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Editorial

Technologies and the Future

Donald G. Perrin

In February 1996, I published an article entitled “[The University of the Future](#)” in the USDLA Journal. It was based on ideas developed with students and colleagues at San Jose State University. We discussed everything we thought could be improved in teaching and learning and student support. We were not aware that another alternative system of education, the University of Phoenix, was also born at San Jose State University. My group leaned heavily on innovations that were part of distance learning. In the State of California, it was apparent that the growth in number of students far exceeded the time and budget to extend or build additional brick and mortar universities and colleges. Traditional universities and budgets were not scalable to handle rapid growth, or if the trend was ever reversed, of decline. Leaders of the State Universities and Colleges determined that their institutions were already impacted, and two of every three additional students that came into the system would be served by distance learning.

Several other changes were occurring at that time. Research was showing favorable quality of learning when comparing distance education students with those taught on campus. It was realized that distance learning could reach remote communities and individuals beyond the service area of existing colleges. Distance education was appealing to adult learners who could now fit courses and homework into their work and family schedules. And for the most part, adult learners did not need traditional classroom experiences to succeed; they were able and willing to assume much greater responsibility for their own learning.

Technology, which was minimal in traditional classrooms, played a key role in enhancing and delivering instruction at a distance. It could be visual – audiovisual – and interactive. Computers and hypermedia provided access to a wealth of resources for learners in structured classes and for individual research. And learning management systems resolved the difficulties of admission, enrollment, delivery of instruction, feedback, evaluation, keeping student records, and flagging student problems for instructor attention. When distance learning classes became available, traditional students added them to resolve scheduling problems and accelerate graduation. In many instances, it was possible to take courses that were not locally available from other institutions. And it provided curriculum alternatives where there was course that better fitted the career goals of the student.

The attitudes of faculty and administration were changing in favor of distance learning opportunities for students. The net result, described in the *University of the Future* paper, was a reality in the majority of academic institutions within a decade. Distance learning did not replace the traditional on-campus experience, but provided a viable alternative for many certificate and degree courses and programs. It was also adopted to enrich the curriculum in elementary and secondary schools.

Note that all of the components of the University of the Future were already in existence when the paper was published in 1996. It was a concept that could be applied in any existing educational institution, or in a virtual setting. The Commonwealth of Learning and Open Universities came from separate origins, but all were made possible by adopting state-of-the-art communication technologies.

If we were to rethink education in terms of what is now available (in 2012), what would change in physical and virtual education settings? Are we ready to construct a new University of the Future for 2012 and beyond? And how would it differ from our present schools, colleges, and universities?

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Editor's Note: This is an excellent analysis of online learning based on the online environment and diversity of cultural and language background and experience.

Virtual educational spaces: Adult learners' cultural conditions and practices in an online learning environment

**Zuochen Zhang and Don H. Krug
Canada**

Abstract

This exploratory study systematically examined the learning experiences of graduate students in an Online Learning Environment (OLE), with the aim to understand how the research participants' cultural conditions affect their learning in virtual spaces. Twelve graduate research participants/students enrolled in a Master's program offered by a Canadian university represented a variety of backgrounds in terms of age, gender, profession, ethnicity, native language, location of residence, previous educational backgrounds and life experience in North America. Data were collected by online survey, observation, email interview and telephone or in-person interview. The aspects explored include use of virtual spaces, physical location, time, flexibility and control, convenience, personal and social interests, previous educational experiences, and English language proficiency.

Research background

With increased accessibility to networked computers and the Internet, the promotion and use of online environment for teaching and learning are on the rise. Advocates say information and communication technologies (ICT) are flexible and accessible (e.g., Bates, 2004; Koper & Tattersall, 2004), offering virtual spaces where meaning(s) can be made and negotiated among learners (Galloway, Boland & Benesova, 2002). Biesenbach-Lucas (2003) observes that while non-native and less verbal students tend to keep silent in a face-to-face class, they "felt more comfortable participating more fully in electronic discussions" (p. 36). On the other hand, critics question the global accessibility of ICT and the disenfranchisement of some economically disadvantaged people (Selwyn, 2008).

Simultaneously, OLE can both benefit and restrict, as well as reveal and mask, the cultural conditions that affect one's perception and formation of certain characteristics of cultural identity such as social category systems (i.e., gender, ethnicity, race, social status, sexuality, etc). The contradictory landscape of OLE is complex and ambiguous. While some people dislike the experience of learning online, other people find OLE not only leaves room for creating more intimate relations among learners (Bird, 2004), but also promotes opportunities for enhanced inquiry that can lead to higher achievement and more satisfaction in collaborative learning (Alavi, 1994). In this article, we discuss strategies for enhancing the cultural conditions of online learning in order to construct OLEs that satisfactorily serve diverse groups of adult learners.

