deeper understanding of the topic on “Security: How can we all have it?” amongst international participants
- To foster participation from a range of different cultures to broaden perspectives
- To apply cross-cultural awareness to critical problems participants face in their own communities to generate novel solutions to chronic problems related to security.

The research goals however, for the scope of this paper is to gain insight to the following:

1. Is there a change in “engagement” with a change in the instructional design model online?
2. Does the CEBLE instructional design model enhance “engagement” within an online dialogue setting?

3.1.2 Methodology

Particular themes were drawn out and categorized from the discussion dataset. This heuristic coding (Jensen, 2002) produced a working document of elements and occurrences in the dataset. This analysis embraces the initial stages of the computer-mediated discourse analysis (CMDA) interpretive approach described by Herring (2004) starting with some of the situational and technological variables of the pilot project. Some of the situational variables entail the participant structure (number of participants), participant characteristics (background, motivation, experience, demographic etc), setting, purpose, topic, tone, linguistic code; some of the technological variables are synchronicity, anonymity, and channels of communication to name a few.

Also applied was the “manifest content coding reproduction” conceptual framework of Luppicini (2002) to determine the indicators of “engagement” online. In determining characteristics of this dialectic engagement, linkages were made to the goals of the non-profit for online dialogue: exposure to other perspectives and a deeper understanding of the topic “security” for generating ideas and solutions. In doing so, the following coding set was looked at as an aggregate of factors that constituted “engagement.” Some key codes are as follows:

1. 1) Number of postings: The assumption is that the higher the number of postings, the more participation in the forum.
2. 2) Participants referencing their own personal experiences: Dahlberg’s (2004) “inherent characteristics” of CMC was used, particularly the personalization/ depersonalization or intimacy as a determinant to measure engagement. The assumption here is that the personalization of a posting is indicative of “trust” and relationship building on the forum.
3. 3) Participants referencing the topic: Here, if participants are not addressing the topic and are going off on a tangent, it can be perceived as disruptive and disengaging within the “flow” (Hine, 2000) of the dialogue. Hence, each posting that addresses the topic would be considered as that contributing to higher engagement.
4. 4) Participants referencing each other: This is looked at as synonymous to “listening” within an online setting. The assumption here is that when a participant quotes or “refers” to a posting by another participant, it implies that they are reading the postings and building on it to further dialectic engagement.
5. 5) Participants furthering dialogue: This category is intended to incorporate the aspect of higher-order thinking that is a sign of high engagement. When a participant posts a comment that is not regurgitating past dialogue but taking the past dialogue to a new and different level, it is considered an aspect that increases dialectic engagement. This is measured by looking at the prior postings and seeing if the posting at hand “adds” to the subject of security. Participants asking questions that compel participants to respond with new insights is also considered to have furthered the dialogue.

Hence, each posting got a point for catering to each of these categories. The dataset was clumped into seven sessions, six that were traditional and the seventh that was the CEBLE model. Within each session, “engagement” was measured based on this coding structure and compared to one another and the CEBLE session to help determine whether there had been any change in dialectic engagement using the CEBLE model. In the CEBLE online model, the action research method was adopted to strengthen the validity of the study (Moss and Shank, 2002) wherein the author was on the “inside” of this online learning community playing the dual role of a facilitator and participant. However, the authors’ postings were not counted.

3.1.3 Participants

This organization employed the iEARN platform, the largest international education resource network¹ to facilitate an online dialogue on “security”. In order to participate, each person had to be registered with iEARN. Most participants were recruited primarily through outreach activities on iEARN and idealist.org website, another popular non-profit Web Site. All participants had some access to computers and the internet as well as English proficiency skills. As we can see in Table1, there were ten participants and one facilitator. The ratio of men to women on the forum is not overly skewed (4: 6). The participants are mainly social workers engaged in the field of migration, children and human rights, HIV/AIDS, drug prevention and the like. As we can see in Table 1, most have chosen to work in environments that are isolated, disadvantaged and marginalized in one form or another.

The topic of “security” for this online forum was decided by the non-profit organization particularly in response to the 9/11 event. At the start, each participant introduced him/herself to all members of the organization. They were specifically asked to share with the group their reason/ motivation for participating in the dialogue. About half of the participants expressed overt interest in understanding people from international and diverse backgrounds. Furthermore, while two members (participant 2 & 3) expressed interest and motivation in attaining “peace” through dialogue, five of the members alluded to the subject of “rights” in addressing security issues. For example, participant # 4 from the Philippines wrote, “I am interested with this international conversation about security because my six years in working with children in

¹ Started in 1988, iEARN is the world's largest non-profit global network that enables teachers and young people to use the Internet and other new technologies to collaborate on projects that are aimed to enhance learning. See <http://www.earn.org/> for more details.

extremely difficult situation in the Philippines, I realized the value of security issues specially in empowering the rights holders in claiming their rights" (Table 1).

Table 1: Background and initial motivation of participants of online pilot project

Participants	Country	Gender	Affiliated field	Stated reason for participation: QUOTES from Forum
1	NY, USA	F	Social work: Church Social Work	"...after the US was attacked on 9/11/01 and this powerful country began focusing on its security...all of us in the world have security issues and security rights and we might grow to understand one another better in a conversation on this topic."
2	NY, USA	F	volunteer: Retired	"I want to explore what kind of societies we need to create in order to have peace."
3	Zambia	M	Social work: HIV/AIDS	"I believe that all the wars and rumours of war that we have see and heard respectively are as a result of failure by people to come to a round table and amicably discuss and resolve differences...Getting views from different backgrounds may in its own way add something to the search for global peace which to me is not beyond reach." "I am interested with this international conversation about security because my six years in working with children in extremely difficult situation in the Philippines, I realized the value of security issues specially in empowering the rights holders in claiming their rights."
4	Philippines	F	Social work: Child labor	"Security is an important aspect in our lives and the more we can debate the various issues relating to it the better we can find answers."
5	Zimbabwe/ South African	F	Social Work	"We feel like it our duty to make sure that everyone in our own community know that they have the right to feel secure while it is our responsibility promote security within our own communities and to hold our governments responsible as well."
6	LA, USA	F	Shelters	Cultural studies interest
7	Turkey	M	Student	"...working with victims of abuse and detention is pushing my motivation even harder"
8	Zurich, Switzerland	M	Social work: Child Abuse	"...our long range goal is to have a nation-wide organization of older people (mostly poor, mostly women) who will ensure real security."
9	Philippines	M	Social work: Elderly Care	"I am happy to learn about the experiences and lives of people living so differently from me."
10	NY, USA	F	Social work: Drug prevention	
	NY USA/ Caucasian	F	Traditional model/ Masters student	
	NY, USA/ Indian	F	CEBLE model facilitator/ Doctoral student	I am doing my doctoral studies in technology, literacy and language and I want to understand what makes for effective and meaningful dialogue online.

3.1.4 Application of the CEBLE model

In terms of sessions, there were a total of seven sessions in the online forum: six using the "traditional" instructional model and one using the CEBLE instructional model (see Table 2). The instructional model in the past six sessions is termed here as the "traditional" model for comparative sake only. The impetus to use a new model by the non-profit was based on the intent to increase the quantity and quality of postings in the online forum. To address this challenge, the CEBLE model was applied to the seventh session of the forum. Given that the online forum was a dynamic international and cross-cultural environment with a goal for critical thinking on the issue of security, it was hypothesized that the CEBLE model may be appropriate to foster dialogue, particularly by generating questions and facilitating discussion grounded within the context of past participant dialogue and exposure to new viewpoints for higher engagement (see Table 2). As we can see below, the instructional strategies between the two models to create an engaging online dialogue were different.

Table 2: Comparing the traditional and online CEBLE model

STEPS	Traditional model (n = 10)	Online CEBLE model (n = 10)
At the beginning (Meet the Event)	A question is posed mostly independent of references to past dialogue	A question is situated in past dialogue
External experts' view (Multiple perspectives)	Not offered	Offered in the middle of the discussion as a contradictory viewpoint to participant posting.
Facilitation: facilitator's role (Generate ideas and responses)	Posts questions / Affirms responses	Posts questions / Affirms responses/ Provides alternate viewpoints/dual role of participant

As we can see in Table 2, to initiate discussion in the traditional model, the facilitator posed a question to the participants as a separate discussion link for each of the six sessions. This question was posted as an independent entity without referencing past participant dialogue. When participants responded to the question, the facilitator primarily affirmed the participants' responses. On the other hand, in the CEBLE model, the question was rooted in past dialogue to determine trends of consensus and dissent. The question was then built around this critical synthesis to further the understanding on security (see Abstract 1)

Abstract 1: Meet the event: Initiation of dialogue through question in the traditional and CEBLE model

██████████ - 12:45pm Sept 19, 2005 EDT

What are the biggest obstacles to security in your locality?

██████████ - 03:47pm Nov 1, 2005 EDT

Hi everyone,

At this stage in our dialogue on security, it seems that there is an underlying dilemma on the power of the individual in creating security. From my understanding, ██████████ seems more biased on individuals having more power and control over their personal security. She parallels safety to security –referring to "wellbeing without fear" and states that participation and intervention is almost negligible as we reach the national or/and international level. Interestingly, █ refers to security as that which needs to be built, where "security can be gained not so much from physical or armed strength but on mutual respect." Here, I would interpret this as security that is communal in nature. In █'s theory of "loving conflict," an interesting thought has surfaced where the oppressed seems to have more power than the oppressors. In the same vein, ██████████ suggests that dialogue is the best tool to sort out conflict than any other means of force while ██████████ shares his view on conflict which is not necessarily negative as long as we know how to negotiate with it.

So it seems to me that we all seem to agree at this stage that security has multiple hues and is layered as individual, communal, social, economic, national, international and so on. We also seem to see a relationship between conflict and security that is not necessarily diametrically opposite to one another. However, I sense that as we speak about security, we have not made our beliefs explicit on how we negotiate with power to achieve security for ourselves and others. So my question is as follows:

In what way have you exercised your power to achieve security for yourself/ others?
Looking forward to hearing your views on this.

The other distinguishing aspect between the two models is in the strategic posting of an outside and provocative perspective through the CEBLE model (Table 2). This feature was absent in the traditional model. This aspect was incorporated to supply a contradictory and perhaps unfamiliar viewpoint to the participants to make them reevaluate their perspectives and engage at a higher metacognitive level. As we can see in Abstract 2, there is back and forth dialogue between the participant and the facilitator. Prior to this, there was a general consensus amongst the participants on the idea that migration produced insecurity as exemplified in the first posting in Abstract 2. The outside (expert) perspective (Second posting: Abstract 2) introduced by the facilitator was deliberately chosen to contradict this perception. The posting was on the "urban tribes" theory proposed by Ethan Wattars stating that migration can cause a reverse effect, where the need for security amongst the displaced populace can create tighter communities.

Abstract 2: Sampling of CEBLE dialogue before and after outside perspective is introduced

██████████ Nov 17, 2005 6:50 am (5.)
(IP: 128.59.103.138)

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Dear ██████████

Your own personal story about "security" could be repeated millions of times by Filipinos. No country in the world, percentage wise has as many people seeking economic security abroad. Yesterdays broadsheet had it that for the first ten months of this year, 800,000 filipinos have gone abroad seeking employment (the official figure) which means a million people--mostly young this year. Altogether, maybe 10 million or 15% of the population at any given time (this does not include the illegals who are also estimated to be large!) We have a close friend who spent 13 years in Saudi as a driver. The good part: his four children are all college educated. The bad part: they grew up without a father and hardly know him. Its a trade-off many have to make. This does not include all the rackets, exploitation and sex trade to which a number, in their desperation, have fallen into. Now that's insecurity!

peace

██████████

██████████ Nov 19, 2005 2:07 pm (6.)

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Dear ██████████

... I wonder if immigration can have a reverse effect?... Interestingly, I came across a book called "Urban Tribes" by Ethan Watters that talks of the urban jungle of cities. He speaks of the proactiveness of isolated people in reviving the tribal ways of strong expectations from their friendships, and sharing and caring for eachother much like a traditional tribe...

██████████ - Nov 21, 2005 5:05 pm (7.)

[Bookmark](#) | [Email to Friend](#) | [Edit](#) | [Delete](#) | [Reply](#) | [Move](#)

Dear ██████████

I was at a book launching the other day..a book about disabled people who had formed themselves into cooperatives and had metamorphosed from begging in the streets to manufacturing chairs for elementary schools. At the launching a good friend spoke saying, "we are all disabled in one way or another and you have taught us how to deal with our own disability"...change disability to insecurity and the same truth may apply. In other words, its not two questions but only one...my security and everyone elses are interdependent...and my security will depend on my engagement in everyone elses...

3.1.5 Results from the CEBLE application:

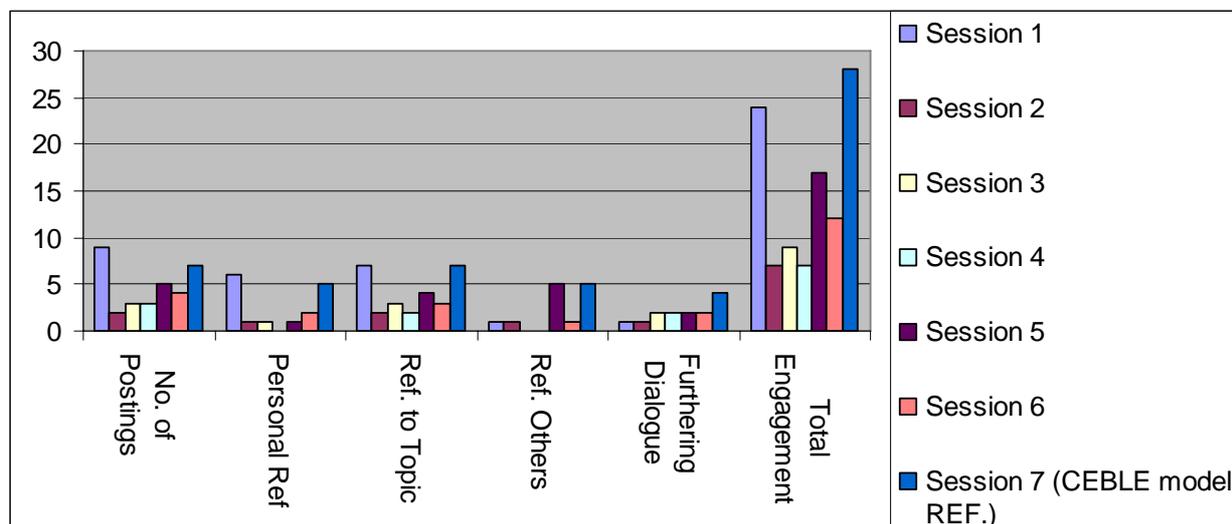


Figure 1: Comparison of traditional model and CEBLE model: Indicators for engagement

As we can see in Figure 1 above, there is some change with the change in the instructional design model. If we were to discount session 1 when comparing the indicators, the CEBLE session can be seen as showing positive results over the traditional sessions (Session 1 to Session 6). Also, the postings in the CEBLE session marginally increased over all sessions but for session 1. However, the difference appears less significant. While there is a total of seven postings in the CEBLE session, this was still less than the total number of participants (n =10). On the other hand, there seemed to be more significant changes in the content of postings in the CEBLE session. For example, while most participants referred to the topic across

sessions, be it the CEBLE or traditional sessions, there had been a substantive increase in the personalization aspect within the CEBLE model. In other words, participants appeared to draw much more from their own experiences when responding within the CEBLE model. They seemed to share perspectives from their own contextual environment when explaining their point of view.

The only other session that competed on this personalization aspect is session 1. In fact, as we can see in Figure 1, there are a number of similarities between session 1 of the traditional model and session 7 from the CEBLE model. They both had high number of postings, high referencing to the topic and more importantly, they both scored high on the personal reference category. Six of the nine participants in session 1 weaved in their own experiences when responding to the question. In the CEBLE model, five of the seven participants did the same. Also, few participants in session 1 referred to one another or furthered the topic with questions or insights on the topic of security. In terms of furthering the dialogue, there was a gradual increase in participants demonstrating critical comments or questions that “furthered” the concept of security. Given that this is a harder category to make explicit, here is a sample of what constituted as “furthering the discussion.”

██████████ Oct 14, 2005 9:14 am (3.)

You cant have security because you want security. You have to think, what makes for security? (your question) because it is consequent or contingent on something else. Some people seem to think it's strength—gotta show you're strong."the best defense is a good offence" but security is built not so much on physical or armed strength but on mutual respect—a kind of strength in itself. In our case, it means going door to door and spending months talking to people until we are accepted and can get everyone to sit down together and talk about what they would like to do together—as a community (do you want better health care—are you willing to be trained as community health workers? Etc.) now, we can talk about security—not because we set out to get more security but because we share something of the same values, the same dreams...now we are secure because we are in this together...

And here's a sample of what did not constitute as furthering the discussion...

I am under stress with a new job which involves a lot of travel. I will respond on later for a while. And I wanted to say that ██████████ in Portugal has results of a discussion, but has been having some difficulty getting it translated to English.

However, if we were to *not* discount Session 1, the results are less definitive. Overall, to answer the research questions on whether there were any changes whatsoever in the change in instructional design as well as to see if the CEBLE model enhanced engagement, results can be found to be affirmative on both accounts *only if accounting for Session 1*. This in itself is not sufficient to profess that CEBLE does in fact increase engagement as there are some confounding factors as we see in the analysis section below besides the more obvious small sample size that deters generalization. The purpose of this paper though lies in explicating the evaluation strategies and challenges involved in online dialogue measurement as well as gauging the *potential* of the CEBLE model for engagement.

3.1.6 Analysis of findings

The reason we can consider discounting Session 1 is due to it being the first session where participants have to address the topic as they are explicitly asked to do so by the facilitator. This can explain the high number of postings, personal references and reference to the topic. To the extent that in session 1, the discussion was at its initial stage where the participants were getting to “know” one another and was starting to “build a relationship” with the group, it can be seen as an anomaly. Further, as is commonly experienced in voluntary participation, there is generally an enthusiasm at the start of an endeavor. The challenge for most online discussion boards is in sustaining and enhancing participation through engagement and not just the recruitment of the participants.

Also, if we take a look at the questions in session 1, the reason for the personalization aspect becomes more evident. The question being: “When you were growing up, what did you learn about how to resolve arguments or other conflicts? What do you think now?” This was deliberately structured to evoke personalized responses. In contrast, the question for the CEBLE session (Abstract 1) was framed as a synthesis of participant's past comments to further the dialogue to new insights. With that logic in mind however, the tables can be reversed. In effect, the CEBEL session personalization can also be seen as “understandable” because the question in that session was posed to maximize that aspect. Of course, this brings into question whether or not its' the CEBEL model that is causing the result, or simply the type of question.

That said, even if we *do* discount Session 1, the increase in the postings seems unimpressive and cautions against clear declarations on engagement levels. While this in itself is worth pointing to, what is of more importance here is that this category fails to include “lurkers” which is critical to the understanding of engagement. In theory, a participant could never post a comment online and yet be highly “engaged” by reading all the postings and reflecting upon it in their offline lives. The usage of log files of the online forum was considered to determine whether participants were viewing the comments. However, it was discovered that users do not necessarily have to visit the forum in order to actively participate in the topic. This is because every posting on the forum gets automatically sent as an email notification to the participants email account. Thereby, the most active participant theoretically could never have logged into the forum. Since many users had this option enabled, the log files would have been an unreliable measure of participation. Thereby, we have an unresolved confound between participant postings and engagement.

Also, while having created categories or codes as a composite of “engagement,” it is questionable whether all codes are of equal weight in the gauging of engagement. Further, in relation to CEBLE’s multiple perspectives, it is worth asking whether simple disagreement automatically constitutes as a multiple perspective and whether multiple perspectives could in fact equate to engagement by itself. As to the researcher being the facilitator, there is always the research bias looming over the study that takes away from the results to a certain extent. At best, a compelling case can be made that CEBLE came out with some potential in generating personalized engagement.

4. Conclusion

This study was particularly fortunate to have the same number of participants across all sessions. This fostered stronger validity within the pilot project. Being asynchronous and by invite only, this online pilot study was able to circumvent some of the challenges that incur within most synchronous settings such as participant anonymity, changing online demographics within the time of the study, etc. Also, the controlled setting with separate discussion threads and archives for each session enabled the sorting of data.

That said, given the marginal increase in the number of postings in the CEBLE model, the issue of increasing the quantity of postings still persists. Part of this is because of the small sample size. The log files dilemma as explicated in the reading of the postings remains unresolved. Other variables that could be influencing this data also need to be investigated. Given that the adult group specifically chosen by the non-profit represents an international demographic situated within marginalized environments, variables pertaining to access to technology and other related issues of access and usage need to be considered. Unique socio-cultural, economic and geographic factors such as lack of mobility to cybercafés, electricity, individual routine, political and social stability and the like could be impacting the amount and quality of postings by the participants. This reinforces the inseparable nature between offline and online lives.

Also, while attempting to execute a fair comparison between the two models, the discrepancy of session length is evident. While the traditional model went on for approximately six months, the CEBLE model was executed for a period of one month only. Hence, a more longitudinal approach is needed to gauge impact. While the number of postings is not significant, the observed difference between the nature of postings between the two models is encouraging. Based on these preliminary findings, there seems to be some support for the CEBLE model as a potential engagement tool in instructional design within online dialogue.

For future studies, it would also be useful to know what aspects of the CEBLE model are most effective in online dialogue. To conclude, it is important to remember that in evaluating socially disparate sub-cultural group participants, we should not presume that all online interaction occurs within the same homogenous cultural context separate from the different cultures of the participants who contribute to it and that “engagement” means different things to different individuals from different socio-cultural backgrounds.

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Managing e-Learning: What are the Real Implications for Schools?

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Abstract: This paper is concerned with the use of e-learning in secondary education. It is based on research that has taken place over a period of two years with students aged 14-16 (Key Stage 4). The paper considers the current research in e-learning and identifies the challenges faced by students, the changing role of the learner, and the impact e-learning can have on students. The author argues that preparation needs to be carried out at the school level prior to introducing e-learning into the Key Stage 4 curriculum. It concludes by discussing the findings of the research which identifies a range of issues schools may want to consider, when embracing e-learning.

Keywords: e-Learning, secondary, curriculum development, teaching, learning

1. Introduction

'E-learning has the potential to revolutionise the way we teach and how we learn' (DfES, 2003). There are many definitions of e-Learning available such as 'learning facilitated and supported through the use of information and communications technology' (JISC, 2007). For the purposes of this research E-Learning is defined as students developing knowledge, skills and understanding, through the use of computer-based technologies.

The recent developments in technology are changing the role of the teacher and the learning experiences of school children, engendering an exciting future where students study increasingly from places other than school. A new milestone in the development of e-learning in schools has been the use Virtual Learning Environments (VLEs), enabling new opportunities to personalise learning (Barajas and Owen, 2000), although this can lead to inequity through the digital divide (BECTa, 2001). There is a need for greater research to take place to discover the best practices when e-learning is the primary medium for delivering content, particularly at compulsory education level (11-16 year olds).

E-learning can provide better support for the less able, engage students who do not respond well to 'traditional' classroom learning, provide opportunity for accelerated learning for gifted and talented students, and develop independent learning skills through a personalised learning experience. Increased development with e-learning in schools will enable a more flexible use of the school building and the school day, as well as vertical grouping and movement of students. Increased connectivity of schools to the Internet via broadband in the United Kingdom (UK) has provided greater opportunity for school managers to introduce and make use of e-learning materials across the school curriculum (Hesketh and Selwyn, 1999). The establishment of 10 regional Broadband Consortia to support the development of e-learning within schools, and the continued support of the Government for schools to purchase e-learning materials¹, is resulting in an increased use of e-learning in secondary education. This will continue to develop with pressure from the Government, and the introduction of new teaching standards in 2007 to include the use of e-learning by trainee teachers, thereby raising the level of skills and the development of a pedagogical framework for e-learning.

The use of e-learning within the school curriculum has developed from industry where it has been used, both successfully and unsuccessfully, for training staff; the first recorded use being in 1984. For example Karon (2000) comments on improved accessibility of courses that can be self-paced and available via the Internet at a time to suit the learner, as compared with more conventional distance learning delivery agents. While Urdan and Weggen (2000), suggest that e-learning can result in a higher retention rate due to materials being personalised and reflecting different learning styles. The protagonists of more traditional learning and teaching methods have tended to dismiss e-learning, viewing it as a training tool, rather than reflecting the learning environment of a traditional classroom that encourages debate, discussion and interactive learning. However, developments of e-learning tools are now enabling opportunity for these elements to be present and e-learning is evolving into a virtual classroom.

¹ . The Government ear-marked £100m funding for 3 years for the purchase of e-learning materials, to finish in August 2006, enabling individual schools to receive £1000 plus almost £10 per pupil per year. This money has to be spent on 'approved' software.

Much research has been carried out with Higher Education (HE) and training establishments, identifying a range of issues such as student satisfaction being a significant factor in drop out rates (Levy, 2007, Sachs and Hale, 2003, Chyung et al 1998, Yang and Liu, 2007); the need for a personalised learning pathway and curriculum sequencing linked to learners' ability (Chen et al, 2006); the need for the opportunity to collaborate, a variety of learning stimuli, and effective interactive tools linked to contextual learning and feedback (Yang and Liu, 2007).