Drawing from the research of du Gay (1997), Hall (1997), Mobley and Wilson (1998), Murphie and Potts (2003), and Reushle and McDonald (2000), on relationships between culture and learning, we examine how a learner's cultural conditions limit and/or extend one's participation in an OLE as studied through a course management system (WebCT) during a distance education course. This study involved only twelve participants who represented an imbalanced number in terms of gender (3 males and 9 females). Therefore, we have been cautious to not over-generalize the results. The descriptions and interpretations of the participants'

cultural conditions are offered here to guide perceptions, rather than formally forecasting future affairs, to provide additional information of these issues beyond that in the existing literature. The expectation is that future research will develop further findings into the interactions among cultural conditions, social category systems, and online learning practices.

We begin by presenting a brief literature review followed by a description of the methods we used to identify, collect and analyze data. Next, we present our findings and discuss the research results. In conclusion, we suggest that this research generally indicates that virtual spaces of an OLE can be a contested educational landscape. Because virtual spaces are connected to real life cultural conditions of enrolled course members, it is important that instructors consider how and why they impact students' everyday lives in order to enhance the meaning and relevance of learning in an OLE.

Literature view

Online learning environments

Course management systems allow for the administrative security of course information as well as a means for learners to access course content, resources, and synchronous and asynchronous communication technologies. OLEs are social virtual spaces that link technological infrastructure and human experiences associated with communication and learning. Virtual spaces continue to change with the evolution of information and communication technologies such as OLEs.

OLEs use both *synchronous communication* (i.e., chats, text messaging, video conferencing, etc.) and *asynchronous communication* (i.e., email, threaded discussion forums, etc.). These communication application systems include features that allow users flexibility with logging-on in real time, access from different geographic locations, and opportunity for reflection before responding to a classmate's or the instructor's posting (Everhart, 2000).

But the use of online communication application systems can also adversely affect course participants so that they feel that they are being left behind, isolated, or that they experience information overload. Some research suggests that chats "may be a dead end for learning" (Polichar & Bagwell, 2000, p. 53) as chat topics can vary widely and can deviate easily away from related course materials. These sessions also have the potential to reinforce misunderstandings of course material (Polichar & Bagwell, 2000). However, both of these problems can also be characteristic of face-to-face instruction.

Researchers also suggest that OLEs can enhance collaborative learning (Alavi, 1994). In this community of practice (Lave & Wenger, 1991), new members who join a group can learn from existing members as they work. Through processes of discussion and shared work on specific group projects, meaning can be negotiated among learners, as such interactions may assist learners in developing a "meaningful and strong sense of identity" (Postmes, Spears, & Lea, 2000). We wanted to know more about how and why a course member's perceptions of their own self- and social identities and cultural conditions influence their participation in an OLE.

Culture, group identification, and social categories

Before looking specifically at our research, we want to offer a working definition from the numerous and somewhat ambiguous readings of culture. In our study, we drew from Hall's (1981) research on culture as the specificity of people's multiple ways of living. We agree with Bullivant (1993) that culture should not be used to over-generalize about a group of people based on macro-cultural views of nationality, such as Canadians, Chinese, British, Africans, etc. The cultural practices and specificity of living require us to consider a group's program for survival in and adaptation to its environment. Culture consists of knowledge, concepts, and values shared by

group members through experiences, interactions, communication, and mediation. In this research, culture was understood as the philosophies, traditions, values, perceptions, and agency of individuals and groups. Change is a constant that conditions these cultural and social dimensions of human agency.

Socially-constructed categories have also been used to articulate human attributes of ability, age, gender, ethnicity, race, religion, nationality, sexuality, and social status, to mention a few. But in our research we agreed with Banks and Banks (1993) that, “Although membership in a gender, racial, ethnic, social-class or religious group can provide us with important clues about individuals’ behaviour, it cannot enable us to predict behaviour” (p. 14). As researchers we were cautious not to isolate social category systems. Instead we considered how such certain social systems intersect with cultural conditions and interact to influence individual and group communications and practices. We examined culture as the specificity of shared beliefs, practices, values, and symbol systems associated with human affiliations, and we look at the research participants’ broader cultural ways of living (i.e., English language proficiency, country of birth, age, gender, geographic location, previous educational background, online educational life experiences, physical setting, influence of family life, work, etc.) as their cultural conditions in the research context.

Active learning and constructivist theories

In an OLE, class members interact within a virtual space through communication practices. Student - teacher interactions are mediated through language. Language proficiency can enable and restrict online communication which in-turn influences if and how students play an active role when learning online. Self-direction and efficacy are required for online learners to communicate socially and to stay engaged with course content. Social constructivist theories generally emphasize that processes of knowing involves “the agency of other people and mediated by community and culture” (Boudourides, 2003, p. 12). Like other communication, OLEs are socially constructed virtual spaces that can provide for interaction and learning to occur (Mesher, 1999; Pistorio, 2010).

Research methods

Research objective and design

This exploratory study systematically examined how each research participant’s cultural conditions limit or extend his or her participation in an online distance education course. Data collection involved four methods: an online survey, monitoring virtual spaces, email interviews, and telephone or face-to-face interviews. An online survey was used to collect demographic data such as age, access to the Internet, educational background, English proficiency, gender, life experience in North America, etc.

Communications on the course website such as discussion postings and chat sessions were recorded and analyzed to find out how the participants communicated with other class members and the instructors. Email interview questions were generated on the basis of the survey results and observations and then sent to participants individually asking about their cultural conditions of learning and any modifications of those conditions they made for the course. Semi-structured interviews were conducted by telephone or in person to obtain an in-depth understanding of the participants’ perspectives of online learning and how their cultural conditions impacted their online learning practice. Participants were recruited from the fifty-five students enrolled in an online graduate course on a voluntary basis. The course was co-taught by two instructors.

Participants

Participants included twelve graduate students: Agnes, Cathy, Jerry, Karen, Masahiro, Mitra, Nancy, Pree, Ping, Sali, Steve and Wendy. All these are pseudonyms assigned to participants to protect their identity. WebCT was used for course delivery. Participants' ages ranged between twenty and fifty and there were nine females and three males. Most of the participants were located in western Canada while four were outside of Canada: two in Japan, one in China, and one in the United States.

Data analysis

Through research analysis, we interwove empirical data with conceptual and theoretical ideas discussed in the literature review as a way to examine the contexts of these data within the broader scope of selected research. More specifically, the research data were analyzed to identify how the participants' cultural conditions affected their participation in learning processes. Data coding (Bazeley, 2007) included "open coding" to mark each participant's postings with regard to the: 1) kinds of questions they raised, 2) how often and when they participated online, 3) if and how they articulated arguments, 4) how they responded to peer messages, and 5) their perspectives and interpretations of different aspects of the course; and "holistic coding" to analyze the interview transcripts, looking at the most frequently used key words and key terms (e.g., challenge, frustration, language, background knowledge, etc.).

We realize that this data analysis was only based on a partial snapshot of the research participants' cultural conditions and their learning practices and that a complete picture of these life experiences was not possible. However, our systematic identification of themes was supported by an examination of previous research and grounded in the empirical data associated with the research participants' engagement in an OLE, and how they modified their everyday living conditions to optimize their learning. In this way we were able to identify strategies research participants employed to accept, resist, and oppose particular course demands.

We also analyzed these data to identify communication patterns employed by research participants by coding the transcripts of discussion postings, email interviews, telephone interviews, and face-to-face interviews (Gunawardena, et al., 2002). The discussion postings were examined to identify the number and frequency of postings from participants to find out if there was a significant difference between native and non-native speakers of English. Then the content of the postings were analyzed to identify and examine inquiry strategies research participants used in their online participation. These inquiry strategies included: 1) how they modified their life experiences to complete course assignments, 2) how they modified their course assignments because of certain life experiences, 3) how they articulated arguments, 4) how they responded to peer messages, 5) the level of formality in their language use, and 6) what their perspectives and interpretations were of the course design.

The analysis of the interview data checked and elaborated upon themes that emerged from the analysis of online postings more specifically and also brought a deeper understanding of the issues related to the learners' cultural conditions, which affected their learning practices. The email interview data explored the participants' learning conditions including physical setting, amount of and use of time, influence of family life, work, or other aspects of their social encounters and interactions, how these cultural conditions enhanced or restricted their ability to learn, and the ways that they modified their ways of living to enhance their preferred learning practices in an online environment.

Findings and discussion

Use of virtual spaces

The participants' cultural conditions affected their own learning and subsequently the learning of their peers. Time and work load were the two major issues mentioned by many participants that challenged and frustrated them in their use of the OLE.

The course suggested eight to twelve hours per week on course-related activities, but many participants professed to spend considerably more time. As non-traditional graduate students, most of them also had full-time jobs and family commitments. Time management was an issue that could either limit or extend a participant's learning as he/she struggled to learn in the OLE.

Karen concentrated best in her office at work. She decided to study regularly in her office and on weekends to complete course assignments. Even though she needed to work away from home, the virtual space provided Karen a means to study course content when she made the time. Her ability to control this particular cultural condition of her life (when, where, and how) was an important attribute of the way she preferred to learn at this time.

In the OLE, communication took place via virtual spaces between the instructors and course members and among course members themselves. With asynchronous discussions, participants usually waited for a response to their postings. For some non-native English speakers, these communication delays produced nervousness, adding to their sense of apprehension in their own ability to contribute in a meaningful way to the course. Some assumed that if their posting did not get a response, then it might mean they did not express themselves clearly or the message was interpreted as offensive (Paree, Telephone interview). The challenge of using a virtual space meant that all participants had "to understand the diversity in the student populations and be prepared for unfamiliar social practices such as netiquette and online lingo" (Nancy, Email interview).

In virtual spaces, participants do not occupy a physical location with other course members. Subsequently, some participants said that they experienced a feeling of being alone and a sense of frustration as a result of this disembodied experience. Mitra felt isolated when she first joined the class. When using the virtual spaces, it was apparent that many of her peers had taken other courses together prior to this one. She found it difficult to engage in communication because she had not identified someone or a group with whom to establish a social relationship or bond.