E-learning is seen by many as a growth area for schools although there is little research into its use in schools. The Department for Education and Skills (2005) sets out the UK Government's strategy for harnessing the use of technology in schools, including the development of e-learning. This document has tough challenges for schools. Joo (1999) recognises some of the challenges ahead, including the need for motivated teachers and learners who have 'appropriate training, easy access to high quality materials, and systematic academic, administrative, and technical support within and outside of schools'.

This paper, based on research within the secondary school sector in the UK, seeks to identify some of the challenges schools face when using e-learning for the first time, both within the classroom, and when studying from home. It describes the research methodology, the school's experience with e-learning, and the students' perceptions when using e-learning. Finally the paper concludes with considerations for schools when introducing e-learning at the secondary school level, and discusses the question 'What are the real implications for schools when introducing e-learning materials?'

2. Research methodology

The author undertook research over a 2-year period focussing on students opting to take a General Certificate in Secondary Education (GCSE) equivalent course in Information Communications Technology (ICT) via e-learning materials. These students were all aged 14-16 during the period of research. Students opting for this course did so in addition to 8 GCSEs, the 'standard' number of GCSEs taken by students at 16 within the UK. This is still a new area for research into e-learning, the main focus being in HE, training, and post-16 use of e-learning.

The research commenced when the students were in year 9 choosing their GCSE options, and followed their progress throughout the 2 years of the course during years 10 and 11.

This new e-learning opportunity proved popular and 42 students opted to take the course: 20 formed a group at school attending after school twice each week, and 22 took the course at home with hardware and Internet connection provided by parents. Students selected which group they were in. The course was designed to take 3 hours of study per week over 2 years.

This was the first time the school had used e-learning materials. The students had undergone no specific training prior to the introduction of this course, other than that described in this article. The research therefore focussed on how the students utilised the e-learning materials, what factors were identified as important to the students to enable them to complete, and what factors engendered a sense of satisfaction and motivation with their learning.

A range of methods were used to obtain data to ensure triangulation of findings and a fitness for purpose of the research tools used. These include a range of interviews:

- all teachers and students were interviewed each term of the first year, and in the last term of the second year. The teachers were interviewed separately, while the students were interviewed in groups. The initial interviews were to ascertain the background of the introduction of e-learning; the following interviews were to ascertain their level of satisfaction, identified by Sachs and Hale (2003) as satisfaction being an essential element of retention and success.
- an interview with the headteacher prior to the commencement of the e-learning course to identify the aims and purpose of this initiative in the school, as well as the roles of those involved, and the training provided for both staff and students;
- interviews with the school technician who was responsible for providing technical support in school. These had not initially been planned into the research, but it became evident that the technical support was an important factor in retention and success, as identified by Joo (1999);
- interviews with a range of students following the course from home. This group had the highest non-completion rate, which correlates with findings identified in HE-focused e-learning research

by Parker (1999). These students were chosen to gain a representative group of gender and ability, factors that had been identified as important to HE research by Levy (2007),

Classroom observations of the school based group were carried out once each term. Meetings were held with the students studying from home and a questionnaire was sent to their parents to ascertain their perceived role and the amount of support they were giving. Students who did not complete the course were sent a questionnaire to determine why they had decided not to continue.

Additionally, data from Key Stage 3 Standards of Attainment Test (SAT) results was used to establish the prior knowledge of ICT for each group.

The data gathered has been used to reflect factors need to be present to engage 14-16 year olds in e-learning, and what needs to be considered to encourage completion.

3. Prior experience

The school where the research was carried out has a strong commitment to Information Communications Technology (ICT). The Office for Standards in Education² (OfSTED) Report for this school indicated that ICT performance achieved by students at the end of Year 9 was above national average 'Teacher assessments, at the end of Year 9, show the proportion of students reaching national expectations of attainment was well above average' (OfSTED, 2000). Students received one hour each week of ICT in Years 7, 8 and 9 from specialist ICT teachers, plus additional experience of using ICT across the curriculum. In year 10 students could opt to take an ICT-related GCSE or the e-learning route.

As outlined above, the students who opted for the e-learning route could either study entirely from home outside the school day, referred to as the home study group, or they could join a group, supported by an ICT teacher 2 evenings each week, referred to as the after-school group. The students taking the course in both the home study and after-school groups had good ICT skills developed at Key Stage 3. The expected level at the end of Key Stage 3 in the UK is level 5.

Table 1: Key Stage 3 Standard Attainment Target ICT Results³

Level	No. of Students in After-School Group	No. of Students in Home Study Group
4	1	0
5	1	0
6	8	4
7	5	9
8	5	9

The school had no previous experience of e-learning. Staff did not receive any training in the pedagogy of e-learning, or guided to useful references which would provide helpful advice on engaging learners in e-learning, and their role as an e-tutor. When the course was introduced to the students it had been planned to provide a one hour induction, but this was cancelled due to staff changes.

4. The home study group

Table 1 indicates that this group had higher level ICT skills prior to commencing the course, but a lack of awareness of the amount of self-motivation and independent learning skills that would be needed to complete the course and achieve the qualification.

In initial interviews with the students they were motivated by their enjoyment of ICT and their aspirations to gain additional qualifications. They found the e-learning materials were simple to navigate and enjoyed being able to go back to theory they had found difficult. They were enthusiastic about the new method of learning and they enjoyed the novelty of working on their own at a computer. As Papert (in Abbot 2001) stated 'Everywhere, with very few exceptions, I see the same gleam in their eyes, the same desire to appropriate this thing. And more than wanting it, they seem to know that in a deep way it already belongs to them. They know they can master it more easily and more naturally than their parents. They know they are the computer generation.'

² OfSTED was set up by the UK Government in 1992 to help improve the quality and standards of education by regular school inspection.

³ Students are expected to gain level 5 by the end of Key Stage 3 (National Curriculum in Action). Level 8 is the highest level achievable for ICT in the UK.

However, with no induction this group were provided with a sheet giving log on details and assessment deadlines. Their initial enthusiasm soon disappeared as they experienced the tedium of the materials. These were mainly in text-book format with occasional use of voice to reinforce explanations, or use of screen-capture for elements of software development skills. There was no use of video, 3D graphics, or opportunity to collaborate or discuss with others. 'Users have high expectations of multimedia; they judge audio-visual material by broadcast standards and interactivity by the standards of commercial software. They have a low tolerance of material that falls short of these expectations' (Tearle and Dillon, 2000).

There was no opportunity to meet other group members and no list was provided of who these members were. Throughout the course there was no opportunity for the development of support groups. They were assigned to a tutor, but there was no opportunity for them to meet this tutor. Students stated that the start of the course was demotivating and needed to change for future groups.

The group quickly experienced difficulties and expressed dissatisfaction with the e-learning materials, and lack of time-tabled tutorial support. There was no formative feedback on progress until the end of each module when coursework assignments were marked, no reminders of deadlines (all students in this group missed at least one deadline), no feedback on progress, no individual targets, challenge, or extrinsic motivation. The students expressed a feeling of loss of the 'traditional' teacher - 'I miss the teachers' help, support and feedback', 'I need more support with meeting deadlines and would like reminders built into the software'. 'I know I moan about my teachers, but I don't like learning without one'. This corresponds with the research by Yang and Liu (2007).

As the teaching team became aware of the difficulties of the home study group they offered support during break times, providing a 'drop-in' facility for these students to seek individual help. However the students found the 15 minutes at break too short and often filled with other demands, such as choir or orchestral practice, or the simple need to socialise with friends. They also found it time-consuming to log onto the network and access their files, often just getting to the crux of the problem when the bell for the next lesson went; or finding that the software used at home was not compatible with the school's system.

Some of the group experienced technical difficulties at home that often had to be solved by parents, and the use of a slow dial up connection which was frustrating (none had broadband). The school technician provided help where possible, but this raised the question of whether it was the parental responsibility to maintain their own equipment, or the school that is providing the programme of study. In 2 cases the students got too far behind, missed their first deadline, and left the course due to technical difficulties at home.

The main challenge faced by this group was the lack of opportunity to meet and discuss progress. They expressed feelings of loneliness quite early on in the course and a lack of support and motivation from their peers, as found by (Lawton, 1987). As we become more experienced with e-learning, developers are building in opportunities for 'socialisation' via electronic forms such as discussion boards, web blogs, and web-conferencing, but software in this research did not offer such a facility and the only time the group of students came together was for the purpose of this research.

The students were not used to sitting in front of a computer working on their own. Adults know this can be very difficult and takes a great deal of motivation (Macpherson et al, 2004). It is increasingly recognised that students should experience shorter spells of practical work at a computer; and the new UK National Strategy ICT Framework lesson plans (available at www.dfes.gov.uk), indicate short practical sessions broken up with whole class teaching raises achievement, engages students, and helps with motivation. For the students on this e-learning course the expectation of the software providers was that they would sit at a computer for extended periods of time.

The parents of the students working from home were positive of this new curriculum initiative. As Wishart and Blease (1999) found, eighty per cent of parents who took part in this research rated additional qualifications as the main reason for wanting their child to take this e-learning course in addition to their GCSEs. One parent stated it was 'a useful and challenging way to gain additional qualifications and developing ICT skills'. There was some cost involved as some parents purchased additional hardware and all maintained Internet connections. The students appreciated the initial support from parents, but most experienced it short-lived and sometimes found the time they had set aside for completing their e-learning study was taken up with other family activities 'The only time I can do this course is at the weekends when Mum and Dad want me to join in family activities'. In addition several students only had one telephone line in

their home and were continually being asked to log off the internet so the telephone could be used by other members of the family.

In one meeting with this group much time was taken in students expressing feelings of upset that parents no longer took as much interest in their progress: 'At the beginning Mum used to help me and look at what I was doing. Now she seems to have forgotten all about it'. It was felt by the author that the students expected their parents to take on the role of 'teacher' in encouraging, challenging, looking at what they were doing, and reminding them of assignment dates. Selinger (2001), in her discussion on teacherless classrooms, acknowledged the importance of students having a person to support their learning. In this situation this role fell mainly to the parents. This raises the issue of whether parents should receive training from the school in supporting their children in e-learning, particularly when the full course is being taken from home.

5. After-school group

In the UK it is increasingly common to find many activities taking place in schools after the traditional school day has ended. At this particular school after-school activities were more difficult because approximately 70% of the students went home on school buses. For these students, and their parents, arranging alternative transport home, often to outlying villages, was problematic. Due to transport arrangements attendance at sessions was not always good. Those students that maintained regular attendance were among those that ultimately completed the course.

In observing the after-school sessions it was clear that the students enjoyed this new method of learning. The students welcomed the fact that they could control their own learning (Lepper, 1993), but not all learning styles were met in all sessions through the e-learning materials, which sometimes led to dissatisfaction with the materials (Oh and Lim, 2005). The students were supported by a teacher during each session, and technical difficulties were quickly managed by the on-site technician. As the teachers became more confident with the learning environment they encouraged students to help and support each other, a process also observed by Hexel, et al (1998).

This group received good support during sessions, deadline reminders for coursework, feedback on progress, and the teachers maintained a form of monitoring of progress, although these were often based on completion of coursework, rather than individual progress during sessions which would have provided greater motivation (Black and Wiliam, 1998). Their parents also received reports on their progress as part of the usual reporting system within the school.

The satisfaction aspect for this group was much higher than the home study group. This was reflected in the final completion and pass rate of the whole cohort, which was much higher for this group.

6. Findings

Overall the after-school group were the highest satisfied, scoring an overall satisfaction score of 69%. The areas they were least satisfied with were the slowness of downloading the materials 62%, and the tedium of the materials 78%. The areas they found most satisfaction with were the support of the teacher 67%, the support of the school technician 64%, meeting as a group 64%, and formative feedback 83% which they identified as being an important motivating factor. There was little gender difference with 64% of girls enjoying the learning experience, 60% of boys, which is supported by Levy (2007).

The home study group were the least satisfied, scoring an overall satisfaction score of 29%. The areas they were least satisfied with were the lack of teacher support 93%, the tedium of the materials 75%, lack of opportunity to work collaboratively 73%, and technical problems 66%. The areas they found most satisfaction with were opportunity to work when they wanted to 52%, and being able to revisit theory they didn't understand 59%. There was little gender difference with 31% girls enjoying the learning experience, 28% of boys.

6.1 Satisfaction rates

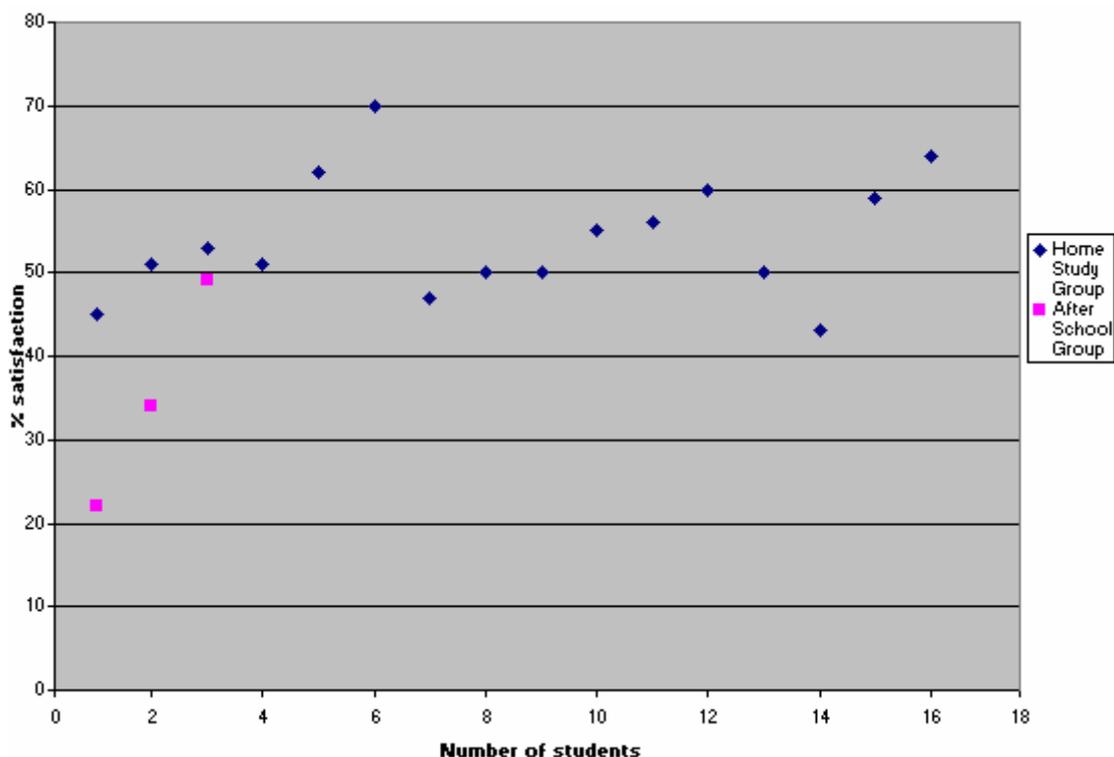


Figure 1: Scatter graph showing satisfaction of students

By the end of the first year 72% of the home study group had left the group. Ultimately only 3 of these completed, 3 transferring to the after-school group to complete the course.

The after-school group was more successful with only 7 leaving during the course, gaining a completion rate of 80%, including 3 students that transferred from the home study group.

Factors that were identified as important to the students to complete included those shown in table 2.

Table 2: Factors identified as important

Factor	No. of students – Home Study Group	No. of students – After-School Group
Ease of use	22	20
Induction and opportunity to meet the group	22	5
Timetabled tutorials built into the school day	18	4
Assessment on-demand	12	9
Regular feedback on progress	19	8
Target-setting	15	8
Built-in reminders about deadlines	20	10
Opportunity to collaborate and interact	22	9
An individual pathway linked to your knowledge and ability	17	16
More exciting materials including 3D and audio-visual materials of broadcast standards	20	18

These areas identified by the students correlate with the findings of the main areas in Chung and Liu’s research (2007) into what the virtual online classroom should be. Pituch and Lee (2006) have also developed a ‘technology acceptance model’ for successful e-learning where perceived usefulness and perceived ease of use leads to an intention to use the system. They also support the importance of being able to interact with other students and the teacher as the key to effective use of e-learning.

Research findings indicated that in HE factors such as student satisfaction with the course was a main contributor to non-completion. This is supported with the findings in this research. The opportunity to take the course was optional, but it is important to reflect on how students in this age group, with no prior-experience of e-learning, would engage with e-learning as a regular method of learning. As this school found, e-learning has many advantages, but also presents many challenges for those involved. Ensminger et al (2003) found that the successful implementation of new technology depends on well-managed change, efficiency and performance improvements, recognition or reward for taking part, and having sufficient resources to make the change. This should include careful preparation and training for all those involved.

Table 1 indicates the prior achievement of the students in ICT. There was some correlation with completion between their achievement levels, but not a significant amount, and with other factors to take into account the author was not able to make the same confident conclusion as Levy (2007). It should be noted that the one student who embarked on the course with a level 4, ie the lowest ICT skills, completed the course successfully.

It may be appropriate to introduce students to e-learning and blended learning tools at an early age so that students establish e-learning skills that they can then develop into life-long learning. This may help retention figures in HE or provide experience to make an informed choice about whether to take an e-learning course after school. All e-learning students need to develop a new range of skills such as managing their own pace of learning, learning how to become autonomous independent learners, and taking greater responsibility for their own learning. As Leask (2001) states 'we need to develop in young people, abstraction, system thinking, experimentation, collaboration and learner training, allowing them to meet the challenging requirements of the information society and equip them with the ability to be flexible, change and learn new skills for emerging contexts'. As e-learning continues to become more available, and schools offer an increasingly flexible curriculum, school managers will need to consider how to engender these skills in the students.

School managers may also want to consider the role of parents where they are going to take on the role of supporter for students using e-learning from home. There is a digital divide in the UK as reported by BECTa (2001) with access to resources and quality of software and hardware. National and local decisions need to be made as to who will be provided with home computers in order to ensure equality of access to e-learning.

As the use of e-learning, particularly from home, increases, the issue of who maintains the hardware will need to be addressed. For some parents, with poor computer skills the smallest technical problem may prove a barrier. As the students in this study found, any delays in getting hardware repaired, or upgraded to meet the requirements of the software, meant the students quickly fell behind. Incompatibility with school and home software led to a reduced level of satisfaction.

Finally, it is recognized that the issues raised in this research may be outweighed by the many benefits of e-learning and it must be acknowledged that software applications are becoming more intelligent and responsive to the user (DfES 2002) which will result in more personalised e-learning materials and an opportunity for higher standards of achievement for all students.

It is also recognised that the size of the sample, based in one school may limit the findings from larger scale research.

7. Conclusion

e-Learning certainly has a place in the future curriculum of secondary schools, but there needs to be an awareness that younger students of full-time compulsory school age do need training in using e-learning materials and developing independent learning skills. Schools may want to consider planned parental involvement for students working from home, and careful preparation of students, together with tutorial support and opportunity for collaborative work.

It was disappointing that a significant number of students failed to complete the course, but the school has learnt much from the experience, the teaching staff have developed much greater confidence in preparing students for e-learning, and senior managers have realised that there is a need to support the introduction of e-learning on a small scale at an earlier age, as well as provide timetabled tutorial support for the students. It is anticipated that the experience will ensure greater completion rates in following years, and the introduction of more e-learning materials across the school.

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Online Students: Relationships between Participation, Demographics and Academic Performance

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Abstract: Using information technology to support teaching and learning is becoming ubiquitous in tertiary education. However, how students participate and perform when a major component of the learning experience is conducted via an online learning environment is still an open question. The objective of this study was to investigate any relationships between the participation, demographics and academic performance of students in an information technology course that was taught wholly online. Through a detailed analysis of tracking data of student participation, which was automatically collected by the online learning environment, it was found that a relationship existed between students' participation in the online learning environment and their performance, as measured by final results in the course. Relationships also existed between gender, nationality, participation and performance. However, there was no relationship between age and performance and participation. These findings suggest that when designing online learning for a diverse population, student demographics should be taken into account to maximise the benefits of the learning experience.

Keywords: culture, diversity, online learning, participation

1. Introduction

1.1 e-Learning and online learning

The term e-Learning is interpreted differently by different researchers, describing a variety of situations including distance learning, online learning and networked learning. Definitions and explanations abound. Terms such as computer based education, computer based instruction, computer supported learning, distance education, ICT based learning, online learning and web based learning seem to be used interchangeably by different authors; all are claimed to describe e-Learning (McFarlane *et al.*, 2003). For the purposes of this research we will focus on online learning. Garrison and Anderson's (2003) definition of e-Learning, 'learning facilitated online through network technologies', best defines online learning as it is delivered via the Internet and how it is currently implemented at Deakin University. In the context of this research, e-Learning refers to the broader category of which online learning is a subset. Online learning can be defined as 'any class that offers its entire curriculum in the online course delivery mode via the Internet, thereby allowing students to participate regardless of geographic location, independent of time and place' (Harasim *et al.*, 1995).

Online learning environments (OLEs) facilitate learning by utilising software that enables the design, delivery and management of online teaching and learning. The notion of providing courses wholly online is relatively new and allows students of diverse backgrounds and in geographically dispersed locations to have access to, and participate in, the same courses. In the past, students have been able to study 'off campus', or from a distance, relying on study guides, detailed notes and text books, but with few or no opportunities for interaction or collaboration. OLEs provide these resources but additionally they enable regular interaction and collaboration between students and instructors through the use of discussion boards, chat rooms and other interactive functionality, bringing all students into a 'virtual classroom'. The key difference between traditional off campus and online is the ability for students to communicate and collaborate with each other via the OLE, reducing the effects and limitations of isolation.

A wholly online course can be defined as a course that has no face-to-face interaction; all communication and interactions between instructors and students, educational content, learning activities, assessments and support services are integrated and delivered online via an OLE (Deakin University 2004). In order to assist students to maximise their outcomes, a better understanding of student activity in OLEs and the effect it may have on academic achievement is required (Young and McSporran 2001, Alstete and Beutell 2004).

1.2 Student tracking tools

Some OLEs have inbuilt tracking tools that allow them to record the participation levels of each student and to show patterns of access in this type of environment. The use of tracking data in OLEs is still a relatively new and under-explored area of research. Student tracking data captures every movement of students as they navigate through the OLE. For example, this data can provide instructors with information about when

students log in, how much time they spend in the OLE, the number of messages they have read and posted, which tools and resources they have used, and the number and types of files that they have accessed. Tracking student online activity can provide early warning indicators of student performance (Wang and Newlin 2002) which is particularly important as the visual and aural cues present in a face-to-face situation are missing. For example, research has shown that the total number of home page visits during the first week of study can be predictive of eventual academic outcomes in the course. This same research found that discussion forum activity had a direct relationship with students' final grades (Wang and Newlin, 2002).

Student tracking has its limitations, however. It can only record positive action and it cannot record what it does not see. Students may choose to mark discussion postings as read rather than actually read them; they may have accessed resources by mistake; pages may have been accessed but never used. The tracking tool has no way of judging the significance of a recordable action. Further, it cannot record when actions do not take place. However, McKnight and Demers' (2003) research has shown that some elements of student behaviour online can be predicted and that student tracking can be used to achieve both teaching and learning goals, informing ongoing revision and evaluation of the course, highlighting student needs and suggesting which types of students struggle or excel in such environments. An insight into how different categories of students use and perform in online learning environments is needed to ensure that these environments are suitable for, and accommodate, every type of student using them. This study used data from a wholly online course to determine whether or not a relationship existed between student participation in the OLE and their outcomes as represented by their academic results. The impact of gender, age and nationality on participation and results was also investigated.

1.3 Student participation and performance

Many researchers support the idea that student-to-student and student-to-instructor interactions are important elements in the design and successful implementation of online learning courses. However, as Picciano (2002) notes: 'web-based learning requires adjustments on the part of students and teachers for successful interaction and participation to occur'. Picciano continues by stating that most online courses provide the ability for student and instructor interaction via discussion boards. Picciano's study looked for links between student interaction and participation, and online course performance but did not find a statistically significant relationship. An investigation into the reasons for student non-participation was conducted by Fung (2004). This study found that students had no problems accessing computers or the OLE but non-participation was due to lack of time, which was influenced by students' preferring to spend more time reading course materials rather than contributing to online discussions. Another finding revealed that a lack of interesting questions and lack of active participation from others deterred some students from being active participants (Fung 2004). Lack of time, not being comfortable with the medium and learning style preferences were also noted by Beaudoin (2003) as key reasons for student 'invisibility', or non-participation in an online learning environment. McKnight and Demers (2003) also commented that lack of participation could be due to students printing content from the OLE at the beginning of the semester, to refer to at later stages.

Student performance can be measured by a number of indicators including: successful completion of a course, course withdrawals, grades, added knowledge, and skill building. For the purposes of this study performance is measured and defined by the overall grade students are awarded at the end of completing the online course. Student performance is well understood to be a multivariable phenomenon affected by study habits, prior knowledge, communication skills, time available for study and teacher effectiveness (Picciano 2002). According to Picciano (2002) uncertainty still exists about the effects of the nature and extent of student interaction in online learning environments on student performance.

Although little is known about what factors influence student outcomes in an online learning environment, Beaudoin (2003) suggests that a high level of interaction and participation is desirable in distance education courses. Beaudoin's study found that performance cannot easily be correlated with participation. Although it found that highly participatory students achieved higher results, it also revealed that minimal online participation does not necessarily compromise student results. However a study undertaken by Alstete and Beutell (2004) found that the strongest indicator of student performance in online classes was discussion board usage. This finding was supported by the fact that the number of student sessions was positively and significantly related to overall course performance.

There is a notion that an OLE offers students an improved learning experience when compared to a more traditional classroom learning environment. Holley (2002) found that university students participating in a wholly online course using techniques such as virtual lectures and discussion boards, achieved better

grades than students who studied in traditional learning settings. Whether achieving better grades equates to an improved learning experience is debatable however.

1.4 Impact of student demographics

The connections between student performance and attributes such as gender, age and nationality have been studied by researchers in the past in traditional classroom settings. Research on student participation in online tasks and outcomes have also been investigated, such as that reported by Graff (2006). However, there is a lack of research into whether, and how, demographic factors affect students' participation and performance in an online learning environment.

1.4.1 Student gender and age

The world of computing has been described as a male domain where women are under-represented, both in IT education and the IT industry (Craig et al., 2005). Some research has suggested that women have had fewer opportunities and access to computers (Gunn et al., 2003). However, other studies have suggested that online courses tend to favour women, as they are generally more motivated, and better at communicating online and at scheduling their time (Young and McSparran 2001). Gender-based differences in performance and interaction in OLEs are recognized as important foci for research but there are conflicting views about the nature and impact of these differences. The American Association of University Women notes that 'girls are under-represented and lower achievers in math, science and technology subjects' (cited in Gunn et al., 2003, p. 15). However Alstete and Beutell (2004) argue that gender is related to students' performance and that women generally outperform men in online classes. Meyers et al. (2004) argue that there are specific gender-related issues in the use of discussions within the OLEs which have implications for the design and moderation of such discussions. The concept of lifelong learning refers to the 'activities people perform throughout their life to improve their knowledge, skills and competence in a particular field, given some personal, societal or employment related motives' (Koper and Tattersall 2004, p. 689). This means that education no longer has to stop once a person becomes a certain age. Lifelong learning means that mature-aged students can be found participating in courses, usually through distance/online education so they can juggle their studies, work and families. Little is known about how traditional university entrants (students directly from high school) and non-traditional entrants (mature-aged students) differ in their use of online learning environments (Hoskins and Hooff, 2005). However, existing research has demonstrated that age is a powerful predictor of achievement, with mature-aged students performing better than younger students. Hoskins and Hooff further reported that the number of home page visits increased with students' age; the amount of time students' spent online increased with age; the number of discussion messages read and posted also increased with age. A study carried out by Alstete and Beutell (2004) also found student age to be a significant variable, with older students more likely to use discussion boards and tending to achieve better grades in online courses. This suggests that younger students may not be ready for the self-directed and self-disciplined nature of online courses and may need more support from instructors when it comes to the online format.

1.4.2 Student nationality and culture

Bentley et al. (2005) state that 'culture is so much an integral part of our life that it is often difficult to realise that there are different, but equally valid, ways of thinking, perceiving, and behaving.' The concept of culture largely stems from anthropology, where there is little consensus on a definition (Choi 1995). The first known description of culture dates back to the 18th century when Sir Edward Tylor defined culture as 'that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society' (Tylor 1871, p. 1). Kroeber and Kluckhohn (1952) suggest that culture can be seen as a product of behaviour. They identify culture as patterns of ideas and values that shape one's behaviour. In more recent times, culture has been described as 'the collective programming of the mind which distinguishes the members of one human group from another' (Hofstede 1980, p. 25). People belong to many different 'human groups' at the same time. For example, a person may belong to a nation, a generation, a gender and an organization all at the same time. Hofstede (1991 p. 5) further suggests that culture is not inherited but learned, as it is derived from 'one's social environment'.

The term 'culture' has many definitions and Williams (1983 p. 87) goes so far as to suggest that culture 'is one of the two or three most complicated words in the English language'. The Oxford Online Reference Premium (2007) produces some 504 definitions of the term culture and these definitions include 'production of organisms', 'intellectual development and tastes', 'form or type of civilization' and 'the way of life of a people'. Culture also comes in many different forms such as functional culture, organizational culture and

national culture (Dubé and Paré, 2001). Choi (1995) suggests that since there are various definitions of culture and there is no clear consensus on its meaning, it is critical to define the use of the term in any given research area. Throughout this study, the term culture is used to represent national culture. In recent years not only has there been an increase in the use of the Internet as an educational platform in Australian tertiary education, but at the same time there has been an increase in cross-cultural classrooms due to the growing enrolment of international students. The advent of wholly online courses has meant that the student base has increasingly changed from a majority of local students to a combination of both local and international students (Lanham and Zhou, 2003). Differences exist between different cultures in the way that students learn as well as their preferences and approaches to learning. Conlan (1996) suggests that the approach to learning that is adopted by students of Asian cultures generally involves memorising study materials and content for the purposes of reproducing them when required. Conversely, many Australian students and those of Western culture, have 'been encouraged to learn through the questioning of facts and understanding of concepts' (Conlan 1996). Although each person has a cultural background informed by their educational experiences, it must be acknowledged that people within a culture are different – they may be shaped by the culture, but they are still unique individuals. Chin et al. (2000) report that in their study students from a Western culture seem more confident in using web-based materials, while Asian students recorded fewer accesses to the web-based materials. This study also found that Western students showed fewer difficulties in navigating through the on-line materials than Asian students. These findings corroborate Hofstede's views (as cited in Chin et al., 2000) that Western students are more accustomed to student-centred situations whereas Asian students prefer a teacher-centred approach.

2. Context of the study

This research investigated student tracking data and student demographic data that was collected through the normal operations of the university. A wholly online subject with approximately 500 enrolled students was selected for this study. The subject was a compulsory unit in the final year for students undertaking the Bachelor of Information Technology and was run in the second semester (mid-July to early November in Australia). This subject was specifically selected as it could be assumed that the students were highly IT literate thus minimising lack of technology skills as a potential variable in the study and, for the majority of students, this was their third year of tertiary study. The data was collected by the unit chair on a weekly basis over 16 weeks and was stored in a series of comma delimited files. The data required preparation and cleansing before data analysis could proceed. For example, before the data was passed onto the researcher, the data was made anonymous by the unit chair to ensure that student confidentiality was maintained. The data relating to students who withdrew early from the course (in the first few weeks of semester) was removed, resulting in 457 valid cases. This was then followed by detailed analysis involving both descriptive and inferential statistical techniques. The student cohort was a diverse mix of males (77.5%) and females (22.5%). This breakdown is consistent with enrolments in IT related courses Australia wide; 75.6% males and 24.4% females (DEST, 2006). Students in the 18-24 year range made up 75.5%. The remainder were older. To avoid potentially identifying any one individual no further breakdown of the age category was undertaken.

Students also came from varying nationalities and cultures. An aim of this study was to see whether a student's culture had any correlation with their participation and/or performance. However, as discussed earlier, culture cannot easily be defined. It was difficult to determine a student's culture based on the data set obtained from the University's student information system (SIS). Student nationality was the closest variable to culture in this context, so this was initially considered a suitable measure. However, the difference in nationalities of students was vast with 42 nationalities represented in the data set. Consequently, the best available measure of nationality was determined to be a student's citizenship. Student citizenship was recorded in the SIS using four categories: Australian citizens (41.6%); permanent residents (3.1%); temporary residents, which was the second largest cohort (35%); and finally international students, which made up the remaining 20.3% of overall students. Nationality was determined through an inspection of their country of birth. Through a combination of the two categories, nationality and citizenship, a broad measure of culture was determined, facilitating a comparative analysis of the results (see Table 1).

Table 1: Culture of students

Citizenship	Nationality	Frequency	%
Australian Citizen	Predominantly Western	190	41.6%
Permanent Resident	Asian adapting to Western	14	3.1%
Temporary Resident	Predominantly Asian	160	35.0%
International Student	Predominantly Asian	93	20.3%
Total		457	100.0%

All communication and collaboration related to any learning activities between staff and students in the course were facilitated through the OLE, which had a built-in student tracking tool that recorded all online activity. The student tracking report provided an overview of activities in the course displaying both general session information and more detailed tool usage statistics for each student. Data was collected for each individual student on a weekly basis and although it included an extensive list of data, this study is limited to the total time students spent online, the number of discussion messages read and posted, and the number of content files viewed. (A content file is any internally linked file that can be in any format including .doc, .pdf, .html, .wav. etc and is most often a course-related file provided by academic staff.) The statistics provided by the tracking reports were used to determine the components, tools, and pages that were of most interest to students. Course instructors could also use the statistics to determine each student's level of participation in various activities.

Tracking data does have limitations. The data that is recorded may not always be an accurate representation of what really occurred. For example, if a student omits to log out of the OLE, the automatic logout is activated after 60 minutes. As suggested earlier, the system cannot record what it does not see. For example, a student could have been active for only two minutes in the OLE during a session in which they were logged in for sixty minutes, doing unrelated "stuff" in the outstanding fifty-eight minutes. The student tracking report records all messages that students have seen in the discussions section of the OLE. The OLE has a 'Mark as Read' option so if the student selects all messages and then 'Marks as Read' it would be recorded as "read all messages" in that discussion. Equally, there is no guarantee that the student has actually read the message – only that the message has been displayed on a student's computer screen.

3. Results

The main aim of this study was to determine, in the first instance, whether or not there is a relationship between student participation in an OLE and their academic results. For the wholly online subject that was used for this study, grades were awarded to students based on the schema shown in Table 2. The results from this study are presented in the following three sections, the first being a comparison of participation and academic achievement, followed by an exploration of the impact of demographics on participation and finally, demographics on academic achievement.

Table 2: Allocation of grades

Result	Grade
80% or above	<i>HD (High Distinction)</i>
70% to 79%	<i>D (Distinction)</i>
60% to 69%	<i>C (Credit)</i>
50% to 59%	<i>P (Pass)</i>
below 50%	<i>N (Fail)</i>

3.1 Participation and academic achievement

3.1.1 Does a relationship exist between participation and academic achievement in an OLE?

It was anticipated that those students with greater participation in the OLE would (on average) achieve better grades than those who participated to a lesser extent. To test this assertion, we measured four aspects of participation: time spent in the OLE, number of messages read and posted, and number of content files viewed. The sample results were quite consistent across all of the measures. In each case, those students who achieved higher grades (HD, D or C) participated substantially more in the OLE than those who achieved a minimal pass (P) or failed (N).

A summary of the results are given in Table 3 below. Note that the median has been used throughout as the data were positively skewed. In testing for differences between high and low achieving students the Wilcoxon Rank Sum test was used. Across all four measures of participation, the high achieving cohort participated statistically significantly more, on average, than the lower achieving students (Table 3). These results suggest that, on average, the highly participatory students do achieve higher academic results. It appears that a positive relationship exists between student academic performance in an OLE and their academic achievement.

Wang and Newlin's research suggested that students who have a high participation level in the first week of an online course will achieve a higher result (Wang and Newlin 2002). To determine if this finding was

consistent in this study we divided the cohort of students into two groups based around the median number of messages posted in the first week. Any student who posted less than the median number of messages was considered to have a *low* participation level while those that posted the median or more messages were considered to have a *high* participation level (see Table 4).

Table 3: Average student participation according to academic performance

Result	High achievers			Low achievers		Wilcoxon Rank Sum
	HD	D	C	P	N	z-stat/p-value
Number of students	61	119	129	88	60	
Median time (in hours) spent in the OLE	25.4	23.7	24.3	18.6	12.8	z=-6.7, p<0.001
Median number of messages read	536	501	503	335	270	z=-6.7, p<0.001
Median number of messages posted	28	24	21	17	7	z=-8.3, p<0.001
Median number of content files viewed	178	189	167	147	114	z=-5.9, p<0.001

Table 4: Participation in the first week

Participation	n	Median Mark
Low	228	62%
High	229	68%

The finding was indeed confirmed in this study. The average mark for the 229 high participating students was 68% compared to 62% for the 228 students who were low participators in the first week. The difference between the two is statistically significant (Wilcoxon z=-4.99, p-value<0.0001). Although the difference identified is small, it is significant so we may conclude that students who participated more in the first week of semester did achieve a higher academic result.

3.2 Participation and demographics

3.2.1 Does a relationship exist between student gender and participation in an OLE?

Some studies in the literature have shown that females are likely to participate more in an OLE than males. Gunn et al (2003) analysed student participation in online activities and found that lower course web page views and lower discussion board participation were characteristics of male behaviour in an OLE. In addition, Arbaugh's (2000) study investigated the effects gender had on participation and found that women had consistently higher participation patterns than men. The analysis carried out in this research supports these findings. On average, female students in the sample spent 24.47 hours in the OLE, with males spending an average of 20.61 hours (see Table 5). Similarly, females in the sample also read and posted more messages and viewed more content files than did their male counterparts. The differences between males and females found in the sample are statistically significant across all measures of participation except for the number of content files viewed (Table 5). Previous research has suggested possible reasons for these results including that women are more network-oriented and collaborative and therefore participation through discussion boards is more favourable to them, whereas men tend to communicate on the basis of social hierarchy and competition, but these social cues are absent in an OLE (Arbaugh, 2000). Content files, on the other hand, are not necessarily directly related to communication or collaboration and, because of their static nature, we would not expect any significant difference between the genders.

Table 5: Average student participation according to gender

Results	Female	Male	Wilcoxon z-stat/p-value
Number of students	103	354	
Median time (in hours) spent in the OLE	24.5	20.6	z=2.7, p=0.006
Median number of messages read	509	416	z=2.9, p=0.004
Median number of messages posted	25	20	z=3.1, p=0.002
Median number of content files viewed	166	158	z=0.3, p=0.377

3.2.2 Does a relationship exist between student age and participation in an OLE?

Hoskins and Hooff (2005) report that there is little knowledge of how traditional university entrants and mature-aged students differ in their use of OLEs. However their study found that age can predict a student's participation with total time spent in OLE and number of discussion messages read and posted increasing as age did (Hoskins and Hooff 2005). This implies that mature-age students will participate more than the younger students in a wholly online course. The findings of this research neither support nor contradict this earlier work by Hoskins and Hooff (2005). The participation level of the 112 mature aged students in the sample was approximately the same (or slightly higher) compared to younger students. Mature-age students spent an average approximately three hours in the OLE for the semester more than younger students. Mature-aged students read and posted slightly more messages on average, but there was no difference in files viewed (see Table 6). None of the variations between the age groups were substantial and applying Wilcoxon rank sum tests for differences between the medians confirmed the results were not statistically significant.

Table 6: Student participation according to age

Age	18-24	25+	Wilcoxon z-stat/p-value
Number of students	345	112	
Median time (in hours) spent in the OLE	20.9	23.7	z=1.3, p=0.09
Median number of messages read	423	476	z=1.5, p=0.063
Median number of messages posted	21	22	z=0.8, p=0.214
Median number of content files viewed	160	160	

3.2.3 Does a relationship exist between student nationality and participation in an OLE?

The literature cited earlier indicates that there are different approaches to learning by students from different cultures and this may effect their participation in an OLE. Students of Western cultures are encouraged to question the facts and understand concepts (Conlan, 1996), encouraged to take an active role within their education and are thought to be more accepting of online learning than students of Asian cultures (Lanham and Zhou, 2003). Although students of Western cultures may be more accepting of online learning, it does not necessarily mean that they will participate more than Asian students. As Table 7 shows, of those students in the sample, Australian students participated the least in almost all aspects of the OLE. The permanent residents, those who are Asian adapting to Western culture, participated the most.

Multiple significance tests were performed to determine if the differences between the student cohorts were statistically significant. For simplicity we will not detail all of the tests here (there were 24 of them in total). However, the main theme coming through from all of the tests was the students who were Australian citizens participated significantly less than the other cohorts. In terms of time spent in the OLE and messages read and posted the Australian Citizens median participation was significantly less than all the other cohorts. In terms of content files viewed the differences were not significant. These results are contrary to other studies in the literature. One possible contributory factor may be related to language difficulties experienced by Asian students who may have had to re-read messages and ask more questions. A study by Smith *et al.*, (2005) identified that Asian students tend to seek clarity of the tasks set for them, therefore the high participation levels of the Asian students may relate to clarification of the tasks at hand. Further study is required to shed light on this point.

Table 7: Average student participation according to nationality/culture

	Australian Citizens	Permanent Residents	Temporary Residents	International Students
Number of students	190	14	160	93
Median time (in hours) spent in the OLE	18.18	36.78	22.97	25.33
Median number of messages read	369	774	477	472
Median number of messages posted	19	29	21	25
Median number of content files viewed	156	245	178	123

3.3 Academic achievement and demographics

3.3.1 Does a relationship exist between student gender and academic achievement in an OLE?

The literature suggests that in general women tend to perform academically better than men (Alstete and Beutell 2004). It is suggest that this may be the result of female students' greater tendency to put extra effort and time into their studies. The current study found that a relationship did exist between gender and academic achievement with women outperforming men. Female students in the study achieved an average (median) mark of 72%, while male students achieved an average of 63%. This difference is statistically significant ($z = 4.31$, $p\text{-value} < 0.001$) and confirms that female students did indeed perform better than their male counterparts in this online course. This would imply that female IT students undertaking online courses perform better than male students in similar courses. Gunn *et al.* (2003, p. 24) suggests that the reasons for better performance of women in OLEs include 'stronger motivation to succeed, greater ability to work independently and to self manage multi-tasking lives, while male students appear to need more motivation and discipline'.

3.3.2 Does a relationship exist between student age and academic achievement in an OLE?

Although the literature surrounding the effect that age may have on a student's academic achievement in an OLE is scant, previous studies have found that mature-aged students do perform better than younger students (Hoskins and Hooff 2005). However, the results from the current research do not support this finding, since there was no discernable difference between the age groups: the average (median) mark for mature-aged was 65% which was virtually identical to the 64% average achieved by the younger students. Note that in the study more (in percentage terms) mature-aged students achieved a High Distinction. However, this was balanced by the fact that mature students also had a higher percentage of failures compared to their younger counterparts.

3.3.3 Does a relationship exist between student nationality and academic achievement in an OLE?

There have been several studies that have identified Australian students and those of Western cultures as being more accepting and confident working in an online learning and students from Asian cultures generally preferring the traditional instructor-centred approach. Other studies have found that students of Western cultures are more confident than Asian students in using web-based learning environments.

Table 8: Average (median) academic results according to student nationality/culture

	Australian Citizens	Permanent Residents	International Students	Temporary Residents
<i>Student Culture</i>	<i>Predominantly Western</i>		<i>Predominantly Asian</i>	
Overall Course Result	72	72	64	61

The results from this study appear to support these views. Australian citizens and permanent residents, got substantially better grades than did the international students and temporary residents. As shown in Table 8 on average Western students are achieving a Distinction (D), while Asian students obtained a Credit (C) average.

We compared the predominately Western cohorts to the predominately Asian cohorts and the differences in marks were statistically significant ($z = 6.5$, $p\text{-value} < 0.001$). Thus it is possible to conclude that on average, students of Asian cultures do perform poorer than those students of Western cultures in online courses. A potential reason for this may have been that Asian students in this study were inhibited by language barriers due to the nature of the subject which was predominately discussion-based – relatively unusual for an technical IT programme of study.

4. Conclusion

The findings reported here, with the limited exploration of culture possible, indicate that there is no evidence that students of differing backgrounds are disadvantaged by the delivery of education through online learning; with the changing needs of today's society it is important that such courses are not only designed from an Australian-centric point of view. As stated by Lanham and Zhou (2003, p. 290) 'the dissolving of cultural boundaries in online learning will only occur if we first understand what those boundaries are. Universities have the technology to provide global education; the focus must now be placed upon ensuring that the educational content and resources we provide can be utilised by all students.' The categorisation

into the subgroups we adopted has the potential to hide diversity caused by culture. This limitation was unavoidable as the demographic data available to us only allowed such gross generalisations. A more detailed study, including collection of more specific cultural dimensions, is required before generalisations can be made which apply to the wider student body. This research has presented a detailed analysis of how students in one large online class participated and performed in the OLE, looking specifically at students' gender, age, nationality and culture (as defined earlier). The findings from this research study are supported by those indicated in the literature with regard to gender and culture and participation and performance in an OLE. However the findings regarding age did not show a significant effect as suggested by the literature. These findings have the potential to inform educators by helping them to understand which students participate more and perform better than others in OLEs. This may lead to the introduction of changes to online course structure and delivery to ensure that they are suitable for diverse student populations. Educators must be aware of the diversity in classes and take into consideration the needs of all students. Designing and delivering OLEs that are understood and welcomed by all students should be of highest priority.

The key research findings from this study have been summarised in Table 9.

Table 9: Key research findings

Participation and Performance	There was a strong positive relationship between student participation in an OLE and student academic performance. Students who achieved higher grades (C, D or HD) in general participated in an OLE more than those students who only received a P or even fail.
Gender	Female students participated more than male students in an OLE by reading and posting more discussion messages. Female students performed better than male students
Age	There was no significant relationship between student age and their participation and academic performance.
Nationality/ Culture	In this study Asian students had a high level of participation but generally did not perform as well as students of Western cultures.

The literature has identified that the shift in learning accountability from the instructor to the student in online learning is one of the major difficulties that exist in the transition to wholly online courses. Lanham and Zhou (2003) suggest that because Asian students rely strongly on their instructors, this cohort of students may experience problems when placed in an environment where the instructions require students to apply their own ideas. It has also been noted that the reasons for better performance of females and mature-aged students in an OLE are believed to include a stronger motivation to succeed, a greater ability to work independently and to be able to multi-task. Educators need to consider the demographics of their students undertaking online learning to ensure that they are providing suitable environments for them all. It is necessary to gain an understanding of how different students participate and perform in OLEs. This could enable institutions to better target their audiences for these types of courses to ensure that students are going to participate and perform to the best of their ability. With the increasing demands placed on institutions by Australian Government to monitor the progress of international students in particular, using tracking data to monitor the level of participation in the early part of semester can provide an easily accessible early indicator of students who potentially could be experiencing difficulties with their studies. Implementing proactive measures to identify students at risk is surely a better solution than relying on reactive measures after they have failed an assessment for example.

5. Further work

This research has identified a link between early participation in the OLE and course outcomes, for courses where students are expected to be active in the OLE on a regular basis. Whether causation exists or other factors are contributing is not clear. However, as an early indicator of potential students at risk, this relationship cannot be ignored. Further research which investigates a wider range of possible factors linked to causation needs to be undertaken. A more detailed study which is able to take account of finer-grained cultural factors would likely give us a better insight into any special needs of international students, in particular when introduced to online learning. It would also be interesting to replicate this study as both staff and students become more experienced with online learning and to identify whether students' learning habits online are changing (or possibly improving).

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Quality of e-Learning: An Analysis Based on e-Learners' Perception of e-Learning

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Abstract: e-Learning, of late, has been witnessing an unprecedented expansion as an opportunity for higher education. This expanding alternative mode calls for ensuring and imparting a sound and qualitative education. The present study made an attempt to investigate the issues related to the quality dimensions of e-learning. Our results revealed the presence of both strengths and weaknesses in the e-learning system. It is interesting to note, that the e-learners have expressed diverse opinions with regard to administrative issues, instruction materials, instructors' support, viper sessions (VIPER, Voice Internet Protocol Extended Reach is a software which helps interactive learning through the Internet), grading and assessment. The findings of the study further demonstrate that if the concept of e-learning is imparted with a better approach and perspective, the reach will be phenomenal. This study reiterates the relevance of imparting qualitative education through e-learning.

Keywords: Online courses, e-learning, quality assessment

1. Introduction

The phenomenon of Globalization has transformed world trade, communications and economic structure in the 21st century and consequently, the complexion of higher education sector too has undergone a sea change in the last two decades. Although higher education, science and technology have always been international endeavors, of late, they have acquired new dimensions and features. Internationally, a majority of the institutions offering higher education is making strenuous efforts to revise its academic orientations and the course delivery strategies in the light of the interplay of these global changes and emerging challenges. Against this background, research studies which addressed the quality issues in e-learning are gaining importance. There is an increasing body of research evidence which demonstrated that, the thrust of the forces of globalization of higher education paved the way for the emergence of virtual education (Knight, 2002). It was also observed by several researchers that with the advent of the Internet technology, integration of the Information technology (IT) tools into higher education stream has become an easy task (Alsunbul, 2002; Altbach, 2002; Coffman James, 1996). In this context, online learning mode has emerged as a major higher education option before the global student community in general and Arab student population in particular. Higher education institutions operating in countries like America, UK, Australia, New Zealand, European Union (EU) and various other developed countries are making efforts to re-adjust in the light of the contemporary challenges and Middle East countries are no exception to this inevitable transformation. While advanced countries responded to these pressures of Globalization rather more successfully with their vast resources, the Arab nations are still in the process of designing strategies to re-adjust to the dynamic phase of global reforms in the higher education sector. In this context, several educational researchers observe that the student options are no longer constrained by boundaries and, therefore, it paved the way for the emergence of new internet-based borderless virtual education, distance learning and educational franchising (Phillips, 2001).