Both the hardware and software technical infrastructure played a role in how participants used the virtual spaces in the course management system, which had different layers of administration and content areas. Navigating these spaces was challenging for some participants to not only locate course materials, but to download files onto their computer through their local area Internet service provider. Wendy had access to only a phone line dial-up connection to the Internet that made downloading files time consuming.

Physical location

Some participants chose to study at home while others did it at work because that was where they had access to the Internet, or the time and space they could use to concentrate. For example, Karen did most of her online learning tasks at work because she had to devote time to her son and husband while at home. She had an office where she could concentrate and where her work schedule allowed her to study for a certain number of hours. Steve also studied at work because he thought the post-graduate studies were related to his teaching job. Masahiro had a very busy work schedule, so he decided to study at home, when the rest of the family was asleep. All of the participants selected locations where they could concentrate on their learning tasks. In order to balance their studies with family, employment, and social responsibilities, participants arranged to find the time and location that best fit their own social living situations.

Time

Time is integrally connected with people's rhythms of everyday life. It is a dynamic multidimensional condition that intersects culture, learning, and virtual spaces. However, participants interpreted concepts of time in many different ways and they held different conceptions of how time limited or provided opportunities for them to manage their course studies in a graduate program. Most participants actively sought ways to manage time by adjusting their cultural conditions so as to optimize their learning. Some employed specific strategies to reduce challenges or overcome difficulties. Agnes, Masahiro, Ping and Sali just wanted to use their available time to get the course assignments done, while Jerry and Steve enjoyed socializing. For most people, we assume, time is an obvious condition of culture, learning, and virtual spaces. But its importance should not be minimized in this context since it is so "harmonized with and jelled into a philosophy of progress as expansion, speed and material wealth" (Menzies, 2005, p. 23). Harvey (1996) argues that, with the compression of time and space, "The central value system . . . is dematerialized and shifting, time horizons are collapsing, and it is hard to tell exactly what space we are in when it comes to assessing causes and effects, meanings or values" (p. 298).

The production and use of online digital technologies in education generally have produced a compression of time and space. In other words, the pace of life sometimes seems to collapse inwards upon itself, because these information and communication technologies appear to make it so easy to overcome tremendous geographic spatial barriers (Harvey, 1996). For example, many of those who both lived in Canada enjoyed the presence of other people while using the synchronous virtual chat felt it offered a feeling of community. But Masahiro, who resided in Japan, saw the seventeen-hour time zone difference as a major obstacle that excluded him completely from attending chat sessions.

Flexibility and control

While research participants perceived that virtual spaces provided the flexibility to adjust their family, work, and social schedules to meet academic and professional interests and values, many indicated that they wanted more control over when, where and how they participated in the OLE in order to manage their changing cultural conditions in relationship to the ways that they preferred to learn. Patee pointed out, "Working full-time and taking two courses each term have been really challenging and I just want to finish the program as soon as possible." Participants wanted flexibility and control over their learning situation primarily to maintain their family and social relationships. These were some of the most frequently cited conditions during interviews that affected participants' online learning. Their commitment to earning a graduate degree took a lot of time away from their family obligations and responsibilities. These commitments extend beyond some participants' immediate children or spouses to parents and even grandparents. Receiving the understanding and support of family members provided some participants with the much-needed support for them to focus on their learning. Some participants did not only receive support from their families, but they also involved their children in their online learning process. Wendy believed her studies could also be mutually beneficial academically and emotionally for both herself and her children.

Convenience

Some participants chose certain ways to learn because it was more convenient or efficient given their living situations. They also selected communication methods (i.e., chat, discussion forum) and certain people to talk with about assignments based on the ease of learning something new or being able to access them at a particular time. Some participants chose to print the course materials rather than read them on the computer screen. This provided them a means to read the text anywhere and anytime rather than having to be connected to the Internet. Some participants believed they studied more efficiently in the morning, while others chose to work late at night. A

few participants found it difficult to schedule any quiet time while their families were awake. Although it was not their preferred time, these people studied late at night, which was the only time available.

Personal and social interests

Some participants' preferred learning practices were related to their personal and social interests. There were those who called themselves "experiential learners" who enjoyed solving problems (e.g., using software package they had never used before) by themselves before asking for help. One participant called herself a "morning person". She completed her online learning tasks in the early morning when she was better able to concentrate. This individual did not have family obligations or commitments (i.e., taking care of small children) so she was able to go to bed or rise early or late if she preferred.

For this research, the male and female sample size was too small to be significant in relationship to gender. However, it is interesting to note that some male participants suggested that more formats of multimedia should be used for the course content delivery, and there should be more virtual spaces available for student-to-student communications, while some female participants stated that they were overwhelmed with too many virtual spaces employed in the course. Cathy expressed that one of the biggest challenges for her was that there were too many forms of communication used in the course.