2. Issues in quality assurance – Middle East scenario

While contemporary research reports focused on the quality aspect of the borderless virtual education, a majority of the Middle East countries is focusing on designing viable accreditation systems to bring quality in virtual education. In this context, it was observed that the crossing of these boundaries has given rise to quality assurance challenges (Twigg, 2001). Looking at the global scenario, it could be stated that several countries are reviewing legislations on the *modus operandi*, rights and responsibilities of universities (e.g. USA, UK, Australia and New Zealand) and are focusing on designing dynamic accreditation systems for e-learning in private educational institutions (e.g. South Africa and Middle East countries). The Japanese Ministry of Education, Science and Technology is allowing universities to grant credit for online courses but is setting specific rules and regulations for such courses quite obviously to ensure higher standards on par with the regular stream. Several Gulf countries such as Bahrain, Oman, UAE and Saudi Arabia are revamping their educational systems in tune with the world class higher education standards. In addition to

this, various other quality assurance issues are being debated at the international levels which include visa regulations for trans-national students, Intellectual Property Rights (IPR) for virtual courses, recognition and licensing arrangements for service providers, arrangements and regulations for the transfer of educational credit and methods of controlling fraudulent providers (Altbach, 2002).

Stretching from Mauritania to the Persian Gulf, the Arab region is composed of nations of varying wealth, disparate geographies, and differing ethnic and religious characters. Yet despite their national particularities, Arab systems of higher education do manifest certain common, over-arching, region-wide trends and phenomena that are leading them to greater convergence. Arab nations as a whole have, in their relatively short post-independence histories, placed great emphasis on the expansion of schooling as the cornerstone of nation building. These efforts have been successful and have yielded substantial numbers of secondary graduates that far outstripped university capacities thereby becoming a crucial issue in the Arab higher education world.

The World Wide Web (WWW) has accentuated the e-learning process in the Middle East nations and as a consequence, virtual universities are built directly on the computer networks to offer online education. Many accredited educational institutions in the Gulf region are toying with the idea of online education because of the built in economies in staff costs, increased access from anywhere and anytime and the global spirit. Despite the varying degrees of digital readiness in different parts of the Arab world, a quick survey of the educational scene in the region shows a growing substantial interest in online learning. It is interesting to note that the e-learning market in the United Arab Emirates (UAE) alone is currently estimated to be \$14 million and is expected to increase to \$56 million by 2008. In the Arab Gulf (Saudi Arabia, UAE, Kuwait, Bahrain, Qatar, and Oman) total spending on e-learning was estimated at \$72 million in 2004. It is estimated that online education spending in the Arab Gulf region will thus reach \$240 million by the end of 2009, with Saudi Arabia and the UAE representing about 80 percent of the total. Researchers opine that, Saudi Arabia is likely to dominate in academic e-learning with its large student population, while the UAE may lead in business e-learning services. It is also interesting to note that despite the growth rates cited above, the reach of the internet in this region, is one of the lowest in the world (Table-1). Although several researchers have established a direct linkage between the internet usage and virtual learning, serious efforts are yet to be made by the respective governments to create a congenial environment for the growth of online education in the Middle East region.

Table 1: Internet users in the Middle East and in the World

Middle East Region	Population (2006 Est.)	Pop. % of world	Internet Users, Latest Data	% Population (Penetration)	Usage % of World	Use Growth (2000-2005)
Total in Middle East	190,084,161	2.9%	18,203,500	9.6%	1.8%	454.2%
Rest of the World	6,309,612,899	97.1%	1,003,859,782	15.9%	98.2%	180.6%
World Total	6,499,697,060	100.0%	1,022,063,282	25.7%	100.0%	634.8%

Source: www.internetworldstats.com accessed on 3-1-2007

In this context, the Arab Human Development Report (2002) also stated that the internet reach is at its lower ebb in the Arab world. It has stated that Arab Region with 5% of the world's population has only 0.5 percent of the internet users. Also, the internet penetration in the Arab region is just 2.2% when compared to the world's average which is 5.2%.

3. Background of the study

Though the Arab-world is a late-starter as far as e-learning is concerned, of late, the volume of students enrolling for e-learning courses is on the increase. While the entry of many on-line course providers is a healthy sign as many more potential learners would be roped in the system, the e-learners should be in a position to clearly distinguish and choose the best among them, in terms of quality.

Against this backdrop, the researchers have made an attempt to analyze the perception of e-learners on various dimensions of quality. Also, a study on quality assessment would hopefully help learners-in-waiting to take right decisions in choosing the right e-learning centers of learning.

4. Literature review

There is an increasing body of research evidence which addressed the various issues that are related to the advent of internet technology and its impact on the quality of global higher education delivery methods. Although several research studies are abounding on the same, the following studies have predominantly influenced the present study.

The review of the literature on the quality issues in e-learning revealed that online courses target a different segment of student population (Mangan, 2001; Thomas, 2001). Research studies further revealed that five out of six online students were found to be employed and would be unable to attend traditional classes (Thomas, 2001). It was also observed that on account of the current dynamic global economic situation, there was a steady increase in the number full-time employees seeking higher education. It is interesting to note that these prospective students cannot afford to leave their current jobs for a full-time or on-campus program enrolment (Mangan, 2001). The rapid pace of technological changes made it necessary for adults to continuously upgrade their knowledge and skills so as to stay competitive in the job market (Devi, 2002). Thus, the online education market created a larger geographic market for students, particularly for smaller universities (Smith, 2001). Although some researchers have found that the effectiveness of online learning equals or exceeds that of classroom learning (Rice, 2000; Rosenbaum, 2001), the quality of online programs is still being debated (Hongmei, 2002). Although online courses offer some advantages in terms of the flexibility of the delivery and learning, they are not for everyone (Devi, 2001; Kearsley, 2002). It was also observed that, those who thrived in the traditional classroom or who enjoyed face-to-face lectures may find it difficult with online learning and vice versa (Jana, 1999; Ramos, 2001).

While addressing the various issues faced by the student community in virtual learning, Larsen et al (2002) observed that online students may not be able to determine their academic needs, concerns, and other pedagogical attributes of education. In this context, it was also observed that a well-designed faculty support system creates a constructive learning environment in which everyone ends up learning from each other (Katz-Stone, 2000). Successful online courses always had a high degree of faculty involvement and peer student support (Hongmei, 2002). Some educational experts observed that online courses were more interactive in nature than the traditional ones (Mangan, 2001; Rosenbaum, 2001). The reason offered by these researchers was that online education made it easier for slow learners, who may need more response time to participate (Smith, 2001). It was also observed that online courses may not provide enough opportunity for learning team building skills and for community building skills (Ramos, 2001).

Carl (1991) has given a detailed list of the positive aspects of the e-learning. He is of the opinion that e-courses can be monitored more easily than the traditional classrooms. He further states that on-line learners can make use of the electronic mail to establish communication with faculty members. He reiterates that e-learning may result in cost savings. In the same manner, Dwyers *et al* (1995) have explained the advantages of student-centered teaching approach which provides round the clock accessibility to course materials and providing just-in-time methods to assess and evaluate students' progress.

However, Oppenheimer, (1997), Kraut *et al.*, (1998) have been dubious about the advantages of computers and online learning over traditional classroom teaching methodology. Phipps and Merisotis (1999) have stated that though the e-learning had many advantages, the dropout rates have been very high when compared with traditional class-room.

In a nutshell, previous studies have expressed diverse views on both the advantages and disadvantages of e-learning. However, the researchers reiterate that e-learning, if implemented properly, has the potential to reach millions of people. They have opined that the quality of the entire e-learning exercise should be properly assessed and ensured. Our study gains further momentum owing to the impetus given by the previous researchers.

Although several studies have been conducted on e-learning, hardly a few studies have included and surveyed the e-learners in their sampling frame. So, this study focuses at eliciting the views of the end-users i.e., e-learners on various aspects pertaining to quality.

5. Need and importance of the present study

The present study gains importance against the backdrop of the various challenges faced by the instructors while disseminating the academic inputs on virtual in the Middle East region. Although several studies were conducted on the issues in the global e-learning, less research studies have addressed the challenges faced by e-learners in the Arab region. The following factors validate the current research study. Firstly, the region's population relies largely on Arabic as a learning language (especially at the primary and secondary levels), and Arabic language has made limited inroads in the digital information landscape. Secondly, the educational systems in the Arab world are yet to orient their students for an active, independent, life-long learning approach to education which is a prime pre-requisite for participating in the online-learning world. Thirdly, although the digital infrastructure is well-developed in some regions (the Arab Gulf, in particular), its

actual penetration into homes and actual usage in workplaces and schools remain very limited. Online education depends strongly on digital infrastructure, PC, Internet penetration, and connection costs, all of which vary hugely from one Arab country to another. The situation is most advantageous in the Arab Gulf and least favorable in countries like Sudan and Yemen.

6. Methodology and sampling

The primary research question of the present study is to analyze the perception of the e-learners with the regard to the quality issues of the entire e-learning process. Quality assessment has different dimensions. To put it precisely, the present research work aims at answering the following questions. Are the e-learners happy with the e-learning system? Are they satisfied with the curriculum content, faculty support, delivery mode and assessment?. To serve this purpose, the questionnaire designed for the purpose tries to analyze the quality issues from the view point of the e-learners. In a nutshell, the research question of the present study could be stated as follows:

6.1 Research question

How do e-learners assess the quality of e-learning?

6.2 Objectives of the study

Based on the above research questions, the primary objectives of the present study are:

1. to analyze the e-learners' perception/opinions with regard to the commitment of the institution providing e-learning programs, curriculum content, faculty support, students' commitment, delivery mode, evaluation and assessment of the e-learning system,
2. to identify the major strengths and weaknesses, if any, of the e-learning system with regard to quality,
3. to examine whether any significant differences existed among the key demographic categories with regard to different factor dimensions of the study, and
4. to offer suggestions, in the light of the research findings, for improving the quality of the e-learning in Oman and UAE.

6.3 Hypotheses of the study

In addition to analyzing the above mentioned objectives, the study also has tested the following four hypotheses:

Null Hypothesis 1 *Ho : There are no significant differences between male and female students (e-learners) with regard to their opinions on the six factors on quality perceptions.*

Null Hypothesis 2 *Ho : There are no significant differences between Oman and UAE students with regard to their opinions on the six factors on quality perceptions.*

Null Hypothesis 3 *Ho : There are no significant differences among Matriculate, Graduate and Postgraduate students with regard to their opinions on the six factors on quality perceptions.*

Null Hypothesis 4 *Ho : There are no significant differences among the four employment categories with regard to their opinions on the six factors on quality perceptions.*

6.4 The questionnaire

A well-structured questionnaire was designed to collect the relevant data. The questions posed to the respondents were designed after an extensive literature review particularly pertaining to the quality issues and the experience gained from the pilot testing. The questionnaire was divided into three sections, A, B and C. Section 'A' focused on the demographic profile of the respondents such as name, sex, age, educational qualifications, employment, marital status, source of funds for studying the course and frequency of logging into the WebCT/BlackBoard/KEWL etc. Section B titled, students' perception of e-learning had comprehensive items in the form of statements seeking the opinions of respondents on various issues starting from the courses offered by the institution to the effectiveness of testing instruments and the assessment tools.

Section 'C', solicited suggestions/recommendations and expectations of the respondents on various e-learning issues.

6.5 Sample selection

The sample size was 112 and it included the under graduate e-learning students who were chosen by simple random sampling method from two Arab countries namely UAE and Oman. The demographic profile of the respondents considered for this study is presented in Table 2. Both primary and secondary data sources were used for collecting the research data. The primary data were collected by the questionnaire whereas the main sources of secondary data were Educational Manuals, Periodicals, Journals and Magazines. Questionnaires were administered to the respondents directly by the researchers by visiting them in their respective offices. Data collection took place from January 2006 to September 2006.

Table 2: Demographic profile of respondents

Basis of Classification	Category	Count	Percent %
Country	Oman	62	55.4
	UAE	50	44.6
Gender	Male	86	76.8
	Female	26	23.2
Education	Matriculates	50	44.6
	Graduates	41	36.6
	Postgraduates	21	18.8
Employment	Government	47	42.0
	Private	43	38.4
	Own Business	14	12.5
	Unemployed	8	7.1
Marital Status	Married	42	37.5
	Unmarried	70	62.5

Source: Primary data

6.6 Reliability test and initial purification of the instrument

As stated earlier, Section B, titled students' perception of e-learning had 40 statements. The respondents were requested to choose one out of the five choices given. The choices were based on Likert's Interval Scale i.e., Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). The statements basically aimed at eliciting the views of respondents with regard to the commitment of the institution providing programs, curriculum content, faculty support, students' commitment, delivery mode, evaluation and assessment of the e-learning system. (Respondents from Oman are pursuing their online MBA course offered by one of the leading universities in UK and students from UAE are pursuing their BBA undergraduate courses of a leading University in USA.) A total of 180 questionnaires were personally distributed to the respondents giving a brief explanation of the purpose for which the survey was undertaken. However, only 112 completed questionnaires had been returned with a success rate of 62.22%. A reliability test was conducted in order to ensure the reliability and internal consistency of the scale. The initial Cronbach α (alpha) value was 0.895 for the 40 items included thus ensuring the reliability and internal consistency of the scales used. This was considered appropriate to proceed further with the analysis as the Cronbach α (alpha) > 0.70, as suggested by Nunnally (1978), is considered sufficient to ensure both reliability and internal consistency of the scales. However, the corrected-item-to-total correlation revealed that 3 of the 40 items had high standard deviation hence they were removed from the rest of the analysis. So, finally only 37 items were included for analysis for which the revised Cronbach alpha was 0.883. The rest of the analysis is done as follows; once the scales exhibited desirable levels of consistency, the researcher proceeded further. Firstly, descriptive statistics was prepared to analyze the opinion of the respondents with regard to the various questions included in the questionnaire. Secondly, a Principal Component analysis was applied to comprehend the data dimensions followed by Factor Analysis for extracting factors. Thirdly, based on the factors, both Mann-Whitney and Kruskal-Wallis tests were applied for hypotheses testing. Fourthly, the results of the open-ended questions were grouped logically and presented '*verbatim*'. The results are presented in the same order in which analysis was done.

7. Analytical results I

7.1 Key findings of the descriptive statistics

The major findings of the descriptive statistics are presented below: A ranking of all the 37 interval scale items finally included for analysis has revealed the following results. The ranking was done as follows: In the Likert's scale, each item consists of a maximum of 5 points as the option, 'strongly agree' carries 5 points.

So, if all the 112 respondents choose 'strongly agree', the maximum score will be 560 points (i.e., 112 * 5). Based on this ranking the top 10 items that scored the maximum points have been identified as strengths and the bottom 10 as weaknesses of the e-learning system and the results are presented below:

Table 3: Major strengths of e-Learning system (Top 10)

Sl.No	Item	Score	%	Rank
1	I never indulge in malpractices such as plagiarism, cheating etc.,	423*	75.54	1
2	I submit my assignments and quizzes on time	422	75.36	2
3	I do not hesitate to contact instructors for clarifications	405	72.32	3
4	The instructor is knowledgeable	402	71.79	4
5	The instructor is well-prepared always	401	71.61	5
6	The instructor communicates ideas clearly	396	70.71	6
7	e-books, e-journals stimulate reading	391	69.82	7
8	I allot adequate time for my preparations/studies	387	69.11	8
9	The BlackBoard/WebCT/KEWL is very user-friendly	384	68.57	9
10	The courses are innovative and contemporary	382	68.21	10

*indicates a score of 423 out of the maximum score of 560

Source: Primary Data

7.1.1 Discussion of results

The major strengths of the e-learning system can be seen in Table 3. The respondents have stated that they never indulge in any kind of malpractice (Rank 1). This is indeed a strength of the e-learning system where the possibility of committing unfair means is more. This is a healthy trend too. Again, complying with the course requirements is an essential pre-requisite for the entire e-learning system. For this, the respondents have stated that they submit their assignments and quizzes on time (Rank 2). It is an appreciable commitment on the part of the e-learners for ensuring the success of the programs. A major short-coming of the e-learning system is that the tutors and the cohorts do not have the opportunity to meet and discuss the course contents and subject matter frequently. This barrier can be removed if the cohorts get in touch with the tutor through the net. Since the e-learners have stated that they do not hesitate to contact instructors for clarifications, this barrier is hopefully removed (Rank 3). The knowledge level of the instructors is essential for the success of the e-learning programs. The e-learners have stated that (Ranks 4, 5 and 6) the instructor is not only knowledgeable but he/she prepares very well and communicates his/her ideas clearly. Ranks 7 to 10 clearly explain that a majority of e-learners make use of e-books, e-journals, allot time for their preparations, make use of the BlackBoard/WebCT/KEWL and admit that the courses are innovative and contemporary. This again is a commendable co-operation from the e-learners without whose support the quality of the e-learning programs will hardly be successful. To put it precisely, in the e-learning virtual environment also, students are of the view that they are receiving all the support they need similar to the regular classroom environment.

Table 4: Major weaknesses/shortcomings of e-Learning system (Bottom 10)

Sl.No	Item	Score	%	Rank
1	Graphics, animations, etc., ignite learning	304*	54.29	1
2	Viper Sessions are quite useful	305	54.46	2
3	My problems related to administrative issues are sorted out without delay	309	55.18	3
4	Testing instruments capture the student's grasp and grip	328	58.57	4
5	Audio-visual presentations make learning effective	332	59.29	5
6	The institutions programs are well-structured and systematic	334	59.64	6
7	The institution offers wide variety of courses that would suit my requirements	335	59.82	7
8	Instructor completes the grading on time	335	59.82	8
9	Chapter contents are informative and interesting	348	62.14	9
10	I get adequate financial support for the successful completion of my degree programs	349	62.32	10

Source: Primary Data

*Indicates a score of 304 out of the maximum score of 560

7.1.2 Discussion of results

Table 4 indicates the weaknesses of the e-learning system. The respondents stated that graphics, animations did not ignite learning (Rank 1) (Note: Rank 1 indicates the lowest grade). Also, they deplored that the viper sessions were not quite useful to them (Rank 2). Again, the respondents were of the opinion that their problems related to the administrative issues were not sorted out immediately (Rank 3). Also, there was a concern among the respondents with regard to audio-visual presentations (Rank 5), the structure of the

institutions' program (Rank 6), non-availability of a variety of courses that would suit the requirements of e-learners (Rank 7). The e-learners were also dissatisfied with the delay in awarding grades (Rank 8). They also felt that the chapter contents were not quite informative and interesting (Rank 9). They have further stated that they needed adequate financial support for the successful completion of their programs (Rank 10).

8. Analytical results II: Factor analysis

In this part, a Principal Component Analysis was conducted to identify the underlying dimension in the data using the Kaiser's general rule of thumb of extracting factors with eigen value > 1. A total of eleven factors emerged explaining about 69.85% of the total variance. Though the factors have ensured a meaningful alignment, the last four factors either emerged without a core theme or had aligned in more than one factors. However, Kaiser's rule is inadequate in identifying among factors that have little differences in eigen values. In order to overcome this, 'Cartell's Scree test' was used. From the Scree plot six factors emerged. Again, Principal Axis Factor extraction method (Rotation Method Varimax with Kaiser Normalization) was applied instructing the SPSS (Statistical Software for Social Sciences version 12) to extract six factors. The six factors have explained about 51.66 percent of the total variance explained. The results of the Rotated Factor Matrix are presented in the table below followed by the interpretation of factors:

Table 5: Results of factor analysis, factor dimensions

Factor	Items in the Questionnaire	Factor Loading
Factor I <i>Relevance of Course Contents and Delivery Related Factor</i>	The courses are innovative and contemporary	0.802
	Course contents/modules are relevant and updated	0.741
	Audio-Visual Presentation makes learning effective	0.617
	Instructor is always responsive to learners' needs	0.610
Factor II <i>Effectiveness of Delivery Mode Related Factor</i>	I never indulge in malpractices such as plagiarism, cheating etc.,	0.798
	e-books, e-journals stimulate reading	0.661
	Graphics, animations ignite learning	0.574
	Instructors make learning more inspiring	0.522
Factor III <i>Instructor Support and Students' Commitment Related Factor</i>	The instructor is well prepared always.	0.809
	I allot adequate time for my preparations/studies	0.557
	I do not hesitate to contact my instructor for clarifications	0.548
	I submit my quizzes, assignments on time.	0.530
Factor IV <i>Web-usage and Online interaction related factor</i>	I do not feel aloof in the learning process	0.723
	I get adequate support for completing my courses	0.649
	Viper sessions are quite useful	0.642
Factor V <i>Course Compliance and Confidence in the System Related Factor</i>	The instructor is knowledgeable	0.631
	I am fully confident of the evaluation system and Process	0.610
	I comply with the total course requirements	0.589
Factor VI <i>Relevance of Testing Instruments and Grading Related Factor</i>	Testing instruments assess the grasp and grip of the students.	0.774
	Instructor Grading is unbiased and transparent.	0.591
	The assessment tools are relevant and up-to-date.	0.531

8.1 Interpretation of factors

8.1.1 Factor I: Relevance of courses/contents and delivery related factor

The First factor was relatively easy to interpret as it consisted of four items that were all related to the relevance of courses, course contents and the method of delivery. A cumulative score of four items in the factor revealed that 64.33% of the e-learners' agree that the course contents and method of delivery were relevant. This further demonstrated that 35.67% of the respondents were not happy with the existing contents and the method of delivery. This is an important finding to be reckoned with and also has implications for the virtual universities offering online courses.

8.1.2 Factor II : Effectiveness of delivery mode related factor

A close look at the items grouped in Factor II, 'I never indulge in malpractices such as plagiarism, cheating etc'.(0.798), 'e-books, e-journals stimulate reading'(0.661), 'Graphics, animations inspire learning'(0.599), 'Instructors makes learning more inspiring'(0.574), 'The instructor communicates ideas clearly(0.522)', goaded the researcher to name this factor as '*Effectiveness Of Delivery Mode Related Factor*'. In other words, a total of 66.64 percent of the respondents is of the opinion that the online courses are delivered effectively. This is again an important factor to be taken note of by the organizations/universities offering online courses. The universities should carefully consider the views/owes of the 33.36 percent of the students who have stated that effectiveness of delivery needs to be improved.

8.1.3 Factor III : Instructor support and student commitment related factor

In factor III, four statements aligned together. A close look at the four statements, 'The instructor is well-prepared always' (0.809), 'I allot adequate time for my preparations/studies' (0.557). 'I do not hesitate to contact instructors for clarifications" (0.548) and 'I submit my quizzes/assignments on time'(0.530) prompted the researcher to name this factor as "Institutional support and students' commitment" related factor. This is indeed an interesting finding as the instructor and the cohorts support is quite essential for ensuring the success of the program. This factor reveals that both are co-operating very well thus ensuring the success of the online programs.

8.1.4 Factor IV : Web-usage and online interaction related factor

Though all the students are scattered at different places, the survey reveals that they do not feel aloof in the e-learning process. A look at all the items in Factor IV has guided the researcher to conclude that e-learners make the best use of the support extended by the online virtual universities. The various items 'I do not feel aloof in the e-learning process' (0.723), 'I get adequate support for completing my courses' (0.649) and 'viper sessions are quite useful' (0.642) clearly state that web-usage is at the desired level for ensuring the success of the program.

8.1.5 Factor V: Course compliance and confidence in the system related factor

Three items have aligned in this factor. 'The instructor is knowledgeable' (0.631), 'I am fully confident of the evaluation system and process' (0.610) and 'I comply with the total course requirements' (0.589). A close look at the items guided the researcher to coin this factor 'as course compliance and confidence in the system related factor'. It is a well-known fact that complying with the course requirements and confidence in the system are the essential pre-requisites for the successful completion of the courses. In this factor, the e-learners not only vouchsafe the knowledge level of the instructors but also repose a high level of confidence in the e-learning system.

8.1.6 Factor VI : Relevance of testing instruments and grading related factor

The relevance of testing instruments is an essential pre-requisite for the success of the e-learning portals. So, a few questions related to the relevance of the testing instruments were included in the questionnaire. A total of three items have aligned in this last factor. The three items are as follows; 'Testing instruments capture the students' grasp and grip' (0.774), 'Instructor grading is unbiased and transparent' (0.591) and 'The assessment tools are relevant and up-to-date'(0.531). In this factor, e-learners express their happiness with regard to the relevance of testing instruments and also grading. Though the Factor loadings are less (0.591 and 0.531), they show that a considerable portion of the e-learners are quite contented with the testing methods.

9. Analytical results III: Hypothesis testing

Table 6: Comparison of Key Demographic Categories and Factor Dimensions

Factors	Sex <i>Male</i> <i>Female</i> (p-value Mann-Whitney)	Country <i>Oman</i> <i>UAE</i> (p-value Mann-Whitney)	Edu.Qual <i>Matriculates</i> <i>Graduates</i> <i>Postgraduates</i> (p-value Kruskal-Wallis)	Employment <i>Government</i> <i>Private</i> <i>Own Business</i> <i>Unemployed</i> (p-value- Kruskal-Wallis)
I. Relevance Of Course Contents And Delivery	0.043*	0.001**	0.005**	0.103
II. Effectiveness Of Delivery Mode	0.289	0.000**	0.000**	0.003**
III. Instructor Support & Students' Commitment	0.793	0.017*	0.059	0.298
IV. Web Usage And On Line Interaction	0.023*	0.210	0.307	0.035*
V. Course Compliance And Confidence In The System	0.009**	0.000**	0.000**	0.103
VI. Relevance Of Testing Instruments And Grading	0.233	0.003**	0.008**	0.102

Source: Primary Data * Significant at 5% level** Highly Significant at 1% level

9.1 Discussion of results

Table 6 gives the analytical results of Mann-Whitney and Kruskal-Wallis tests that compared the key demographic categories and factor dimensions.

9.1.1 Null Hypothesis-1

Ho 1 tested the assumption that there are no significant differences between male and female students (e-learners) with regard to their opinions on the six factors on quality perceptions. Since it is a two sample non-parametric test, Mann-Whitney test considered appropriate, was applied. Null Hypothesis, Ho has been rejected in respect of three out of six factors implying that significant differences have been noticed between male and female e-learners with regard to the 'Relevance of Course Contents and Delivery'(Factor I - p-value 0.043*), 'Web-Usage and Online Interaction'(Factor IV - p-value 0.023*), and 'Course Compliance and Confidence in the System (Factor V p-value 0.009**) related factors.

9.1.2 Null Hypothesis-2

Ho 2 tested the assumption that there are no significant differences between Oman and UAE students with regard to their opinions on the six factors on quality perceptions. Here again, Mann-Whitney was applied. Interestingly, Ho has been rejected in respect of four out of six factors. It means that highly significant differences prevail with regard to Factor I, 'Relevance of Course Contents and Delivery'(p-value 0.001**), Factor II, 'Effectiveness of Delivery Mode' (p-value 0.000**), Factor III, 'Instructor Support and Students' Commitment' (p-value 0.017* significant), Factor V, 'Course Compliance and Confidence in the System' (p-value 0.000**) and Factor VI, 'Relevance of Testing Instruments and Grading' (p-value 0.003**).

9.1.3 Null Hypothesis-3

Ho 3 assumed that there are no significant differences among Matriculate, Graduate and Post-graduate students with regard to their opinions on the six factors on quality perceptions. Since three variables had to be compared, Kruskal-Wallis H test was applied. Ho has been rejected in four out of six factors on quality perceptions. In other words, highly significant differences have been noticed among the opinions of matriculates, graduates and postgraduates in respect of four factors, and with the result, the Ho has been rejected in the above four variables. Respondents' opinions significantly differ in respect of Factor I, 'Relevance of Course Contents and Delivery' (p-value 0.005**) and Factor II 'Effectiveness of Delivery Mode' (p-value 0.000**), Factor V, 'Course Compliance and Confidence in the System' (p-value 0.000**) and Factor VI 'Relevance of Testing Instruments and Grading'(0.008**).

9.1.4 Null Hypothesis-4

Ho 4 tested whether there are any significant differences among the four employment categories with regard to their opinions on the six factors on quality perceptions. Null Hypotheses have been rejected in respect of two factors, Factor II, 'Effectiveness of Delivery Mode Related Factor' (p-value 0.003**) and Factor II Web-Usage and Online Interaction Related Factor (p-value 0.035*). It means that people in various employment categories have different opinions on the two factors analyzed.

10. Summary of the findings and recommendations

The major findings of the study along with the recommendations are as follows:

1. Majority of the e-learners has stated that they never resort to any kind of malpractice and further reiterate that they always comply with the course requirements. This undoubtedly ensures the much-needed quality of the e-learning and also the commitment of the e-learners paving way for successful functioning of the concept of e-learning.
2. The e-learners were satisfied with the knowledge level of the instructors and further stated that e-books, e-journals, BlackBoard/WebCT/KEWL are useful. A considerable percent of the e-learners is also happy with the courses and their contents. So, it is better to continue with these positive aspects of e-learning.
3. However, the e-learners stated that the graphics, animations included in course materials do not ignite learning. Though this finding cannot be generalized to all the modules and courses, in the absence of teacher-student personal contact, it is recommended that the graphics and other pictorial materials are fine-tuned to convey the course contents in a crystal clear way.
4. Another interesting finding of the study is that a vast majority of the e-learners was of the opinion that the Viper sessions were not beneficial to them. So, this important interactive tool between the instructors and e-learners need to be made more user-friendly so as to help them achieve the intended purpose.
5. Again, a considerable portion of the e-learners stated that their problems related to administrative issues were not sorted out immediately. This needs to be addressed by the authorities concerned as these types of minor issues might result in low morale among the students. Again, solving their genuine grievances/problems without delay would help bring in more students to the online learning programs.
6. Other grievances of the e-learners included structure of the institutions' programs and non-availability of a variety of courses to suit the requirements of the e-learners.
7. Yet another set of e-learners suggested that the chapter contents need to be more informative and interesting. About 35.67% of the respondents were disappointed with the contents and about 33.36% of the e-learners were dissatisfied with the effectiveness of the delivery and they need to be improved. It is recommended that these problems be addressed immediately.
8. The e-learners informed that adequate financial support is also required for the successful completion of their program of study. It is also recommended that a 'Common Aid Fund' be created by the universities to help the needy e-learners.
9. Results revealed that the e-learners are quite contented with the testing instruments and grading. However, they need to be improved further to test the aptitude and knowledge level of the students and for ensuring the success of the e-learning programs.
10. Mann-Whitney test has revealed that there are significant differences between male and female e-learners with regard to the relevance of course contents and delivery, web-usage & online interactions and in respect of course compliance and confidence in the system. It is for the online course providers to further examine the causes that lead to the differences and solve them immediately.
11. Another Mann-Whitney test has confirmed the presence of statistically significant differences between Oman and UAE e-learners with regard to the factors on quality perceptions. The reasons for these differences need to be probed in order to fine-tune the system as students from different regions join the e-learning programs and the differences need to be removed.
12. Kruskal-Wallis test that analyzed the significance of differences, if any, among the Matriculate, Graduate and Postgraduate students with regard to their opinions on the six factors on quality perceptions rejected the Ho in respect of four factors, confirming the presence of statistically significant differences among the different educational categories with regard to quality perceptions. So, it is recommended that these differences are ironed out and uniformity ensured for all the categories.

13. Yet another K-W test revealed that there were statistically significant differences among the different employment categories with regard to two factors i.e 'Effectiveness of Delivery Mode and Web-Usage and Online Interaction. The virtual universities, to ensure uniformity in quality, should also properly analyze these differences in quality perception as people with different employment pursue online courses and programs.
14. The analytical results reveal that the concept of e-learning suffer from certain inherent shortcomings. However, by and large, the e-learners are quite contented with the entire system. Individual weaknesses and problems (Please Refer to Appendix) need to be investigated further, analyzed and removed to ensure the success of the programs.
15. A holistic approach needs to be adopted by all concerned for the success of the e-learning system with regard to various vital aspects such as administrative issues, course contents, instructor support, viper sessions, grading and assessment etc.,

11. Conclusion

The present study made an attempt to assess the quality of e-learning programs offered by two different online universities and the samples were drawn from them. The study brought out a few strengths and weaknesses in the system. The findings also revealed the existence of significant differences among the demographic profiles of respondents with regard to a few crucial factors extracted. E-learners have expressed diverse opinions with regard to administrative issues, instruction materials, instructor support, viper sessions, grading and assessment. The study further reiterated that if the concept of e-learning was imparted with a better approach and perspective, the reach would be phenomenal. Also, a few crucial issues, as recommended by the researcher, need to be addressed to make the entire e-learning process successful. This gains further momentum as the concept of e-learning is in its early stages in the Middle-East region.

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Appendix

(The respondents' free opinions on the various dimensions of quality are presented *verbatim*)

<p>Assessment Related Issues</p> <p>"We deserve more marks in our assignment because we are working hard"</p> <p>"Students worked hard in their assignment; the problem is that marks given are very low compared with work done".</p> <p>"We need more marks in our assessment"</p> <p>"In some assessment instructor is not helpful"</p> <p>"Grades are sometimes delayed"</p>
<p>BlackBoard/WebCT Related Issues</p> <p>"BlackBoard needs improvement"</p> <p>"Black Board is not always updated; we always got old information and it is not used by university/college effectively"</p> <p>"I believe that instructor method is more useful and effective than the viper. We are not benefiting at all from viper session"</p>
<p>Unethical Issues</p> <p>"Majority of my friends cheat in online courses. Very few work hard sincerely".</p> <p>"The same questions are used in the next batch so who studies? Answers are ready".</p> <p>"My friends have the answers from seniors ready in a separate folder. It is so easy".</p> <p>"I feel that my online teacher does not read my postings because I got an 'A' for nothing".</p>
<p>General Views and Comments</p> <p>"Too many assignments on online courses. It is so boring"</p> <p>"I have not learned much on online courses. They are waste of time and money".</p> <p>"It is costing me additional expense as I have to use Internet at home. My father is angry with me".</p> <p>"I liked online because my grades are safe and I can improve my GPA".</p> <p>"It is good that I don't see my teacher face to face and I like it".</p> <p>"I don't want to learn from an unknown teacher who sits in an island away from Dubai".</p> <p>"I feel that all online courses should be banned".</p> <p>"How can I learn College Algebra course online? It is a joke!!!!"</p> <p>"I like online courses because all the stuff is systematically prepared and easy to study".</p> <p>"The lecture notes in the online courses are too good for slow learners."</p> <p>"I spoke to my online teacher on Skype and he was excellent."</p> <p>"My friends spoke to my online teacher from the Skyline Lab and he was terrific".</p> <p>"We want more interaction on Skype with online instructor."</p> <p>"I prefer an on site teacher to an online teacher. What will learn from an unknown source?"</p> <p>"Sometimes, I don't understand from the best onsite teacher, so how can I learn from online sources?"</p>

Bridging the Gap - Taking the Distance out of e-Learning

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Abstract: In order to promote closer relations between two existing academic environments – on-campus and distance learning – a pedagogical intervention was made aiming to raise the level of competence and awareness among faculty regarding flexible learning and the use of ICT in higher education. The intervention was a process-oriented pedagogical effort based on collaborative learning and cross-institutional cooperation. Teacher teams worked to enhance flexible learning in either new or existing courses. The intervention resulted in more teachers getting involved in flexible learning. At the same time several problems surfaced indicating the need for further competence development efforts in order to further promote flexible learning environments.

Keywords: distance learning, flexible learning, higher education, ICT, information and communication technology, pedagogical development

1. Introduction

The University of Kalmar (HiK) provides on-campus education but it also has a long tradition of distance education. These two learning environments are often separate, engaging different educators. As responsible for the pedagogical competence development activities for faculty members at HiK, we have reflected on this distinction and noted the differences between the two teaching and learning environments. The teachers involved in distance education form a minority part of the teaching staff but they are very active in overarching discussions concerning pedagogical development, especially cooperation between new technology and pedagogy. Distance teachers are often described as real enthusiasts. This group established early a tradition of meeting spontaneously and building networks in a way that has been less common within the group that chiefly works on campus. There are probably a number of explanations for this distinction, for instance, that an interest in new technology and innovation is a unifying factor. Another possible explanation is that these teachers do not receive enough support from their departments in their role as distance educators seeking, therefore, support from each other instead.

On-campus pedagogical development has been characterized more by formal than informal structures and is less open to exchanging experiences between teachers and departments. In observing this distinction we have also been able to confirm that the differences between distance and on-campus education are becoming fewer and that a common ground is being found in what is generally known as *flexible learning/flexible education*. The status of distance learning within the University of Kalmar (HiK) has shifted in recent years and along with the awareness regarding flexible learning in general, the university's leadership has articulated a vision stating the importance of flexible learning as a strategic issue. In one of the university's general policy documents it is stated that HiK's educational programs are to be characterized by flexible learning. This statement provides a rhetorical base and a mandate for various efforts geared to strengthening the notion of flexible learning within the university. In June 2004 a flexible learning project was launched at the University of Kalmar (hence referred to as the FL-project). Within this project a university pedagogical course, *Flexible learning within higher education* (equivalent of 7.5 ECTS credits) was started. This course and other activities included in the FL-project should be regarded as a step in the strategic pedagogical development within the University of Kalmar.

2. Education in transformation

University education in both Europe and the USA has for a couple of decades been in focus for revision and transformation. Several western researchers have described this development as "mass education" (Hargreaves, 1994; Trowler, 1998). More and more students are supposed to be educated within higher education by means of fewer and fewer resources. Educating 50% of those who leave secondary school has been a long-standing goal of Swedish universities. At the same time the auditors of the Swedish Parliament have shown that the number of students who leave university without completed results has increased (Riksdagens revisorer, 2000/01:4). One way of supporting and improving the rate of completed study result may be found within the transformation of teaching and learning commonly referred to as flexible learning, i.e. developing courses with the help of flexible learning methods and the support of ICT (information and communication technology) in order to find solutions that facilitate and reinforce student learning. Education is today a decisive contributor to Sweden's welfare and competitive strength (SOU, 1996:27). Many people are convinced that ICT will play an increasingly important role for education in the future, when

traditional teaching methods will be replaced by new ones. The information society necessitates new learning strategies, and developments in information technology will probably erase the border between teaching aids and other more common information sources such as the worldwide computer network (Marklund, 1994). The development leads to educators having, to a much greater extent, to reflect on and analyze their practice in order to enable them in the next stage to further develop their work in accordance with new demands and new conditions (Silén, 1996; Dolmans, 1996). In "new learning" the pedagogue will proceed from an intermediary to a more advisory function. The new task means facilitating for students to learn how to screen, arrange and critically relate to the enormous information flow that will be available with the new technology (Höglund & Karlsson, 1998; Jacobsen, 1997). An important factor for the quality of education is that the faculty work team shares a common attitude to learning; to educational goals and to the surrounding community. But it is also important that those teachers have a good knowledge of the possibilities inherent in ICT as a support for learning.

3. Development work in higher education

Sweden has a long tradition of higher education in a variety of forms, and this sector has undergone several reforms involving continuous development work (Bron & Wilhelmson, 2004). During the last decade the Council for the Renewal of Higher Education¹ has supported projects aiming at stimulating pedagogical development at Swedish universities. However, no clear definition and explanation of what is meant by pedagogical development has been provided by the Ministry of Education, Research and Culture or by the Swedish National Agency for Higher Education. Instead it has been the concern of each university to set its own targets and work modes in this field.

3.1 Pedagogical development work at the University of Kalmar

The University of Kalmar (HiK) had in 2006 over 400 active teachers organized in eight departments. Some of those departments started to offer part-time, distance, or web-based courses within the regular curriculum as early as the mid-1990s. These initiatives were the result of the interest and commitment of a handful of teachers since at the time this was not a strategic issue for the university. However, only a relatively small number of teachers gained experience of teaching distance courses and not many made the effort of trying to apply flexible learning to on-campus courses. This is why it was considered important that a strategic policy for flexible learning should include support for teaching staff development. Promoting flexible programs sometimes involves great changes for the teachers. What is needed is, for instance, a critical and reflective survey of existing routines and practices. Furthermore, there is a need for an overhaul of teacher attitudes and their basic pedagogical views as well as a reconsideration of their role identity and teaching methods (Jokela & Karlsudd, 2007). This entails initiatives included in what we have chosen to call competence development in the field of university pedagogy. Work with competence development of teachers at The University of Kalmar is inspired by the ideas of learning organizations (Dalin, 1997). Each head of department is responsible for the development of his or her entire department. This pedagogical intervention in the form of an innovative course about flexible learning in higher education has emerged to become one of the prioritized competence development activities for HiK's faculty in the period 2004-2005.

4. Flexible learning, a challenge to higher education

At the initial stage of the FL-project a discussion took place about the concept of *flexible learning*. The concept invites discussion and to some extent disagreement, but the project participants agreed that flexible learning means greater freedom for the student. Flexible learning can be characterized by several factors: greater flexibility as regards syllabus, modes of study, pace of study, examination forms, and variety of learning styles, as well as geographical independence and variation in mode of communication (student-teacher, student-student) (Hill 2006). The environment provided for flexible learning offers conditions for active learning, adapted to the practical life circumstances of the students. In addition to being described from the students' point of view, flexible learning may be correspondingly described from a teacher's perspective. The differences between the students' and teachers' perspectives are primarily a function of the specific circumstances of teachers, both in regard to their own learning (competence development) and with regard to what flexible learning entails as a prerequisite for educational activities. Flexible learning may comprise several dimensions demanding various competencies such as professional subject knowledge, pedagogical skills, educational psychology, web design, layout, computer skills, etc. Consequently, course design and course development involve the cooperation of more colleagues than used to be the case in

¹ The Council for the Renewal of Higher Education was merged with The Swedish Net University, creating the present Swedish Agency for Networks and Cooperation in Higher Education (NSHU).

traditional on-campus learning environments. In the effort to clearly define what flexible distance education is, DISTUM, a former government authority in the distance educational field, made the following definition: "Flexible distance education gives students the chance of choosing place, time, pace and mode of work for their studies." (DISTUM, 2001 – *our translation*) Consequently, flexible distance education represents several different ways of organizing education (Table 1). It falls upon the teacher to be available during the study period for supervising studies, supporting work process and communication and it is his or her responsibility to provide the students with an administrative study structure.

Table 1: Definition of flexible distance education

<p>For the student flexible education is characterized by the possibility to: study and participate in teaching from home/another place than where the education is administered begin studies and partake of teaching at different points of time study at different tempos choose between working individually or together with others</p>	<p>In flexible education the education coordinator has to: develop/adapt teaching material develop/adapt supporting material develop/adapt examination forms make use of information and communication technology to bridge distances in time and space.</p>
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Source: (Karlsudd, 2002 – based on DISTUM, 2001).

Many investigations discussing life-long learning emphasize the importance of the regular educational system's capability to adapt to more flexible education. Adaptation is deemed essential in order to compete with the rapidly growing private educational market (SOU, 2000:51). Furthermore, society – including student groups who want to combine studies with other activities and employers who need to provide further education programs for their employees – seems to make higher demands regarding the possibility of participating in higher education regardless of time and place. The Swedish government has also defined its demands on universities for providing educational programs for new types of students, e.g. students with social backgrounds that lack academic traditions. This may in turn pose a pedagogical challenge to the traditional academic environment (Regerings, prop., 2001/02:15). Another matter adding to the importance of flexible education is constituted by pedagogical insights into how different people react to, process and transform information into knowledge and what factors play an important role in this context (Becher & Trowler, 2001; Bauer *et.al.* 1999). Flexible educational programs must be placed in a larger context than that of distance programs alone. The question must be raised whether certain elements of flexible education can be integrated into traditional on-campus programs in order to ascertain/increase the quality of the course or in order to contribute to an optimal use of resources.

The distinction that has been made between distance education and more conventional education, often referred to as on-campus education, is on its way to being weakened. The fast development of computers and computer networks has created new conditions for planning and implementing higher education (Dahlin, 2000).

5. The idea and aim of the pedagogical intervention

The overall aim of the FL-project was to contribute to bridging the gap between distance education and on-campus education and at the same time promote flexible learning in both of these educational environments. Flexible learning is no self-evident concept in either of these cultures – distance courses are sometimes more rigid than flexible while on-campus courses may be flexible in many ways – and, therefore, the concept of flexible learning needed to be developed further. Work on pedagogical competence development focusing on flexible learning does not only entail the development and implementation of formal courses. It is a matter of a cultural change involving many people in the organization and therefore our realization that the character of planned pedagogical intervention had to be process-oriented. The following partial objectives were also been defined within the framework of the FL-project:

- taking stock of relevant pedagogical and methodological competencies represented in each of the university departments;
- taking stock of and documenting the need for further university pedagogical education as expressed by the department representatives in discussions on flexible learning;
- arranging creative encounters between different groups of teachers in order to move towards flexible learning;
- disseminating the knowledge and experience gained in the various departments;

- engaging colleagues as supervisors and lecturers in competence-raising activities aiming at stimulating pedagogical development work at the university.

The FL-project was to contribute to increasing awareness, curiosity, stimulation, motivation, understanding and skills related to flexible learning. It is a question of identifying, analyzing and facing advantages as well as disadvantages, success factors and stumbling-blocks.

6. Method

A central element in the FL-project was the competence development activities that constituted the pedagogical intervention described in this article. This intervention took the form of an academic course that is described below.

6.1 Action research

The FL-project applied an action research approach, which may be described as an interactive process of change between action, research, theory and practice, where the researcher takes an active part in the process (Starrin, 1993). Action research may be described as a spiral of steps where every step involves *planning, action, observation* and *reflection* (Figure 1). From the very start of the FL-project to its conclusion a continuous documentation of this process was made.

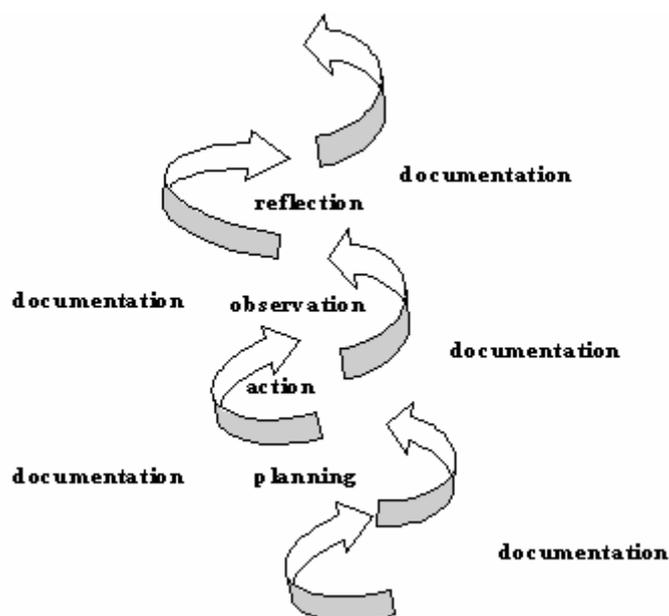


Figure 1: Action research, a continuous process. Source: (Karlsudd, 2003)

The action research approach has been far from unambiguously formulated, different researchers emphasizing different aspects. However, a central concept is the close link between theory and practice (Feldman & Minstrell, 2000; Archer, Holly & Kasten, 2001). Different terms have been used in an attempt to better define the approach. Argyris (1985) uses the term *action science* for the part of action research which is more theoretically oriented and *action research* for the practically oriented part. Regardless of the emphasis, the obvious common denominator of action research is *researching through action*. The FL-project required the participants to work with pedagogical development from a clear perspective of change, where need and target-group analyses were given elements. There is a clear difference between the roles of course participants and researcher in the action research process. Tiller (1995) developed this circumstance and describes the role of the former as *action learning*, whereas *action research* puts the emphasis on what the latter does. The researcher's task is to study and analyze how the action research method has changed, while the task of the course participants may be to describe and reflect on their development work. The model allows for passing on and testing the experiences of other departments. The strategy of learning from good examples is quite relevant in action research (Johansson Lindfors, 1993). In such research the participants are expected to be in control of the knowledge produced and applied (Rönnerman, 2003). It is common that teachers and researchers work together sharing a problematizing approach (Cohen & Manion, 1994), which makes it even more important for the participants to support one another and view activities critically by asking challenging questions.

6.2 Data gathering, analysis and reliability

Throughout the course every group kept a process diary where progress and results were presented. Similarly, the resource persons involved in the work documented their views on progression and results. A large part of this process was published on the public homepage of the course. The observations, positive as well as negative, made by the resource persons were then discussed within the project group. After the conclusion of the course a questionnaire with open questions was directed both to participants and to resource persons. In addition, interviews were conducted with the department management and the IT pedagogues employed by the department. The questions were formulated on the basis of the aim of the course and were all of an open character.

One way of checking the reliability of a study is by using methodological triangulation. This type of validation may have an intra- or inter-method application. The intra-method application entails the use of several strategies belonging to a specific method, such as asking several questions in a qualitative interview, applying several points of view for elucidating the same phenomena. This was done in the group interviews conducted, which probably reinforced the intra-method validity. The inter-method application involves combining various methods for measuring the same phenomenon (Svensson 1996). The study comprised questionnaires, interviews and observations, which may be regarded as examples of the type of combination described as inter-method triangulation. The result of the procedure described above shows that in a comparison of the various data gathered the consensus of opinion was rather high. Some discrepancy between the course management's and the participants' assessment of the project result may be noticed. The participants have rated their own efforts somewhat more positively than the rating done by the course and department managements.

6.3 “Flexible Learning in Higher Education” – a pedagogical intervention in the form of an academic course

The pedagogical intervention carried out within the FL-project focused on flexible learning and it involved teams of teachers from all the university departments. These teams were formally admitted to an academic pedagogical course of 7.5 ECTS credits that implied that the teams carried out pedagogical development work. The principles of flexible learning were applied to this intervention. However, a number of compulsory ingredients were included such as the participants actively advising and assisting in a systematic manner the other teams from other departments that participated in the intervention. The process, documentation and analysis of needs preceding the development work carried out by the teacher teams formed the basis for the examination that was required for teachers to be qualified at the end of the intervention. The development work carried out by the teams of teachers received support from pedagogical supervisors and from a technical resource group. The intervention combined, in fact, three objectives. First, it aimed to raise the competence of the colleagues taking part in the development activities. Second, it aimed to try out and apply the support functions that had been established as part of the FL-project, e.g. a production team. The third objective – which was the most strategic one – was to help bridge the gap between distance learning and on-campus educational environments.