Previous educational experiences

Previous educational experiences often influenced how participants engaged in certain preferred learning practices. Both Masahiro and Ping stated that in their previous educational experiences if they agreed with a peer's opinion they were not motivated to respond. Both were also reluctant to argue with peers in a public forum if they did not agree with somebody's opinion. Biesenbach-Lucas (2003) observed that "non-native speakers, particularly students from Asian countries, consider it far less appropriate to challenge and criticize ideas, and in addition, they may not know how to express disagreement appropriately in English" (p. 37). This research supports Biesenbach-Lucas' assertion.

There was a space set up on the course website for socializing, and some participants found this space more useful than others. Interests in using such components of the course also depended on participants' previous experiences and personal preferences. Those who had had positive experiences in online socializing tended to be more interested in using them than those who had not used them much or had not found them useful in the past for their learning.

English language proficiency

English language proficiency was one of the most important cultural conditions related to the participants' learning practices. Those who were not very confident of their English proficiency preferred to read others' postings first, instead of initiating a message about the assigned readings. Masahiro chose short postings in the discussion forum to read, then would write a long response to one or more postings from others and ask someone (wife or colleague) to proofread the draft before he posted it. Masahiro was not very confident of his written English and was reluctant to post messages in the discussion forum because he was afraid that his peers would consider him "stupid" based on his poor English. While some research participants preferred to skip or postpone the reading of poorly-written posts, those who had experiences living or working with non-native English speakers were more understanding or flexible. Among native English speakers, those who had experiences teaching English as a Second Language (ESL) tended to be more patient with the non-native English speakers. Synchronous chat sessions provided opportunities for participants to share their opinions in real time. But some non-native English speakers expressed their preference for using the asynchronous discussion forums as it gave them more time to think about the discussion topics or to figure out the meaning of others' postings.

This virtual space was preferred because of the convenience it provided to the participants and the control to manage their represented identity. The fact that non-native English speakers were less active in synchronous and asynchronous virtual spaces suggests that language proficiency affected their participation and communication in course discussions. Language limited opportunities for them to fully engage in the OLE.

Guided by social constructivist learning theories, this online course included collaborative assignments that required participants to work in small groups of three or four and engage in discussions on more than one project. Although participants acknowledged the importance of collaborative learning during the research interviews, some participants, especially non-native English speakers, did not participate in topic discussions as actively as their native English-speaking peers. We believe that the formers' communication and learning practices were conditioned by their previous educational experiences and English language proficiency. Personal interests might be an explanation for some participants' passive participation in course virtual spaces, but for non-native English speakers the degree of their activity was based on their language proficiency and ability to control their communication practices in the OLE.

Conclusion

Participation and communication in this online graduate course was affected by participants' cultural conditions. Time and workload were among the most commonly mentioned cultural attributes that challenged the research participants' daily living situations, because the time needed to participate and communicate was much heavier than they expected.

Online virtual spaces incorporated various kinds of multimedia, but more choices were also restricting when the course participants were trying to manage their studies in the context of very busy life obligations and responsibilities. Synchronous communication was not very useful for participants in different time zones. The bandwidth demanding multimedia also put those who had a slow Internet connection at a disadvantage position. The development and distribution of media did not address both broadband and narrowband connections.

This research generally indicated that the virtual spaces of an OLE were contested educational landscapes. Virtual spaces are connected to real life cultural conditions of the enrolled course members. Some research participants were reluctant to engage in course discussions because they were not sure what they could contribute. They were not from North America and lacked certain background knowledge. They understood that their online communications partially represented and misrepresented who they were. One research participant in particular was afraid that his peers and the instructors would perceive him as "stupid" based on his English language proficiency. Knowing that an online course can enroll members from different parts of the world with different educational experiences, course designers and instructors have a responsibility to develop course content and mediate virtual spaces to accommodate the cultural conditions of these diverse populations.

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Editor's Note: Computer game and simulations have added significant new dimensions to individual and group learning. Their success in military and business training has been broadened to educational experiences for all age groups.

The effect of an educational game in the achievement of factual knowledge

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USA

Introduction

Games are part of our contemporary culture. Social science scholars had agreed that games are not a new phenomenon (Almeida, 2008) and that the diffusion of games to the masses was a result of initiatives conducted by the department of defense to simulate political military crises, e.g., polish nationalistic uprising, cold war, and the pro-castro movement in the early 80's (Grendler, 2002; Allen, 1987). Today, games are more than military strategy tools. They are an element of culture.

Since their adoption, however, video games have both fascinated and produced fear among the public at large. Part of this fear has been attributed to Reagan's remarks tying video games to the cold war. In the same era, U.S Surgeon General Everett Koop stated that games were among the highest health risks in America (Squire, 2002).