In an attempt to form a joint favorable learning environment that would create a community of practice (Wenger, 1999), the activities/studies included in the intervention took place primarily among the work teams admitted to the course. Those teams consisted of teachers who had experience of distance and/or flexible learning as well as teachers who were novices in this field. Through dialogue with the pedagogical supervisors and the resource personnel, each team created – or re-created – a course, focusing on the principles of flexible learning. A collaborative work method was applied in the intervention, where the participants' previous knowledge and experience formed an important resource. In addition, resource personnel with expertise and experience in the field of flexible and distance education was engaged, including people employed by the university or elsewhere. The work method aimed at what Elleström (1996) terms *development-directed learning*. Each team of teachers engaged in a different pedagogical development work that was divided into four steps, preceded by preparatory and planning phases that were led by the project coordinator for the entire FL-project together with a contact person at the given department. The preparatory phase included, for example, the anchoring of the project work in the team's department. The planning phase included a financial assessment of the costs of all the four steps of the development work. Upon the start of each team's work, a written agreement outlining the basic features of the development work, responsibilities, and work distribution was signed between the FL-project and the department.

6.3.1 Target image

An essential element in the introductory stage of the intervention was that the department described in its own words what flexible learning involves for the student, the teacher and the administrative staff. This description evolved into the guiding star and target image of the pedagogical development work.

6.3.2 Implementation and evaluation

One requirement was that the results of the team's development work, e.g. a new course, were to be produced, implemented and evaluated within the time frame of the FL-project. However, this did not mean that the new course had to be concluded within the time frames of the FL-project. During all the stages of the development work the teams received support in the form of project coordination, pedagogical supervision as well as technology, production and user support.

6.3.3 The four steps of each team's development work

The first step, after the preparation and planning steps, was carried out at departmental level and it entailed choosing and outlining the pedagogical development activities to be carried out by each team of teachers participating in the intervention. Every department chose a course (hereafter referred to as target-course) where there was an identified need for innovation, change or improvement with focus on flexible learning. The second step consisted of the development and implementation of the target-course, including examination in accordance with the regulations of the department/university. Technical and to some extent administrative support was provided centrally from the FL-project. Revisions were continuously made at the implementation stage.

The third step comprised the evaluation of Steps 1 and 2. The evaluation of Step 1 was performed jointly by the FL-project coordinator and the department. The implementation of the target-course was evaluated in a traditional way. In addition, an evaluation was done in order to find out whether quality control could be improved. The contributions made by the central support functions were also evaluated. The fourth step of the pedagogical development work included dissemination of information. This was intended to take place internally within the department, mainly via internal communication between teacher teams as well as externally, via a web gate dedicated to flexible learning that was developed within the FL-project.

6.4 Experiences, results and insights from the pedagogical intervention and its results

Within the framework of the FL-project all university departments initiated pedagogical development projects. During the duration of the FL-project 14 teams of teachers initiated some type of pedagogical development work with focus on flexible learning. Three of these interrupted their work at an early stage due to time constraints. Examples of courses that were developed/enhanced within the intervention include management accounting, aquatic ecology, web conferences for the program of journalism, pedagogy, rhetoric, social science, music, hematology, media and communication studies, ship's officers Class VII and C++ programming.

Previous knowledge varied among the teams and during the process the teachers encountered both problems and opportunities. At the beginning of the intervention many participants were confronted with distrust from their colleagues, but this gradually changed into a positive attitude. One explanation may be that the insight into the teams' work has been good and that many teams have informed the others about their work in different ways, for instance through diaries. In several of the pedagogical development projects, comprehensive course material was produced, including texts, video films, simulations, pictures, sound recordings, etc. Those were then made available to all colleagues at the university.

Some projects encountered technical problems, but these were solved with the support of the production team, which has enabled the groups to concentrate on methodological and pedagogical issues. Given the fact that multi-professional expertise was available at no cost for the departments, many teams took the opportunity to produce media of various kinds for their courses. One of the projects that dealt with management and accounting issues had an underlying hypothesis that young people today are mostly used to visual ways of communication and therefore they need further assistance in developing their skills to engage in abstract thinking. One way of stimulating abstract thinking may be, according to the analysis made by the team, to present important processes with the help of animation. In the course that this teachers' team planned there were models produced which show concretely how various processes appear, the thought behind being that they should function as support for the continued development of the students' own abstractions.

The team from the Department of Technology worked in a similar way. A “C++ Programming” course had for a long time been a bottleneck which many students had failed to pass. The identified problem was that students have difficulty in understanding the transition from problem to completed program code. Here, too, the team participating in the intervention used animation to increase the understanding of complicated operations. The same team of teachers produced a system of regular examinations. Here, the integration of pedagogical theories was particularly clear, since every examination level was linked to Blom’s taxonomy (Bloom, 1984).

Video technology was used by several teams. This was not primarily to convey traditional lectures or instruction. Instead, the output consisted of short films produced as documentaries, sketches and presentations. In the subject of rhetoric digitalized vignettes were produced to be used as a starting-point for discussions among students. For the same course in rhetoric, lectures and supervisions were prepared with the support of video conference tools. The team working on developing a course entitled “Hematology, the science of blood diseases”, a program was developed enabling students to continuously learn about the origins of blood diseases. The mainstay of the information is a database with microscopic pictures of various cases.

The teams that participated in the pedagogical intervention devoted a great deal of time to the production of tools for supporting learning. In their meetings and seminars, however, faculty concentrated on discussions and reflection about methodological and pedagogical issues. Seminars and lectures supplementing supervision were much appreciated and well attended. Lectures were given by visitors from elsewhere in Sweden or from overseas. On several occasions teachers could follow the lectures and take part in the ensuing discussions from their own offices through the Internet.

Carrying out a competence development activity which could make an immediate impact on teaching activities was of great importance. University teachers have designated time for competence development and thus, many of the participants in the intervention felt at the start that the chances of completing their assignments were good. Despite this, a few teams were forced to interrupt their work due to time constraints. The pedagogical intervention included also literature that was selected in consultation with a librarian and with the examiner who assessed the teachers’ performance. Such structure enabled each team to find suitable literature that covered relevant subject-didactic fields addressing the issues that were dealt with by each team.

Many of the teachers expressed concern that the effort required in order to make courses more flexible would be too time consuming. Course flexibility may, in many teachers’ opinions, also increase the workload. All the participants in the intervention agreed that a basic condition for this kind of pedagogical development work in the future would be that the production team which assisted the teachers’ teams throughout the intervention would become permanent after the termination of the FL-project.

Shortly after the FL-project was concluded a Section for Flexible Learning (SFL) was established and placed as part of the University Library under the direction of the Chief Librarian. Five people are now working at SFL together with a coordinator who is responsible for the distance programs offered to the learning centers spread out all over the county of Kalmar. No research activities are conducted by the employees of SFL and the research base in the field of flexible learning at the University of Kalmar can be considered weak. Nevertheless, faculty members employed by the various departments of the University are encouraged to apply for funding for research on pedagogical issues related to flexible learning. Allotting research resources to the field of flexible learning would probably increase its status further. Given the rhetoric claims about the strategic value of flexible learning environments in the context of both on-campus and distance courses it remains to be seen if resources in the form of money and teachers’ time will be allocated for additional pedagogical development work with focus on flexible learning, even after the termination of the FL-project.

Taking active measures towards educating and influencing colleagues at the managerial level is becoming increasingly important in pedagogical innovation (Havnes & Stensaker, 2006). Exerting influence at the policy level and simultaneously implementing educational projects for university teachers may be a fruitful combination for developing activities (op.cit.). In this respect the FL-project and the pedagogical intervention have not been very successful. Heads of departments claimed to be supportive of the activities initiated within the FL-project, including the pedagogical intervention. But the teams of teachers who participated in the activities expressed at times that leadership was not insightful with regard to the resources needed for the teams to perform well. Nevertheless, the concept of flexible learning has become more familiar among a larger number of teachers and university leaders and there seems to be more understanding for the need to

bridge the gap between on-campus and distance learning. There seems to be also increased consensus about possible benefits of bridging the gap between these two educational environments and, hopefully, future evidence based research will bring along further arguments to this end. Kirkpatrick (2001) draws an outline for effective academic development programs and those principles could be said to apply even for the management of efforts focusing on flexible learning.

In spite of the shortcomings of the FL-project and the pedagogical intervention with regard to the managerial level's attitudes and actions, the project has in many ways advanced the development of competence among members of faculty. As a concrete result of the project a semi-formal flexible learning network has been established within the university, the so called *flex-group*. This group includes teachers and IT-pedagogues from all the departments and it is coordinated by the newly established SFL. The coordinator of staff development who manages among other things Teaching & Learning activities is also part of the network and so are several of the pedagogical consultants that are a resource for competence development in the field of university pedagogy. This network functions as a reference group and it takes stock of and discusses the demands for further education and the measures that need to be taken in order to meet these demands. One of the initiatives of the Flex-group has been the creation and maintenance of a home page on the web where pedagogical innovations with focus on flexible learning are published and discussed.

The broad teacher representation in the Flex-group guarantees coverage of the pedagogical and methodological competencies available in the different departments. From the discussions within the Flex-group a new university pedagogical course has emerged, whose objective is that the course participants function as mentors for other colleagues, helping them to develop their competence within the area of flexible learning. Hopefully, this will further stimulate the interest of university teachers with regard to flexible learning. Pedagogical development is a multi-faceted area requiring constant focus and discussion (Ashwin & Trigwell, 2004). For this reason a series of lectures on flexible learning has been arranged, where university teachers have contributed, sharing their knowledge and experience. With the support of video conferences national as well as international cooperation in the field of flexible learning has been established with other academies. Upon the conclusion of the FL-project an exhibition and a demonstration expo were organized presenting the results of the work carried out by the teams of teachers who participated in the pedagogical intervention. This expo has now become an annual event at the university which is evidence of the long-term strategic effects of the FL-project and its activities.

In 2005 around 13 % of full-time equivalent students at the University of Kalmar were distance students. In 2005 when the project was most active the level of activity in the fields of distance and flexible learning rose appreciably (see table 2). During the project period the number of distance courses rose by 22% and the number of distance students rose by 12% in relation to the year before the project started. Even after the project was concluded, 2006, the number of distance courses rose by 20% and the number of newly developed courses increased by 40% compared with the project year. It is not possible to ascertain how much of this growth was directly generated by the project but it is clear that the project acted as a catalyst. The drop in full-time equivalent students from 2005 to 2006 can be at least partly explained by restrictions on student numbers and general cutbacks during the first half of the year.

Table 2: Statistics for distance learning at the University of Kalmar 2004 - 2005

Activities	2004	2005 (Project year)	2006
Full-time equivalent students participating in distance learning	704	802	708
Distance courses	52	67	84
Distance programs	6	6	10
New courses developed during year	19	32	21

About ten years ago there were relatively few teachers working with distance learning. This situation has now changed. There is now a clear demand for academic teacher training in flexible learning and there is clearly a higher status for this field both amongst teachers and management. Another point of interest is that flexible learning has for some reason been a rather male-dominated area at the University of Kalmar. Before the project there were very few women involved (20 %) in distance course development whereas now we see a marked increase (47 %). One explanation of this may be that in comparison with what was the case earlier the structure of the courses reflect the effort to reduce the focus on technology in favour of emphasising pedagogics and methodology. Another explanation may be that the flex course attracts more participants from [the department of Health Sciences and Social Work](#), where the proportion of women teachers is higher than in other departments. However, it is still the case that all IT pedagogical consultants at the university are male and it is vital that efforts are made to recruit more women into this field in order to counter the impression that the combination of technology and education is an all-male preserve.

The project was on the whole widely acclaimed and many participants saw considerable synergy benefits as a result. The time assigned by management to course development was added to time assigned to competence development and this meant that teachers had more time available to fully develop their course. Since the course led to a tangible result for the department the participants felt they received greater support from their management. Working in teams made it easier to present and highlight the development work within the department. Further courses are now being developed drawing inspiration from their colleagues' previous efforts. Participants were also able to advise colleagues at other universities who were about to develop similar courses.

The five key pieces of advice from the course participants were:

- Allow participants to develop courses that are of high value to their departments.
- Make teamwork obligatory for course development projects.
- Give the different teams ample opportunity for discussion and comparison of methods.
- Combine the training with tasks that must be performed. This gives better financial conditions and better level of support from the management.
- Involve the management in course development.

To tie the result directly to the five partial objectives presented in the formulation of the overall aim of the project the following summary may be made:

- At the competence and knowledge stock-taking made in the departments a number of important competencies came to light. There are a number of teachers in every department, whose knowledge and experience may strengthen the further development of flexible learning at the university. These teachers' experience and competence had not been taken notice of before the implementation of the project
- During the course and in close contact with the departments concrete needs for further education were brought to light, some of which were subsequently met with the support of the competence identified in the project.
- The demand for courses on flexible learning has increased from some 15 interested individuals to comprising more than 50 applicants.
- A direct result of the course is that meetings are now being arranged continuously on intra- and inter-department levels with the focus on flexible learning issues. A learning project on Second Life has, thanks to these meetings, been firmly anchored around the departments.
- The course participants have made presentations of their projects at the university, both via a poster exhibition in the library and at minor seminars. Some participants have presented their projects at national didactics conferences.

One of the main ideas behind the FL-project and the pedagogical intervention reported in this article was to bridge the gap between on-line and distance learning environment. This objective is considered, on the whole, to have been successful. Methods for flexible learning have now become better known among teachers working within the on-campus tradition, and many of them now use, for instance, digital learning resources in on-campus education. However, the experiences gained from the FL-project led to discussions about problems that have been identified with regard to the relations between flexible learning and on-campus teaching indicating that there is still a great deal of work to be done before the two educational cultures may become one.

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Pedagogical Approaches and Technical Subject Teaching through Internet Media

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Abstract: This is a comparison of Instructivist and constructivist pedagogical approaches and their applications in different situations, which make clear the comparative advantages of both approaches. Instructivist learning, places the teacher in authority while the constructivist shifted authority to no one in particular but shared responsibilities between learner and teacher in such a manner that the teacher no longer assumes the responsibilities of the passage of information/knowledge to the learner but only guides him to discover the 'objective truth' out there and in the attainment of learning objectives. Teaching and Learning process was redefined in the light of 'new' understanding in teaching and learning and practical applications of these pedagogical approaches were considered. I presented a study guide (Appendix 1) as an example of socio-constructivist pedagogy where emphasis is on learning rather than on teaching.

Keywords: Study guide, e-learning, pedagogy, socio-constructivism, test, evaluation, LMS, virtual classroom, asynchronous, instructivism, construction technique.

1. Introduction

Educators around the world today have leaning towards different theories of learning and as such some believe they (theories) do not have to dictate how they teach or have to influence the way learner learn. Earlier theorists in education are evenly divided on varying conceptions on teaching and learning but notable among the theories and practices on pedagogy today which still hinge on the works of earlier philosophy on teaching and learning are:

- Instructivism
- Constructivism
- Socio-constructivism

The language technology is speaking in the twenty-first (21st) century is having its impact on these theories and on every facet of human endeavour. The results of this impact are in creating new dimensions in the ways we live, do things and relate with one another. Does this necessarily make easy the way we do things? That of course is subject to debate but in my opinion I believe technology only makes possible a 'new' way of doing things not necessarily a better way of doing things. The impact of technology on the above theories and practices cannot be over emphasized and will subsequently be discussed. For instance a young man developed a yam-pounding machine and after trial of the said machine by many people the popular opinion was that pounded yam from the said machine was not as palatable as the one made by the use of mortar and pestle. Of course the machine make pounding less stressful but the local people believe it withdraws the taste from it. What an irony? While a student may feel alienated behind a computer screen others believe it is helpful in combining studies with work.

2. Background and themes

The above listed pedagogical practices will be discussed and subsequently related with a view to presenting readers with a framework to form opinions on the option that may be preferred for teaching and learning practical oriented subject where it will be demanded of a learner that he develops manual dexterity in accomplishing specific task on a course while interacting with resources from world wide web, receiving tutor guidance, benefiting from peer contributions and other resources he may be led into in the course of various learning activities in a virtual classroom. Appendix I, is a format of a study guide based on socio-constructivist pedagogical approach for e-learning courses using a Learning Management System (LMS) called Classfronter (www.fronter.com) where focus is on learning rather than on teaching. Classfronter is a product of fronter whose website is stated above.

The guide consists of three (3) modules and each module is divided into smaller learning units (task) and further subdivided into smaller learnable units (activities). Each of these smaller units will be necessary to accomplish the overall objectives of the course modules. In the course of activities in the classroom, e-tutor could still make adjustments or make available resources he feels may be useful for learners' activities. This is to achieve flexibility that online learning seeks to accomplish.

Module 1 of the study guide exposes course participants to the LMS environment while module 2 & 3 are the actual course components that provided the opportunities for the learners to acquire the skills of producing survey of dental models which is a decision making process for dental laboratory technologist, dentist and undergraduate dental students etc in the manufacture of removable dental restorations for patients who suffered loss of teeth and hence setback in their oral functions and well-being.

The e-tutor (socio-constructivist) prepares this study guide to be deliverable at Classfront so as to achieve the course objectives and in a manner that allows enough flexibility so that learner can search beyond the resources provided and learn more in a learning community. The LMS consists of folders which could serve as forum for discussion or archiving of materials depending on whether they are located in the 'Resources' section or 'Forum' section

The learners will be expected to discuss in the forum, which could either be opened by any of the learner, tutor or module moderator. Forum is usually opened separately for each task and activities for exhaustive discussion within a notional European Credit Transfer System (ECTS) hours. ECTS is an initiative of the European countries for a unified credit system to enhance staff and student mobility, e-quality assurance across borders among other reasons. During discussion additional resources are expected to become available from course participants during their private studies and from searches on the web to enrich learning activities and liveliness of discussion (peer tutoring).

The course tutor creates folders for different course activities from the beginning of the course. For examples we have the following:

1. **Learning resources folder:** Here all the course resources will be made available for the participants to access. Among other things, the mini-lecture, streaming video of demonstration of survey procedures, articles, web resources, study calendar, Rubric etc.
2. **Folders for discussions** will include all forums for discussions for each module.
3. **Group folder** is for submission of group works.

Folders created in the 'Resources' section are for archiving of documents while those in the forum section are for carrying out course tasks and discussions. Rubric and reflection are provided for metacognition which are instruments meant to evaluate course participants' performance as formative evaluation tools.

In the fields of education, technology is creating a paradigm shift, which has created 'new' ways of teaching, and learning but that it created a better way is debatable. There are varying opinions and results of achievements well represented in the literatures which can be proudly referred to as successes in their own right on methods for online course delivery and as myriad as they are non of them has yet been regarded as panacea to online learning.

The Instructivist approach to learning is otherwise referred to as objectivist, institutionalist etc where emphasis is on the passage of information and knowledge encapsulating activities and other learning events for learning to take place thereby resulting in a change of behaviour, attitude, belief etc Instructivist helps learner to reproduce a series of facts, knowledge, attitude, belief and behaviour as against constructivist teacher who provides tools such as problem solving and enquiry-based learning activities with which student formulate and test their ideas, draw conclusions and inferences, and pool and convey their knowledge in a collaborative environment (Bjørke, S.A. 2003).

The said transmission is under the arrangement where authority resides in the teacher; the authority of assessment, evaluation, of control of learning events, of scheduling of learning activities and events etc. The learner is 'sidelined' in all activities except those determined and dictated by the teacher in the course curriculum and schedules. In his work, Bjørke (2003) posited that: 'The current dominating psychological view on learning is that it is seen as a dynamic process where people construct their own knowledge of the world in continuous interaction with the surroundings rather than acquiring knowledge from an "objective" source. Focus is therefore on learning rather than on teaching'. Learning is said to be enhanced in the view of socio-constructivism when learner interact in groups and carryout joint activities.

2.1 What is social constructivism?

"Social constructivism argues that the optimal learning environment is one where a dynamic interaction between instructors, learners and tasks provides an opportunity for learners to create their own truth due to the interaction with others. Social constructivism thus emphasizes the importance of

language, culture and context in understanding what is happening in society and the world and constructing knowledge based on this understanding (Derry 1999; McMahon 1997 in wikipedia)".

The assumption of socio constructivist among others is that learner learns better in a social environment where interaction with other learners increases his cognition rather than decrease it. Kim. B (2001) posited that the factors of culture and context in understanding what happens in learning environment help in construction of knowledge based on this understanding.

He explains further thus 'some social constructivists discuss two aspects of social contexts that largely affect the nature and extent of the learning ...

- Historical developments inherited by the learner as a member of a particular culture.
- The nature of the learner's social interaction with knowledgeable members of the society...'

The social aspect of constructivist pedagogy is the opportunities to have learners collaborate in joint learning activities in order to achieve the course objectives while interacting in a social learning environment, which is placed well in the www.wikipedia.org an online dictionary thus:

'Social constructivism argues that the most optimal learning environment is one where a dynamic interaction between instructors, learners and tasks provides an opportunity for learners to create their own truth due to the interaction with others. Social constructivism thus emphasizes the importance of culture and context in understanding what is happening in society and constructing knowledge based on this understanding (Derry 1999; McMahon 1997).

2.2 When is an Instructivist approach the better choice?

I reason that the word 'better' is relative and can mean different thing in several perspectives. It connotes in my understanding and in this context an educational arrangement or learning and teaching approach under which it can be said that educational goals will be realised efficiently with minimal percentage of failures when the teacher is the central person passing knowledge to the learner as compared with constructivist approach that do not place authority entirely in anyone.

2.3 What learning and teaching objectives say.

It is no longer news that teaching and learning process certainly can be carried out with successes in a face-to-face arrangement as well as in online web based environment. The face-to-face learning otherwise known as traditional or on-campus learning has grown through different phases of development. Learning has also been developed such that learning content can be delivered through distance learning methods and media. Distance learning has over the years been severally been redefined and as opposed to on-campus learning does not always require the presence of the learner in a physical structure e.g. in a building in order to participate in learning activities and events with other learners at the same time. Distance learning metamorphosised into what we all know as online learning after according to Nipper, S (1987) quoted by Bjorke, (2003) has passed through three generations of development and of major transformation. The phase one is the traditional correspondence where textual materials are used extensively and are sent by post from course tutor to the students. These materials are specially prepared to suit certain modular objectives. The second rely on the use of multimedia and broadcast media to transmit knowledge but lacked interactive possibilities among learners. The third phase is still changing and is about the use of technology with its rich media interfaces for learners to interact with one another and tutor through the use of computer online and offline. The opportunities for community of practice and socio-cultural exchanges make Internet technology the major focus in distance learning today.

In the aforementioned pedagogical approaches the better arrangement in my opinion where institutionalist that is instructivist will thrive is mostly in on-campus arrangement. It is pertinent to mention also that the objectives of a course are set according to the pedagogical approach intended. In other words the objectives proposed by course designer dictate the best option in course delivery. For example where course content delivery are structured with much responsibilities shifted to the teacher and the learner a mere recipient of information; where the emphasise is that the teacher gives direction and where assessment and evaluation become the major responsibility of the teacher (instructor) then the objectives are clear on what best pedagogical approach will be preferred- instructivist.

2.4 Concrete ideas on instructivist approach

i. Technical skills producing tangible outcomes where the learner is unfamiliar with the concepts in question.

Instructivist approach can be used most effectively in support of learners undertaking courses that have technical components in the course requirement as a precondition to producing tangible changes and results.

For example in a pipeline welding course as it is in Stord/Haugesund University College, Norway (www.hsh.no) which is a technical/vocational course the learner is required to be familiar with the use of materials and machines which requires the teacher to actually demonstrate 'how to do' through web pages or in a formal on-campus arrangement. In a laboratory based teaching, techniques are taught by the use of the equipments and materials. It is not a do-it-yourself thing without at least an initial guidance on how to begin from an instructor. So where technical skills acquisition becomes the major focus of the course schedules and the learning objectives then instructivist approach becomes a better choice.

ii. The enhancement of visual literacy is equally important to instructivist in the use of video tools to present practical concepts. The online tutor must structure activities as sufficient support that will enhance the visual competence of the learner on the use of video tools in presenting practical concepts/techniques helpful to the understanding of a technique.

2.5 When is a constructivist approach the better choice?

Constructivist approaches in teaching and learning process have also been successful regardless of the medium of instruction. Constructivist classroom is not an authority filled environment where the learner is passive and 'ignorant' until he is made wise. It suggests that the learner constructs knowledge from an existing mental model. The learner creates knowledge from existing framework in order to 'fit it into their existing framework of understanding' Beetham, H (2007). The learner enjoys certain extent of 'freedom' in all that pertains to teaching and learning thereby making him an individual of respected sense of responsibility, developing self-managing competences, which is an important attribute in today's competitive world.

"It is important to note that constructivism itself does not suggest one particular [pedagogy](#). In fact, constructivism describes how learning should happen, regardless of whether learners are using their experiences to understand a lecture or attempting to design a model airplane. In both cases, the theory of constructivism suggests that learners construct knowledge. Constructivism as a description of human cognition is often associated with pedagogic approaches that promote [active learning](#) learning by doing." (Constructivism-Leaning theory, www.wikipedia.org, 2007)

Will the course objectives and design dictate if constructivist approach is a better choice or not? As mentioned earlier the word 'better' is relative and as such what holds way is the alignment of the course objectives with what the outcomes purposed to be.

The following highlights may therefore dictate the course objectives to suggest the constructivist pedagogy a better choice.