In the 20th century, fear of games was a widespread phenomenon, especially because of its connection to violence (Gentile et al, 2004). In the 21st century, video games are now a widespread phenomenon throughout several generations of Americans (ESA, 2004), despite the comments made by politicians and government officials in the early 80's. Even though the first generation video games had adults as its main target audience, games are no longer exclusive to adults (Hooker, 2007). In America today, close to 145 million individuals play games (ESA, 2004) and half of the entire video game market is composed by children under the age of 12 (Breckon, 2008). Although we don't know the precise number of children who are game players in the United States, it seems reasonable to accept that a fair amount exists.

According to Carsten and Beck (2005), 75% of corporate managers under the age of 34 play games and employees ages 34 or older have game experience. These findings might be the reason why DELL, HP, and Apple include games as part of their operating systems. Games are so popular today that more people buy games than movies (Carsten & Beck, 2005).

Games have changed our society due to its impact in our economy (Carsten & Beck, 2005). In the United States alone, gaming is a growing billion dollar industry. However, research in the effects of games has been quite limited. Several social science researchers (Freedman, 2001) have called for more vigorous research involving games, due to its increase popularity. I agree that more research in games in general is necessary. I argue, however, that more research in the impact of games in learning is more pressing.

Popularity of games: sudden shift in computer game markets

Even though the first generation video games had adults as its main target audience, games are no longer exclusive to adults (Hooker, 2007). With the introduction of Atari in the 70's and 80's Nintendo and Sega in the 80's and 90's, the game market became focused on children. The main reason for such a shift was because the teenagers of the 70's and 80's were looking at more mature content in game playing (Deal, 2007). In the early 1990's Nintendo targeted this market by introducing the Mario Series, an approach that revolutionized the industry because games

looked cartoony, not as violent, which was quite appealing to children and as importantly, wasn't intimidating for parents. The market became children oriented and parent supported. (Deal, 2007). Nintendo in the 1990's was the Disney of the gaming world (Deal, 2007). In addition to its shift in market emphasis, Nintendo published "Nintendo Power" which in the 90's became the biggest selling kids magazine in the world.

Because of the Mario series and the Nintendo Power Magazine, Nintendo became a part of a child's culture beyond games (Kent, 2001). What was an activity of adults became an activity for children. According to ESA (2010) over seventy percent of American homes play computer or video games, the average gamer is 37 years old and has been playing games for over a decade. Almost 30% of gamers are over the age of fifty. Computer games now are not a "kid" thing or a "geek" thing but an "everybody" thing. Because of these recent findings, it seem reasonable to argue that perhaps, we should be using computer games more often to assist children with motivation and as a requisite of lower-level skills. By motivating students via computer games' lower level skills tasks, we could eventually use this strategy to foster higher order thinking skills in the future.

Games and learning

Games have been used in education endeavors for at least a decade. There are a multitude of studies involving games for educational purposes. A large number of scholars have made theoretical remarks about games and learning. Lloyd Rieber (1996) has argued that digital games assist pupils in productive play and learning though simply building micro worlds and playing games. Prensky (2003) went further to state that developing educational games is a moral imperative because millenniums are slow to respond to traditional Socratic methods. Gee (2003) has argued that video games incorporate good learning principles supported by cognitive sciences and that assists with the "cycle of expertise" (Bereiter & Scardamalia 1993).

In a recent study, Sicart (2009), argues that video games are well-suited to teaching virtue ethics. In Sicart (2009), virtue ethics is player-centric and players should learn as active recipients of game content. In an older study, Sicart argues that "Playing is an act of judgment of the rule systems and the fictional world the player is presented with" (Sicart, 2005, p.16). Therefore, game play assists with being able to judge systems. Kolson (1996) went further to state that the game *SimCity* "teaches" the learner that politics, ethnicity, and race are not major variables that impact urban planning. Barab et al, (in preparation) argued in their *SimCity 2000* at Boys and Girls clubs study that, by playing the game, students learn supply and demand relationships and taxation and its association to population growth by simply playing the game.

Most of the criticism involving games is related to violence. Gentile & Anderson (2003) argue that violent video games are a factor in children aggressive behavior because repetitive tasks tend to reinforce learning patterns. According to Bushman and Anderson (2002), children who had prior video game experience had higher levels of aggression than those who hadn't. Not all studies involving games had positive results (Clegg, 1991). Very few scholars would disagree with this statement.

There have been too many theoretical studies concluding that games are well-suited for teaching. A large amount of studies have been conducted arguing that games "teach" students to "learn" concepts while playing and connections are made just by playing a game (Kolson, 1996; Barab, 2009). Scholars on the negative side of the spectrum argue that games are not good because it promotes violence and reinforce negative patterns. Scholars have conducted a large number of games and violence studies but empirical research on games and learning are scarce. Pragmatic studies of this kind are rarely conducted (Cameron, 2004; Almeida, 2008). A possible reason for it is because educational game research shifts the ladder of importance to education rather than

entertainment. The purpose of this study is to investigate if classroom games help freshman state college students majoring in education to score higher in factual knowledge exams.

Research design

Sixty-Five Indiana University of Pennsylvania undergraduate students majoring in education were randomly selected and assigned to the control and treatment groups. The subjects had little knowledge about the content presented in this research study prior to taking the quizzes. The students received extra points for participating in the research study. A 1X1 factorial post-test only control design was used in this research study. There were one independent variable and one independent variable. The independent variable was game. The dependent variable was achievement of factual knowledge. The researcher used a T-test to calculate the results of this research study as well as descriptive statistics. The alpha level was .05. Each group had to read the contents pertinent to computer architecture. The control group then read a script about the content. The treatment group read the script and took the game. A post-test only design was used to reduce threats to external validity. The script was identical for both groups. There were 32 subjects in the control group and 33 in the treatment group. The experiment took place at one computer laboratory at Indiana University of Pennsylvania. Students had to log-in to the Moodle site, read the script, play the game if in the treatment group, and take a 20 question factual knowledge quiz. There were minimal disturbances during the experiment. There was one null hypothesis in this research study.

H0: There will be insignificance between the control group and the treatment group.

The researcher designed the game questions using the *Bravo Spin off Game Engine*. The graphics and program functionalities were developed by C3Softworks Incorporated. Each answered correctly, resulted in subjects “winning” the money. Each question answered incorrectly, subjects “lost” money. Figure 1 is an example of how the game looked.



Figure 1: Sample Game Screens

Results

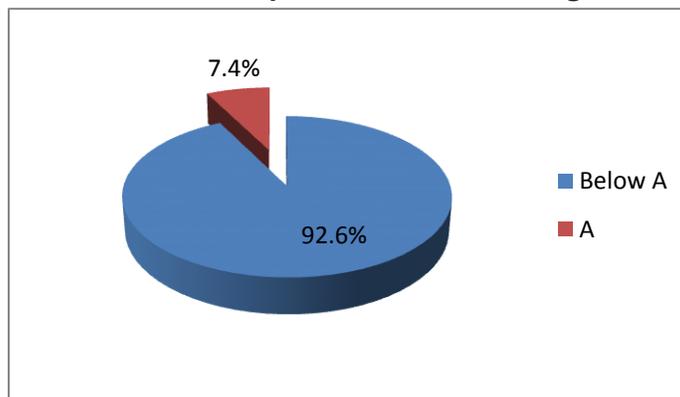
The researcher ran a t-test in order to compare the mean scores of all three tests of the control and treatment group. The alpha level was set to 0.5 ($p=.05$). Table 1 presents descriptive statistical results from this research study. Means and standard deviations are presented. The researcher predicted that students who received game treatment would outperform the control group by a letter grade. Please refer to Table 1.

Table 1
Descriptive statistics showing the means of factual knowledge of both the control group and treatment.

	Group	Mean	Std. Deviation	N
factual knowledge	Control (No Games)	76.8	0.115	32
	Treatment (Games)	83.5	0.096	33

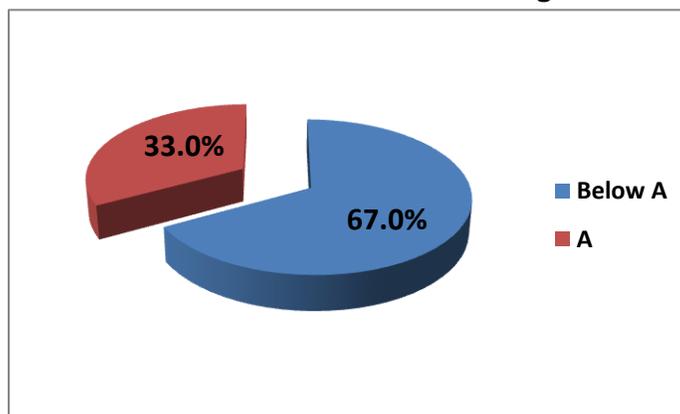
Student’s control group overall mean test scores was 76.8. The games treatment overall mean score was 83.5, which was significantly higher than the control group no games. The researcher also found additional interesting findings beyond descriptive statistics. The number of 'A' grades (grade=90% or higher) in the control group was a little over 7%. Please refer to Table 2.

Table 2
Control Group "A" Score Percentages



Based on a bell curve distribution, the results presented above are not atypical because 68% of the population is assumed to be average and only 2% are two standard-deviation for the mean or 'A' students. Perhaps, a 7% 'A' grade result overall might be based on student high SAT scores, quality of teaching, or class content. When subjects received a game treatment, 1/3 of the students scored an “A” grade on the test. The number of 'A' grades in the treatment group was 33%. Please refer to Table 3.

Table 3
Treatment "A" Score Percentages



This finding is exciting because the large number of 'A' grades represent a significant difference against the control group. In addition to the difference in overall means, the treatment group over scored the control group by nearly 27%.

The difference between the control and treatment groups was smaller when compared against grades over a B (.80). The control group gained 21 points versus 5 from the treatment group, which led to believe that games are more effective to assists subjects to score at the highest in factual knowledge tests. Please refer to tables 4 and 5.