- The roles of the teacher will not be that of transferring knowledge or 'pouring' in some facts to the learner but in acting as a facilitator who encourages learner by giving tasking activities, organize and set probing questions and experiments while the learner is left to interact with available resources to find meaning of the 'real' world.
- When course contents are arranged and structured to encourage learner to be left most times alone to have deep understanding of concepts with little and intermittent input from the tutor as demanded of the course goals.
- In the case where the centre focus of learning emphasises the roles of the learner in evaluation and assessment; undertaking tasks, searching knowledge in the sea of information on the net and when sieving information and ideas in order to come up with fresh insight remains the focus of learning activities.

2.6 Concrete ideas on constructivist approach

In studies that deal with human behaviours, society and living, that is, area of discipline called humanities where technical and tangible results are not priority constructivist approach will be preferred. Here learning contents are theoretical. The learner is left to find meanings of the world and fits them into his framework of understanding the concepts of things around him-which he 'discovered'.

For example in carrying out a study on: 'The attitude of University lecturers/teachers to online teaching', learner can investigate without being guided in the same manner that requires practical demonstration of

learning events as we have with acquisition of technical skills which requires that an instructor must 'show how to do'.

2.7 Implementation of the examples in the two categories (Instructivist and Constructivist) above in e-learning situation

The implementation of the above pedagogical approaches is possible in e-learning. The use of video to record motion pictures, of demonstration of learning events etc gives direction and strength to the transference of technical skills to learners. Learner may have better understanding of a practical concept in a situation where the use of video recording of learning activities enriches the learning resources. On the other hand the design of course curriculum such that the learner will gain understanding of a concept without the teacher instructing in a web based environment task the tutor in scheduling learning activities such that the process of learning shift responsibilities to the learner without 'threat' to course objectives. In that case practical skills may be supported by the use of video demonstration of learning components that may transfer practical/technique skills without the physical presence of the learner at the time of video recording.

The use of stream video as support to learning places e-learner at an advantage in a web based situation because of the opportunities of viewing a recorded case over and over again. Courses run online through instructivist approach could provide similar opportunities for students learning aids as we have in face-to-face approach where the tutor has to instruct as a support to the learning events and practical activities. It is still possible to combine instructivist and constructivist approaches to have a 'mixed mode' (Bjorke, S. A, 2003) in order to achieve course objectives for those that are yet to be fully comfortable with entirely online course delivery.

The use of stream video as support to learning places e-learner at an advantage in a web based situation because of the opportunities of viewing a recorded case over and over again. Instructivist courses run online do almost provided similar opportunities for students learning aids as we have in face-to-face approach where the tutor has to instruct as a support to the learning events and practical activities.

3. From instructivist to constructivist pedagogy

Talking of acquiring practical skills through the Internet media, my colleagues in the dental laboratory often query the possibilities of this idea. My question in one of our discussions is how did we learn practical procedures in traditional Instructivist classroom?

Of course we learn practical skills by watching our instructors carryout a procedure. There is no time they held our hands to get us perform a task. A student watches his teacher performs a task and subsequently get supervised to gradually perform the same task until he masters it. Practical skill is what a surgeon requires to undertake a surgical operation just as we have with laboratory and engineering procedures. A look at this website (www.elu.sgu.ac.uk/cso/poll/vote.php?) reveals lots of video learning materials in medical, paramedical fields for use by any interested professional. This clearly demonstrates the level of development in using and acquiring practical skills through Internet media without any need for learner to be physically present in a physical classroom.

So regardless of the profession under consideration, with the use of ICT tools like web camera, streaming video etc a student may learn a skill successfully and be supervised and evaluated without any compromise on standard. If a learner could be watched carry out a practical assignment on the web cast, the doubts about who performed a task is reduced if not eliminated and if a practical learning event is recorded, the learner could watch it over and over again gaining advantage over those who watched such an event live and once without a second chance- a common occurrence in face-to-face learning.

Constructivist provided tools for learner to maneuver and manipulate until understanding is fully established on a given task. Where a course is presented adopting constructivist pedagogy, learner interest in acquiring practical skills could be supported by the tutor by the provision of tools like streaming video of recorded learning events where the learner is left to search, study and discover on his own more facts about what is to be learnt. A high order thinking (HOT) may be generated from such challenging learning event which will afford the learner opportunities to say 'I have learnt' rather than 'I was taught' (Bjoerke, S.A, 2003)

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4. Acknowledgement

The course in appendix 1 above was designed in the manner of the recently concluded International Online Tutor course study guide-Pedagogy for Online Learning (POL_06) delivered via an LMS-Classfronter. www.hia.no/fronter. The said course was undertaken by UNU/GVU and Agder University College Norway. I hereby acknowledge the works of Ask, B., Bjørke, S.A., Haugen, H.: Pedagogy for online learning 1 E-teaching 1; 2006.) where I derived the guidelines to make this study guide. All 'Reflection' items and rubrics were are drawn from: E-teaching 1 study guide by: Ask, B., Bjørke, S.A., Haugen, H.: Pedagogy for online learning 1 E-teaching 1, 2006)

Appendix I

Techniques and concept of dental model surveying (An e-course in dental model survey)

Study guide

Course Structure: This course will run completely online with socio-constructivist pedagogical approach. Participants will meet in a virtual classroom to carry out course work, and collaborate in several activities. The course is tutor supported with many to many communication and peer tutoring. Course participants on completion of course will earn a certificate on Technique of Dental Model Surveying with two (2) credits on European Credit Transfer System (ECTS) scale.

Course objectives:

Learner will gain understanding in:

1. Model survey principles
2. Model survey technique procedures and types
3. Different model surveyors and accessories and their uses
4. Production of survey steps of own sample model.

Additional skills:

Learner will be able to:

1. carry out survey techniques on selected models
2. use different surveyors and their accessories
3. determine path of insertion and removal of a dental appliance
4. decide the kind of support an appliance will require for retention and stability on insertion in the mouth etc.

Mode of course delivery: Learner will meet in a virtual classroom that is using a Learning Management System (LMS) like 'Webct' or 'firstclass', but Classfronter is chosen for this course. Main communication tools shall be asynchronous, threaded, online discussion with group and individual assignment, hand-in and cut off dates.

Teaching Method: Learner-centered with tutor support, 100% online activities, minilecture, Study guide, group work, individual work, socio-constructivist pedagogical approach. There shall be course set books and web resources. Learner will be requested to explore the rich resources of the World Wide Web (www).

Assessment of participants: Portfolio assessment, hand-in, online examination, material submitted during course activities.

Infrastructure required: Course participants shall have access to the selected Learning Management System (LMS). The selected LMS is Classfronter and module 1 shall expose learner to its understanding. A high-speed Internet connectivity for access to virtual classroom will be expected.

Learning resources: The richness and quality of resources contribute to learning In this case video demonstration of surveying procedure could be provided to enrich the course resources base. Recommended set books, minilecture, study guide, illustrations etc are the resources provided.

Course Target group: The course is designed to expose undergraduate dental students, dental technology students, denturist, on new practices and principles in model surveying, and for credit to count towards continuous professional development (CPD).

Course fee: Suggested fee of One hundred Pounds Sterling (100).

Study guide

Module 1

Getting started in the virtual classroom (Classfronter)

Objective: Learner will understand the Learning Management System (LMS) Classfronter. Learn how to navigate the classroom, know the features and other course participants.

Content: LMS, Navigation, Classfronter, Virtual classroom, folders, files etc.

Detailed description of tasks and activities

Task 1 Learn about Classfronter (LMS)

Activity 1: Read and discuss minilecture 1 and see minilecture 1 in the Module 1 documents' folder in the archive. Try and understand the Classfronter and other LMS. Read the Gvu guide and try some of the instructions provided. The course participants will agree among themselves who shall be module moderator.

www.edutools.info/item_list.jsp?pj=8

Activity 2: You should have been provided username and password in order to access the course at the University homepage and hence your virtual office and other course participants.

Activity 3: Try to understand the entire menu by the left of the screen on entering the course. Navigate and see full details and the functions of these menus.

Activity 4: At the center of the screen is a drop down. This allows you to access the course with this code **TCDMS (1)**.

Learn how to upload files, create folders and understand the importance of menu by the left of the screen on entering the course you registered for.

Task 2: Play around in your virtual office.

Activity 1 Visit other rooms, know other participants and upload your picture, edit your profile and write a personal introductory doc on yourself. A small picture of yours will be an important inclusion. Try the features at the top right of the screen and use them.

Activity 2 Create folders, room, forum. See Archive, upload files, and open discussions with other course participants.

Overview

Tasks	Activities	Resources	Estimated 'ECTS hours'
Task 1 Learn about Classfronter (LMS)	Activity 1. Read <i>minilecture</i> 1 and discuss. Suggest module leader. Activity 2. Log in with the username and password provided. Activity 3. Try to understand the entire menu by the left of the home page of the University, navigate and see full details and functions. Activity 4 Enter the classroom (TCDMS 1) at the dropdown menu at the center of the homepage.	WWW <i>Minilecture</i> Username Password The 'GVU Fronter Guide'	(5) (2) (5) (2)
Task 2 Play around in your virtual office	Activity 1 Understand your office and other rooms and try the features in the virtual classroom. Activity 2 Create folders, room, forum. See Archive, upload files, open discussions. Activity 3. Try to understand features in your office and other rooms. Reflection		(6) (6) (4) (1)
			31

Note: The notional student work hours (ECTS hours) in parenthesis are estimates.

Reflection

Have a look at the objectives for this module. Did you learn what you were supposed to learn?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Module 1

Minilecture

Getting started in the Virtual classroom (Classfronter)

Classfronter is a Learning Management System (LMS) and like many that we have in the ICT software market there are characteristic features (Tools) that enhance learning, which are basic to all. These tools enable learner to perform learning activities in virtual office, interact with peer in discussions, and participate in research etc in a planned virtual environment so that set objectives will be realized.

With the help of hypertext it is possible in Classfronter to organize both threaded and unthreaded asynchronous and synchronous discussions, create folders, forum, etc. The exchanges of information/knowledge in Classfronter are text based among course participants and it also allows learners to collaborate in learning activities, share ideas, information and knowledge..

On receipt of password and username the student log in into the website address provided. The first page (Home page) on log in is the University home page. There are list of menu on the left of the screen:

- Today
- Contacts
- My Resources
- My Portfolio

These menus are just like those in your mobile phones, each has subtitles, which give further details on what the learners can do with them.

At the center of the home page is a drop down menu, which enable you to choose a course. Select course (TCDMS 1) you be led into the room with the following menus on the left of the screen:

- Room
- Participants
- Forum
- Chat
- Resources
- Portfolio.

On the top right of the screen is 'FRONTER 71', navigate and get familiar with tools in Classfronter. Take a guided tour.

The archive menus consist of folders where documents are kept. These documents are either course documents or students'. You are expected to create folders and keep your document in orderly arrangement depicting good organizational abilities. Students or tutor creates forum, which are otherwise referred to as rooms for discussions only and are expected to be well arranged so that learners and their tutor can follow discussions orderly.

In the forum threaded discussions are arranged in manner that details like time of discussion, who made it, reply to it and how many has accessed it are available. You can also arrange a chat with classmates on any learning issues. It is possible to be online with someone without a schedule but it could be an opportunity to share thoughts. Chatting is live, textual and it is referred to as synchronous discussion between two or more people. In the participants segments, you will have access to detailed information about other participants like addresses, phone numbers, places of work and country of residences etc,

Portfolios section provides details of activities of the individuals on the course

When you clicked directly on 'Forum' or 'Archive' in the menu section on the left of the screen after you have entered the course it will open and two vertically arranged icons appeared in two boxes arranged side by side on the screen. The contents (the icons) of the first box are yellow in colour and arranged vertically in threaded format while the contents of the second box beside it is also arranged vertically. Each icon within the second box has two square boxes behind it. The first of these squares is empty while the second has an arrow that faces downward within it. The first square could be checked to enable you 'work' on the icon while the second when clicked displays list of its contents: Open, Properties, Copy, and Copy to final assessment. These contents also enable you to open, find out about the properties etc of the icons. Another list of items down within the second box in horizontal row when clicked enables you to 'work' on the icon whose empty square is checked.

Top right within the second large box is listed horizontally the following icons with these titles: Folder (yellow), Upload file, Create, Link, and Forum. Click on them and see many learning opportunities they could provide. It is possible to create folders within folder and open several forum within a folder. For this reason Classfronter provides a large space to work, interact, collaborate and perform lots of activities e.g. Research. You are therefore advised to visit all folders and forum whenever you log in to view new contributions.

Module moderator

A module moderator supports the e-tutor in facilitating discussions. His roles can be likened but not the same in all cases to class 'captain' or 'leader' in the face-to-face learning who among other things ensures lectures are held on schedule in agreement with the lecturers, pass instructions from the lecturers to classmates, etc. He could be likened also to group leader in online environment who sees that a given task on which he 'presides' is successfully carried out.

The following among others could be listed as some of his roles:

1. Supports the e-tutor (group leader when necessary) in ensuring tasks and activities are carried out by opening a discussion forum on scheduled activities thereby encouraging development of leadership qualities, self-managing competences, and independence of mind.
2. 'Prompt' discussion- sometimes some course participants may not be available in the classroom for whatever reason. He could send an email or post a comment to encourage participation from the said member(s). This is to ensure a 'timely' completion of modules.

3. Suggests roles like weaver or group leader to course participants to assume. Overall, he ensures all schedules are well organised.
4. He could liaise with the tutor by email on any issue concerning the course when necessary.
5. Course participants at the beginning of each module suggest him.

His don'ts

1. He does not assume the roles of the e-tutor or usurp his responsibilities
2. He opens a discussion forum only when the tutor did not do that after due date.
3. He does not initiate new topics aside from those on the study guide.
4. He must avoid being an instructor especially when the study guide is of socio-constructivist pedagogy.
5. He does not encroach on the roles of group leader whenever one is in place.

Study guide

Module 2

Principles of dental model surveying

Objective: Learner will understand model survey techniques, the underlining concepts, and types and characteristics of surveyor

Content: Surveyors, accessories, model.

Overview

Task	Activities	Resources	Estimated 'ECTS Hours'
Task 1: Learner will understand basics of Model Surveying.	Activity 1: Read minilecture and discuss. Suggest module leader. Activity 2: Learn about the concept of surveying. Find meanings of surveying Activity 3: Find and discuss associated concepts on model surveying.	www Minilecture Set books www www	(5) (5) (8)
Task 2: Learn about model surveyor.	Activity 1: Learn about model surveyor, types and characteristics features. Activity 2: Discuss surveyor accessories and uses. Activity 3: Produce a summary of discussion. Reflection	www www www	(8) (3) (2) (1)
			32

Note: The notional student work hours (ECTS hours) in parenthesis are estimates.

Detailed description of tasks and activities

Task 1: learner will understand basics of model surveying.

Activity 1: Discuss the minilecture and produce a critique of it. The module moderator has to be agreed upon by the course participants.

Activity 2: Learn about the various definitions from different sources of the concepts of surveying. Compare, analyse and place in the folder the various definitions you could find.

Activity 3: Learn about concepts like undercut, surveyline, principles of tilting etc. Discuss surveying using cast obtained from live patient and that obtained from prefabricated moulds. Summarise and produce a hand in.

Task 2: Learn about model surveyor.

Activity 1: Discuss various types and characteristics features of model surveyor. Compare and analyse selected types and place in personal folder your chosen surveyor

Activity 2: Group discussion on accessories of surveyor and their uses in carrying out survey technique. Summarise discussion, place in group folder.

Activity 3: Individual work: Produce a general appraisal of document of the entire discussion for Task 1 & 2 and place in your personal folder.

Study guide

Module 3

Model surveying

Objective: Learner will understand principles of survey techniques, be able to carry out survey technique and also perform some sample techniques.

Content: Surveying, Model preparation.

Overview

Task	Activities	Resources	Estimated 'ECTS Hours'
Task 1: Learn about model preparation for surveying.	Activity 1: Learn about model and instrument preparation. Activity 2: Discuss steps in surveying procedures Activity 3: Individual work: Produce clips of work on surveying. Reflection	Set books www www	(5) (3) (3) (1)
			17

Note: The notional student work hours (ECTS hours) in parenthesis are estimates.

Detailed description of tasks and activities

Task 1: Learn about surveying procedure.

Activity 1: Discuss model and instrument preparation prior to surveying.

Group discussion summary should be placed in group folder.

Activity 2: Discuss steps in surveying procedures. Analyse each step and criticise any possible approach in the choice of survey line, instrument used etc.

Summarise discussion.

Activity 3: Individual work: Make video clips of a survey work done by you and place in personal folder.

Reflection

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder in the archive.

Techniques and concept of dental model surveying

Minilecture

Surveying in dentistry entails the model, which was obtained from the impression/measurement of the oral cavity. The material used varies and are dictated by the case and restoration in view. The mostly used material is the alginate impression material.

A dental model represents the oral landmarks, which vary from one mouth to another. The oral features are very interesting to the clinician or the dental operator who wants to produce prosthesis from a model, which must show the positive likeness of the mouth.

Important terms

The Model: The dental model is obtained from the impression by pouring the impression in dental stone material. This material undergoes an exothermic chemical reaction, which hardens it. A model is divided into two parts namely anatomical (tissue) areas and non-anatomical (non-tissue) areas. Both areas are important but of interest is the tissue bearing areas, which shows the relevant parts of the stomatognathic system namely: The teeth, periodontium, muscles, and the Temporo Mandibular Joint (TMJ).

Model Survey: A dental model surveyor is a mechanical device that helps in achieving surveying procedures in order to guide in the fabrication of a removable appliance, which could be partial or full restoration and could be made in metal or acrylic based materials in order to establish a path of insertion and removal. Surveying procedure is undertaken to determine the path of insertion and removal of an appliance. It is the study of "the relative parallelism or lack of parallelism of the teeth and associated structures so as to select a path of placement for a restoration that will provide adequate and balanced retention" (Rudd, K.D, Morrow, R. M, Eissmann, H.P 1981)

A simple **model surveyor** comprise of these features: One movable arm; a flat base that is connected to the base by a vertical iron rod and detachable accessories. Where this course will be implemented the tutor will provide photo of a model surveyor as one of the resources. Accessories include: analysis rod-used in locating undercut areas on a model. Carbon (graphite) marker-used in scribing marks of the model showing the survey lines which could be many on a tooth or tissue depending on the number of tilting option adopted; undercut gauges-used in measuring undercut areas (010' 020, 030) and chisel otherwise referred to as carving instrument-used in carving the blocked out areas for desired path of insertion and removal to be established.

Survey Technique: Survey procedure entails the placement of the model in different orientations in order to establish a favorable path insertion and removal without attempt at compromising retention and stability of the appliance eventually produced. Orientation of a model is otherwise known as tilting options: zero or horizontal tilt; anterior tilt (anterior teeth bend downward), posterior tilt (posterior teeth bend downward); right lateral tilt (right position of model bend downward); left lateral tilt (left position of model bend downward) Where it could not be established that sufficient or satisfactory undercut could be obtained on a model the dental operator could create guide plane in which case crown of a teeth or teeth could be carved to create bulbous area that will allow desired undercut areas.

Undercut is an area below a survey line

Survey line is a line scribed on a tooth or a tissue area that is placed on the bulbous area on the crown of a tooth.

Undercut could be favourable or unfavourable. Favourable if it could be utilised and if not useful it is unfavourable.

Ruberic

General appraisal on participation (self assessment)

Criteria	0	2	3	4
Cooperation	Did not pay attention to others did not value the opinion of others	Paid attention to, but did not value the opinion of others.	Actively paid attention to, but it was not evident that opinion of others was valued	Actively paid attention to and valued the opinions of others
Contribution	Did not contribute to the completion of the tasks	Contributed, but the work was inferior or inadequate	Contributed to the completion of the tasks with adequate work	Contributed to the completion of the tasks and submitted high-quality work
Participation	Did not participate in the group	Occasionally participated in the group	Often participated in the group	Consistently participated in the group

(Conrad&Donaldson, 2004)

Library of resources

http://en.wikipedia.org/wiki/Constructivism_%28learning_theory%29#Constructivist_theory
http://europa.eu.int/comm/education/programmes/socrates/ects_en.html#2
http://europa.eu.int/comm/education/programmes/socrates/ects_en.html
<http://europa.eu.int/comm/education/policies/educ/bologna/bologna.pdf>
www.elu.sgu.ac.uk/cso/poll/vote.php?

Conclusion

The learner remains the central focus in training and in the perpetuation of information and knowledge from generation to generation which is one major goal of education. The roles of teachers in continuing to refine and change the faces of knowledge are equally important in this goal. The materials and the medium of knowledge passage are also very important to the education enterprise. Having said that the position of these teachers whether they are constructivist or not will determine the course objectives and vice versa.

But it must be noted that as important as both approaches considered above are, no one is inferior to the other but a mixed mode as suggested by some authorities will be helpful in the realization of set objectives not forgetting that each of them have their own comparative advantages.

I am therefore in favour of a choice of approach to be dictated by:

1. Course objectives
2. Facilities that are available and can be utilized
3. Course designer concept of the learning goals etc.
4. Available funds.

Study calendar

Date	Activity
Jan 2008.	
4	Start up Module 1
9	Post task 2 Activity 1
10	Start up Module 2
14	Post Task 1 Activity 1
17	Post Task 1 Activity 2
21	Post Task 1 Activity 3
24	Post reflection
28	Start up Module 3
30	Post Task 1 Activity 1
February	
4	Post Task 1 Activity 2
6	Post Task 1 Activity 3
9	Post reflection
12	Post TMA
14	Online Exam
15	End of course

A Sociological Inquiry into Time Management in Postgraduate Studies by e-Learning in Greece

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Abstract: This paper presents the findings from a small scale sociological investigation which studied the way mature students manage their time while attending to postgraduate studies by e-learning. Thirty postgraduate students from the University of the Aegean, Greece, were asked to record their daily activities using a semi-structured time-use diary over a period when the demands of the course were at their peak. Follow up interviews with the students were conducted once they handed in their diaries whereby they were asked to reflect on their recorded activities. Two groups of students have emerged from analysing the diaries as having distinctive patterns of time usage; namely, married women with children and married men and single individuals. Policy implications are discussed, as the disparities in the experience of attending to e-learning programmes while at home constitute a severe source of resistance to the stated aim of e-learning programmes, which is to overcome social and geographical marginalisation.

Keywords: e-learning; Greece; postgraduate studies; time-management; widening participation

1. Introduction

This paper draws from on-going research carried out at the University of the Aegean, Greece, into how postgraduate students respond to new forms of education recently introduced in the Greek educational context. In this case new forms of education refer to distance e-learning which is used in the delivery of a postgraduate course. It builds on other work recently undertaken at the University of the Aegean by a group of researchers, namely: an exploration into the decision of mature students to pursue postgraduate studies by e-learning (Vitsilakis, Efthymiou & Vryonides, 2005), how working mothers are experiencing this new form of education (Vryonides & Vitsilakis, *in press*) and how e-learning in general has addressed geographical and social marginalisation in Greece (Vryonides, Vitsilakis & Efthymiou, 2006). The purpose of the present paper is to demonstrate the conditions and the various ways with which postgraduate students attempt to manage their time in order to create space for realising life long aspirations (i.e. to pursue postgraduate studies) to allow them to advance educationally, professionally and socially.

Managing time is an issue that draws the attention of many researchers and social scientists. In its core lies much of the social inequality found in contemporary societies as some groups are more disadvantaged than others in managing it amidst multiple and conflicting social roles. Often these roles are structured by the way contemporary societies are organised in the post-industrialist world whereby various institutions (i.e. the family) attach specific expectations on them. Within this framework managing time in post-graduate studies by e-learning becomes paramount as individuals who tend to opt for this kind of studies have a unique profile. This profile of potential students, which mostly refer to working individuals with familial responsibilities, had been a primary concern for the initiators of a pioneer postgraduate e-learning programme at the University of the Aegean who targeted this specific clientele in an effort to tackle social and geographical marginalisation (Vryonides *et al.*, 2006).

2. Time management and domestic responsibilities

There has been considerable research in many social settings on time management that indicate that time allocation in contemporary societies is gendered. Substantial evidence from this kind of research point to the growth of new forms of inequalities at the expense of women who aspire to succeed in the public sphere without being relieved from traditional domestic responsibilities particularly those connected with caring for children. As Peters (1999) indicates for the Dutch context, gender plays a crucial -albeit not a unique- role in the way time use patterns are shaped. Situational factors such as having children tend to influence the way men and women organise and control their time. Further, as Peters (1999) writes, the combination of having children and performing market work could only be realised at the expense of free time. This was particularly true for higher educated women who were being 'made' to spend more time in the paid work sphere without being 'willing' or 'able' to reduce unpaid work (i.e. domestic responsibilities and caring for children) proportionally. So, women's unpaid work acted as a time buffer when more time was allocated to paid work. Contrary to women, men's free time rather than unpaid work time assumed this function.

Sullivan (2000) studied the nature and pattern of change in the domestic division of labour amongst couples in Britain on nationally representative time-use diary data covering the period 1975 to 1997. Sullivan found that even though in 1997 women still performed the bulk of domestic work there was a significant increase in men's participation in domestic work. However, men's contribution to domestic labour, when women entered employment, only partially and incompletely substituted for the domestic labour of women. The overall result was that women ended up doing more work than before. Also, as Sullivan (2000) remarks, when men did take on more of the domestic work, it was women who tended to retain responsibility for the management of domestic tasks.

Individual time use in relation to household time use is often connected with quality of life. Camporese et al (1998) performed a study in Italy, which they characterised as a society where the division of roles is heavily asymmetrical in that the burden of domestic work concerns almost exclusively women, regardless of age or employment status. They argue that once life as a couple begins, with marriage and the birth of children, there is a kind of institutionalising of the female role within the household. On the other hand, life for males is not changed by marriage or by having children. In their case the turning point is the job. This, according to the authors, represents the beginning of rigidity for time use in life, a reduction in free time, a sequential and hierarchical structure for the organisation of time.

Studying Australian statistical data taken from time use surveys Graig (2006a) has concluded that women are increasingly allocating time to the paid workforce, but there has not been a corresponding change by men allocating equivalent time to domestic and caring labour. In the absence of sufficient institutional and domestic support, women continue to supply the bulk of time required to care for children. The results of their analysis show that the time impact of becoming a parent is considerable, but very unevenly distributed by sex. Having children markedly intensifies gender inequities in time allocation by increasing women's workload. In another study Graig (2006b) has indicated that compared to fathering, mothering involves not only more overall time commitment but more multitasking, more physical labour, a more rigid timetable, more time alone with children, and more overall responsibility for managing care.

All the above have consequences for individual psychological state of health. Nomaguchi et al (2005) examined gender differences in feeling time strain for children, spouse, and oneself and the association of these feelings with psychological well-being among dual-earner parents in the US social context. Among their findings was that mothers were much more likely than fathers to express a lack of time to spend on themselves. Women's lack of time to care for the self can often be accumulated into feelings of time pressure. The latter had been studied by Mattingly and Sayer (2006). Using U.S. time diary data from 1975 and 1998 surveys, they examined the relationship between free time and time pressure. They found that women's time pressure increased significantly between 1975 and 1998 but men's did not. This finding, according to them, suggests that persistent inequality in gendered time-use patterns was paralleled by gendered experiences of time pressure. Despite greater egalitarianism in the labour force women tended to feel more pressure to combine a high level of domestic output with paid work hours. Sayer (2006) used representative time diary data from 1965, 1975 and 1998 to examine trends and gender differences in time use in the US. She found that women continued to do more household labour than men even though men have substantially increased time in core household activities such as cooking, cleaning and daily child care. At the same time, access to free time has emerged as an arena of time inequality. An explanation that she put forward contends that the reallocation of women's and men's time has stopped well short of true similarity because the male identity is still entangled with being the breadwinner, while the female identity is still enmeshed with being the caregiver.

A study that utilised a more qualitative approach in trying to identify the meaning of time use to individuals concerned was Nordenmark and Nyman (2003) study involving Swedish couples. Their aim was to analyse how time use, individual resources, distributive justice and gender ideology influence perceptions of fairness concerning housework and gender equality. Their approach to this issue was quite distinct from the studies presented so far in that their analyses were based both on survey data and on in-depth interviews. This mixed method approach allowed the researchers to investigate the issue at two levels. First, using a quantitative approach they showed that factors connected to time use (division of housework and leisure time) were significantly correlated to both perceptions of fairness concerning division of household labour and gender equality. Then, using interview data they showed that there were several factors and mechanisms at work in influencing perceptions of fairness and equality that were not possible to identify from the quantitative analysis alone. As the researchers suggest, both quantitative and qualitative studies should be included in studies of family life in order to truly increase researchers' understanding of the various aspects of fairness and gender equality.

Davies (1990) has adopted a qualitative methodology to explore women and time in higher education in the context of Britain. She too argues that a multiple theorization of time (including both quantitative and qualitative concepts) facilitates research as it is important on the one hand to measure clock time to map and quantify women's academic studies and on the other to explore the values associated with time (as, for example, well spent or wasted) in order to reveal the way personal space and time for higher education is organised. In her study she showed how women's time for studying had to be carved from space and time for other things and from space and time that is often in the control of other people. In particular, she demonstrated the dominant routines of everyday life which provide a framework for higher education, the hierarchy of values associated with the use of space and time that women students must negotiate; and the rhythmic complexity of women students' actions as higher education is woven into their everyday lives (Davies, 1990).

3. Time management in e-Learning

Within the frameworks set by the conditions described above time management often becomes one of the most crucial issues that potential students with familial responsibilities need to organize and balance in order to engage with academic work. Previous studies have indicated that the decision of mature students to enter or return to higher education is a decision that has to be weighed against responsibilities stemming from various social roles and responsibilities (Pascall & Cox, 1993; Edwards, 1993 and Johnson & Robson, 1999). Managing time amidst conflicting responsibilities is paramount in this process as students struggle to balance themselves between new and on-going obligations generally resulting in anxieties and tensions. Appropriately, Davies *et al* (2002) report that the decision of mature students to enter higher education is a complex one and barriers to entry are linked to the realities of their lives which include: a multiplicity of roles, costs of study, the importance and value attached to caring responsibilities, and time management problems. Similarly, Reay (2002, 2003) and Moss (2004) studied the lived experiences of mature women who entered higher education highlighting the importance of time management amidst extensive working commitments, childcare and other domestic responsibilities and studying. In many ways e-learning provides a unique setting to study time-use patterns amongst students because studying from home means tending to responsibilities stemming from ongoing duties as parents, spouses and working persons at the same time. In an e-learning situation individuals organise their free time in such a way that often they have to negotiate with family members in order to create space for studying.

The e-learning programme at the University of the Aegean, Greece was designed as a full time e-learning postgraduate course with extended use of e-content and advanced network-based interactions supported by a modern academic electronic platform. "Lessons" are distributed through the Internet as e-packages and students have the opportunity to access them throughout the day and respond to assignments and coursework within tight deadlines. It was hypothesised that because of the stereotypical structure of the contemporary Greek family setting and the vast amount of evidence from previous research, women with familial responsibilities would find themselves in an immensely disadvantaged position compared with other groups of students to tend to their studies. It has often been reported (Maratou-Alipranti, 1995; Cavounidis, 1996; Mousourou, 2003) that in Greece the "traditional" division of labour within the home has not essentially changed, even when women in large proportions have entered the labour market. As a result, for most women fulfilling familial responsibilities while working full-time continues to be an ensuing burden in terms of time and energy spent. This in turn has consequences for their pursuit of better opportunities in terms of educational and career development. Hence, the degree to which women, compared with men, were in a position to pursue further education for professional advancement so as to break the vicious circle of gender inequalities, was the main focus of this study.

4. Methodology

Many of the studies presented earlier (Camporese et al, 1998; Peters, 1999; Sullivan, 2000; Nordenmark & Nyman, 2003; Graig, 2006a; Graig, 2006b; Mattingly & Sayer, 2006; Sayer, 2006) have utilised structured time use diaries to produce rigid quantitative statistical models of time usage in order to demonstrate the disparities that can be found in the way men and women time structure their daily lives. Other studies have also used diaries to record time use patterns of family life (Bianchi & Robinson, 1997; Nock & Kingston, 1988). Without rejecting the value of highly structured quantitative approaches and coming from a theoretical position that deems it important to get the respondents own reflections on the social processes within which they are embedded, it was decided to develop a strategy for data collection that took on board this concern in a similar fashion with Davies (1990), Nordenmark and Nyman (2003), Reay (2002, 2003) and Moss (2004). Moreover, because this study in many ways was pioneer addressing a novel institution in the Greek educational system, thus having by and large an exploratory character, it was decided to form a semi-

structured time use diary where students would be asked to fill and to make comments as well. Guidelines set by Corti (1993) and Elliot (1997) were followed in order to construct a semi-structured diary with clear instructions on how entries should be noted. In particular, a student day was broken in six loosely defined time-slots covering a 24 hour day, namely: Morning (6 – 12), Noon (12-3), Afternoon (3 – 6), Evening (6 – 9), Night (9 – 12), Early hours of next day(12 – 6). Students were asked to record their daily activities over a two-week period in the middle of their course when tensions, pressures and stress were at their peak. Once students were filling their dairies they were asked to post them anonymously to be used for research purposes in the electronic platform used in the delivery of the courses. Follow up conversations with some of the students were conducted once they handed in their diaries whereby they were asked to reflect on the whole task. Overall the aim was not to get strict measurable data but rather to get a feel of the content of each individual's working day in order to understand their priorities and the contexts and processes surrounding their involvement in e-learning.

Thirty students in total were eventually included in the present study as they responded positively to the request to participate in this small research project by keeping a diary in a consistent manner. The students came from various socioeconomic and geographical backgrounds and the majority were employed as full-time professionals in education, public service, IT and engineering sectors. Their age range varied from 23 to 50 and they resided at different areas of the country. Nearly half of them resided in large urban centres (16), whereas others lived in smaller towns (9) as well as in isolated areas such as small islands (5). The majority of them at the time of their enrolment in the programme had no experience on distance learning procedures, let alone on e-learning processes. For most of them, this program was their first attempt to participate in alternative forms of education.

Once the diaries of the students were collected an analysis was performed along two axes, namely (a) the kind of activities reported by various groups of students and (b) how these activities were organised during a typical working day. The analysis of the diary data followed a qualitative content analysis procedure (Altheide, 2004). Diary entries were first coded and then grouped and summarised to produce distinctive patterns of day management. The coding process involved marking the activities that were directly linked to the postgraduate programme in the diaries and the ones that referred to other daily activities such as: paid work, tending to children's and other family member's needs housework, socializing etc. This was done manually using coloured highlighters and this was creating visual representations of the schedules of each individual student. In the end this allowed us to locate how central the programme with its requirements was for the students and consequently whether the programme was well integrated in their daily lives. After this activity was performed some very interesting patterns of time management emerged to which we now turn.

Table 1: Students participating in the study

	Married or cohabiting	Single	Total
Male	4	1	5
Female	12	13	25
Total	16	14	30

5. Patterns of time organisation while attending to e-learning

The first very distinct observation that was made by examining the information from the gathered diaries was that time management for two groups of students emerged as quite distinctive; namely, women married or cohabiting with familial responsibilities and married men and single individuals (male and female). The way these two groups organised their daily lives in order to fit the demands of the postgraduate programme was quite unique. For the first group of students the emerging pattern was that the programme was often 'squeezed' amidst various other activities stemming from familial and professional responsibilities. On the other hand for the latter group activities stemming from familial and professional responsibilities appeared to be secondary to the e-learning programme which frequently appeared to be the dominant activity in their working day. This was so even when these students were in their workplace. This connects to an interesting observation that cuts across all groups. There were a lot of students who had the opportunity to access the programme's electronic platform from their workplace. This was possible when there was an available Internet connection and relatively not very tight schedules or supervision at work. Thus, it was not uncommon to report in their diaries that they were tending to various activities of their course during coffee or lunch brakes or when their working load was light. It could be assumed that by accessing the e-platform during their paid work hours students from the first group were trying to create time for studying. For other students however for whom time was not an issue the reason for doing so was probably financial as they did

not have to log on from home for many hours downloading study material, something that for many entailed a considerable cost (especially when they were using dial up connections).

5.1 Married women with familial responsibilities

In a previous paper Vryonides and Vitsilakis (2005) focused extensively on this group of students and remarked that when the programme was at first set off women with familial responsibilities were soon realising that studying from home was not as 'convenient' a way to pursue postgraduate studies as some may have originally thought¹. Each working day appeared to be a continuous struggle to find time and space to engage with their studies while accommodating various needs of the household, husband, children etc. thus making any attempt to construct a 'typical day' with steady routine pursuits not possible. In a day which usually started as early as 6 o'clock in the morning and frequently ended up in front of a computer screen in the early hours of the next day, these women tried to attend to their familial and professional responsibilities and respond to the on-going activities, assignments etc. from their courses. In their diaries they recorded activities such as the following:

- Preparing daily meals often for the next day as well
- Shopping
- Looking after elderly parents
- Supervising children's homework
- Driving children to private afternoon lessons (*frontisteria*)
- Bathing and getting children to bed
- House chores (washing, ironing, cleaning up etc)

The extracts from a diary kept by a 36 year-old primary school teacher married with two young boys aged 9 and 4 are quite characteristic of the above.

5.1.1 Extract 1

Wake up at 6:45 a.m.

Getting the children ready for school. Washing, dressing, preparing breakfast for everybody, checking older son's spelling homework. Rushing the children to school and then going off to my school.

8:00 – 13:00 Work at school [... Makes reference to various activities at school]

13:15 Pick up children from school. Return home. Preparing family lunch. Feeding the younger son.

Clearing the table, put everything in dishwasher and taking the older son to a private English lesson.

15:30 Return home and tend to some more house chores for an hour.

16:45 Pick up the older son from his lesson.

17:00 Help older son with next day's homework.

18:00 Start preparing family dinner while watching some TV at the same time.

19:30 Dinner and then clearing the table.

20:00 Watch some TV and getting children ready for bed.

21:00 FINALLY children are in bed and I can open my PC to study for my MA course until 24:00 or until words start "dancing" on the computer monitor.

In terms of energy spent it has to be pointed out that the familial and housework responsibilities were complementing daily paid work schedules that were often quite demanding. What was a very interesting issue to observe is that these students study patterns were developing in two ways. One way was trying to find time and space in between all other daily activities in order to access the e-platform in order to download the weekly course material and to quickly respond to mails and asynchronous discussions. The other way, more common to women in this category, was to devote time for studying at the end of the day, usually around 9 or 10 p.m., when children were tucked in bed and all other matters were attended to. It was at that time of day that they could sit in front of their computer screen to study, write essays in order to meet the programme's tight deadlines. In the interviews that were held after the completion of the diaries what many

¹ A number of students in an introductory questionnaire when they were first admitted to the programme reported that one of the main reasons for choosing to participate in the particular programme was the fact that they considered it to be a 'convenient' way to pursue further studies (See Vryonides et al, 2006).

women confirmed was their husbands' absence from sharing the burden of these activities. What was also notably revealed in the diaries was what Reay (2003) has described as poverty, and, in particular, a lack of time for 'care of the self' whereby any sort of social life was sacrificed in their efforts to fulfil lifelong educational aspirations. So, in most cases the leisure activities that were reported involved 'watching' TV while doing other things or spending time with children. It was apparent from the pictures that they revealed that successful engagement with e-learning depended on rigid regimes of time organisation and it was only through strict discipline on their part that they were able to keep up with the demands of the course.

For us (women students) time for studying is a luxury... Everything else needs to come first and we have to wait until everybody goes to bed ... for things to settle at home in terms of noise and then to switch on the computer. It is funny but when I talk with my male fellow-students they never seem to be mentioning things such as home, children, housework... whereas for us it is a common topic of discussion. [...] I don't seem to get any free time either in the day or at night ... time seems to evaporate so quickly ...and there are instances when I feel that I am losing myself in all these... I realise that I am constantly neglecting myself amidst all the things that I am doing.

(Secondary school teacher, age 40)

Most of these students appeared to be conscious of the sacrifices and compromises that they were constantly asked to make. And there were moments when the whole situation was a taunting task which was creating feelings of guilt as they were frequently asked to set priorities over their different responsibilities.

Even though my children appear to be happy with what I am doing they, on one occasion one said to me "Mama, you love your computer more that you love us..." There are moments when I get filled with guilt because my children need me and I wonder if I am stealing the time that is rightfully theirs.

(Primary school teacher, age 39)

Often however, it was apparent that children were not negotiable in the things that they were compromising to accommodate their studies. The words of a 36 year-old NGO worker are very characteristic of the above.

Three things fell 'victims' to my studies: Sleep, time for myself and housework... my house seems to be constantly in a mess ... but not my child ...never.

(NGO worker, age 36)

It was very interesting to remark that in the interviews that were held after the completion of the diaries the dominant topic of discussion related to their effort to find time and space to facilitate their studies. The words of the 40 year-old teacher cited above '*for us it is a common topic of discussion*' vividly capture their preoccupation with this issue. Thus, it was not uncommon to feel the need to help each other and to create informal networks of support. Even though the students of this category were constantly struggling to keep up with their studies while attending to their other roles, other students appeared to be in a much better position to fit the programme in their daily lives.

5.2 Married men and single individuals

These two groups of students have been placed in the same category for a clear reason. The way the programme fitted in their lives was independent of familial and housework responsibilities. From the group of married men four students volunteered their diaries. Of them only one student's activities had scarce references to what was described above as being dominant activities in the lives of married women with children (i.e. taking the child to nursery home, etc). But even then, what was apparent was that these references were reported as a way of supporting the wife. From the other three diaries all these activities were totally missing. Two features appeared to dominate their daily schedules. The bulk of the activities reported tended to focus on their paid work duties whereby all of them appeared to be spending considerable time there often working after hours and overtime. Engagement with the e-learning programme was the other major focus of their diaries. Other activities involved spending time with friends, going out, political activism, watching TV for longer periods and generally having more free time for leisure and other personal activities. In other words, their social life appeared to be quite vibrant and covering various parts of the day. It is also interesting that while married women's study period usually started at 9 or 10 p.m. men's study period was beginning much earlier during the afternoon hours. Time for sleep was also appearing to be longer both at night and in the morning. All the above verify in the most characteristic manner the stereotypical division of labour in the household, which as was mentioned earlier, still appears to be a dominant feature of the Greek family. Moreover, the main points of contrast with women with familial responsibilities was the relative flexibility to time structure their day whereby their perceived needs and priorities were not compromised in any significant way by the needs and priorities of other members of their families. Here is an example of diary extracts from a 42 year old instructor working in a centre for life long learning. He has two children one teenager son 15 years old and a daughter of 9.

5.2.1 Extract 2

7:00 Wake up. Personal hygiene. Watch morning news on TV while having morning coffee. Going to work.

8:00 -14:00 Work. [...makes detailed references to work duties]

At regular intervals I log on to the e-platform to download study material, respond to e-mails and contribute to asynchronous discussions [...]

14:30 Pick up older son from swimming lesson and return home for lunch.

15:00 Watch lunch time news on TV, read newspaper and log on to e-platform to check for updates.

16:00 Afternoon nap for a couple of hours.

19:00 Meeting with two friends at a cafeteria for coffee, socialization and trade union activism [...]

21:00 Log on to the platform and work for assignments

When asked about how the programme fitted their daily lives during follow-up interviews the following two examples are typical of the responses male married students gave:

Actually the programme fitted very well with my daily routine. It has allowed me to be with my family and my job commitments without having to leave my place of residence. [...] it is ideal for people like us who find it very difficult to do it [postgraduate studies] otherwise.

(Teacher advisor, 42)

The programme is demanding but I have the support of my family and my wife in particular ... she realizes that doing a postgraduate degree had been a lifelong aspiration of mine and she is doing everything she can to support me.

(Head of personnel department in semi-public organisation, 48)

Single individuals (the majority of them being young women in their mid 20's) either living on their own or with their parents also reported completely different kind of daily schedules from the group of married women. Their daily schedules had more in common with the ones of the male students. Contrary to the women of the first group, for them the postgraduate programme often appeared to be the dominant activity in their lives. Some of the single young women were not in full time employment and appeared to be spending a considerable time on leisure activities such as visiting a gym, going out with friends, reading books and newspapers, watching TV etc, all done within very loose time schedules. In many ways they appeared to be living an extended undergraduate student life. Those single individuals who were in fulltime jobs, like the men presented above, appeared to be spending quite a lot of time in their paid work. On and off throughout the day they would be accessing the Internet and electronic platform to download study material and spent much more time working on essay writing, contributing to discussion forums etc. Their housework chores appeared to be minimal whereas proportionately they would spend much more time than the other groups for sleep. This group of students shared many similarities with the men of the second group in terms of the flexibility to structure their day and the absence of references of tending to needs of other individuals and thus influencing the way they were setting their own priorities. The above were noticeable in the entries of their diaries. Extract 3 is from a diary kept by a 28 year-old ICT secondary school teacher.

5.2.2 Extract 3

07:30 Wake up. Personal hygiene. Morning coffee. Watch TV (Morning news programmes) until 08:30.

09:00 Go to school. Teach my classes at the ICT lab. [...Makes references to a variety of activities she engages at her school] During breaks I log on to the e-platform and download study material respond to e-mails and contribute to discussion forums.

14:00 Return home. Have a light lunch and then go to the gym. [...]

16:00 Afternoon coffee and some house chores. 17:30 – 20:00 Study for my MA course. [...]

20:00 Watch TV and dinner. Talk to friends over the phone

21:30 I go out with friends until 24:00.

Here is another example (extract 4) of a diary extract kept by a 25 year old female student leaving with her parents. She is working as part time teacher while giving some private tuition to school children at home and aspires some day to get a job in the civil service.

5.2.3 Extract 4

08:30 Wake up. Have breakfast and getting reading for work.

10:00-14:00 I work as part time teacher in a school. When I get the chance I use the school computer to log on to the platform and check if anything new has been posted.

15:00 Return home and I have lunch with my parents.

15:30 – 16:30 I log on for an hour to download study material and respond to mails.

16:30 – 19:00 I give private lessons to school children.

19:30 – 21:00 Study for my MA course. [...]

21:00 Dinner.

21:30 I study a bit more and I also do preparation for the national examinations for appointment in the civil service.

23:30 Watch a film on TV and I go to bed around 1:00 a.m.

The student above is typical of a group of postgraduate students which as was commented above appeared to be living an extended undergraduate life having the bonus of living with their parents since the programme did not require them to move to a University campus. The particular student when asked how the e-learning programme fitted her life commented:

This particular programme and particularly the way it is delivered came to me at the right time... because not only am I able to study for a postgraduate course and get what I always wanted... being at home with my parents supporting me allows me to better prepare for the ASEP [Greek government national examinations for appointment in the civil service]... I could not have done it otherwise...

(Part time teacher, 25)

Another 26 year old female student who was working as an employee at a local municipality and produced similar diaries as the last two ones gave another perspective as to why the programme fitted her life so well.

This period in my life is ideal to get a postgraduate degree. I have recently started to work in X municipality getting my position after fierce competition. It's the kind of job one must really hang on to.... Such chances do not come often... [...] When I get married and have children ...that's it ... postgraduate studies will then have to wait.... probably for ever.

(Employee in a local municipality, 26)

From all the above what comes out as a crucial observation is that being a married woman bringing up children constitutes a substantial impediment for pursuing studies by e-learning. In our study this group of students appeared to have very limited control over the way they were organizing their days in order to create time for study. The way different groups of students have developed their distinctive time use patterns raise serious questions about the basic stated policy of e-learning programmes, which is to address social and geographical marginalisation. It has been reported that through e-learning, groups that would not have had the opportunity to pursue further education either because of their place of residence (islands, remote provinces, etc) or because of familial and other social commitments, could have a prospect of realising their aspirations (Vryonides et al, 2006). Things, however, do not appear to work in such a straightforward manner. For some students who aspire to return to higher education their decision requires: a) endless processes of negotiation with people that depend on them and b) finding ways to simultaneously accommodate existing commitments. And it is not uncommon to observe that when priorities need to be put forward, their studies come secondary to the social expectations that are often attached to other roles (i.e. motherhood). In other words, the question that seems to emerge as crucial at this point is the following: Has the introduction of this new form of alternative education failed to offer better opportunities to those students who were supposed to be served by it? An answer to this question appears to be given by the diaries of the students who experienced this innovation and points to a rather depressing picture.

6. Conclusions

As with other studies (Camporese et al, 1998; Peters, 1999; Sullivan, 2000; Nordenmark & Nyman, 2003; Graig, 2006; Graig, 2006b; Mattingly & Sayer, 2006; Sayer, 2006) this study too highlights the disadvantaged position women with familial obligations find themselves to time structure their daily routines. This has serious implications for the policy of widening participation in new forms of educational opportunities especially when these were supposedly designed to address their needs. It appears that e-learning, as one of the most prominent form of current educational innovations which was introduced to address the needs of disadvantaged groups, has not yet done so comprehensively. From the diaries of groups such as men and single individuals without familial obligations it seems that they took better advantage of this innovation. It

fitted their lives much better because the crucial issues were on the one hand their flexibility to structure their daily routines and on the other the fact that other people's needs and priorities did not affect their time management strategies. It is reasonable to assume that these students are more likely to take advantage of conventional forms of education and for them e-learning is an additional potential.

On the other hand married women with children could not make the most of this innovative opportunity simple because they have little control and freedom to structure their day in terms of time and content. It appears that, as Davies (1990) wrote some time ago in another context but on a similar issue, 'space and time to study are both socially and personally constructed out of others' time and time for other things'. Similar remarks have been made by Moss (2004) more recently who argues that for women 'personal space and time for higher education has to be carved from space and time for other things and from space and time that is often in the control of other people.' As the women of the present study were trying to accommodate various obligations and other people's needs struggling at the same time to respond to the requirements of what all of them described as 'a very demanding course', they were frequently finding that this was an unmanageable task. In many ways they found themselves constrained by traditional ideas and expectations about their role in the Greek family. It is this kind of expectations that often ground women within the confines of domesticity and consequently, this contributes to the reproduction of a vicious circle of gender inequalities even when opportunities for widening access to further education are set up.

In a previous article, the need for educational providers to adopt more flexible organisational arrangements was raised as it was thought that in this way, postgraduate studies by e-learning would better fit with the needs of the targeted 'clientele' (Vryonides et al, 2006). It is only by recognising that mature students have inescapable familial and professional responsibilities which put them under serious strains when trying to construct space and time for academic work, that necessary and effective measures will truly fulfil the aspirations of the individuals who enter this process. Under present conditions the disparities in the experience of attending to e-learning programmes while at home constitute a severe source of resistance to the stated aim of e-learning programmes, which is to overcome new forms of social exclusion.

7. References

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