Table 4
Mean Scores of Grades above B

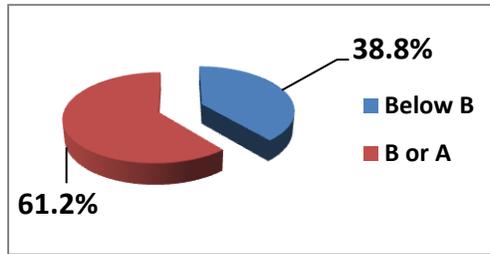
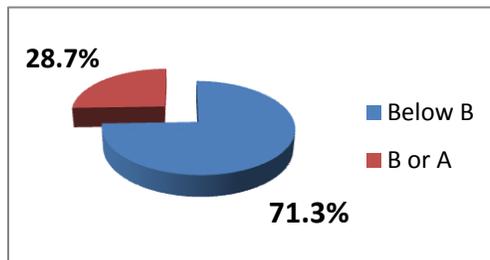


Table 5
Mean Scores of Grades Above B



In order to test the null hypothesis, the researcher conducted t-test. The variance in observational data was due to a random selection of a data set with less student participation. A two-sample t-test assuming unequal variances was conducted to account for the differences. The null hypothesis was rejected. Please refer to table 6.

Table 6
t-Test: Two-Sample Assuming Unequal Variances

	Treatment	Control Group
Mean	0.835679612	0.768681319
Variance	0.009150024	0.013258242
Observations	33	32
Hypothesized Mean Difference	0	
df	176	
t Stat	4.374862419	
P(T<=t) one-tail	0.005	
t Critical one-tail	1.653557436	
P(T<=t) two-tail	0.005	
t Critical two-tail	1.973534347	

The results of the t-test (please refer to Table 6) indicate significances in factual knowledge when using games as a treatment at the $p=.05$ level. Although there was a discrepancy of nine observations between the control group and the treatment, both had a sample of over thirty students on average per test or higher, which should be statistically sufficient for addressing issues of generalization.

Conclusion

This research found that there were significant differences among students in factual knowledge, with games as treatment. This study concurs with Almeida (2008) post-hoc results and Sicart (2009) that when games are used against the control group, significances in factual knowledge occur. It opposed the findings of Cameron (2004) since the treatment did outperform the control group. Based on the results of this research study, using educational games seems to be an effective way to design instruction for factual knowledge.

Limitations / further research

Although this study statistically confirmed that subjects score higher on tests when game treatments are presented, there are several reasons to believe that the results of this research study could be wrong. Subjects took tests through the semester. Fatigue and class time could have influenced the results of this study. Subjects were not randomly selected among a wider body population, which could have had an impact in the results of this study. Changes in these conditions could have resulted in different results. This study involved state college subjects majoring in education in an east coast public university. Perhaps, conducting this study in a west coast private college testing conceptual knowledge could generate results that extend the results of this study. Further studies are strongly recommended.

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Editor's Note: This research confirms some assumptions and disproves others about why students choose distance learning courses of study.

Motivational factors for pursuing courses through distance learning A case study of UNISA students at KCA University, Kenya

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Kenya

Abstract

Distance learning is a unique method of acquiring knowledge that gained popularity in the recent past and it is becoming a preferred mode of study for many students. Institutions of higher learning have shown increasing interest in this mode of study and are adopting it as an alternative way of offering education within and beyond their borders.

This study attempts to find out the motivator factors that influence students to study through distance learning. Further, it tries to ascertain areas of improvement in this mode of learning. This is a case study of University of South Africa (UNISA) students and distance learning at KCA University situated at Nairobi Kenya, one of the UNISA centres in East Africa.

The sample was 110 undergraduate students who were taking their courses through distance learning. The motivator factors that were considered included flexibility, availability of the course, personal commitments, sponsors' decision, image and reputation of the institution, cost of the course and desire to acquire foreign degree.

An analysis of the responses showed that flexibility, availability of the course, personal commitment, institutional image and reputations are factors that motivate students to pursue courses through distance learning.

Concerns of respondents that needed improvement include: timely communication to students, continuous feedback on assignment and other inquiries, availability of relevant prescribed text books, and timely delivery of study materials.

The article concluded that these factors can be considered for other institutions intending to start distance learning and can be used as a basis for improving service delivery to distance learners.

Keywords: Licensee, UNISA, KCA University, distance learning, motivator factors

Introduction

The mode of delivery of education has been changing over time. Unlike in the past, the number of students enrolling through distance learning has been increasing. The traditional mode where student are in a classroom in face-to-face contact with instructors continues to exist and is practiced by many institutions offering education services. Distance learning has also gained prominence and is having a global impact in the education sector.

The definition of distance learning has been defined and redefined over the years. In 1990, Moore described distance education as "all arrangements for providing instruction through print or electronic communications media to persons engaged in planned learning in a place or time different from that of the instructor or instructors" Later, Moore and Kearsley (1997) refined the definition to specify that the learning is planned and includes "organizational and administrative arrangements". Most definitions specify that distance education is teaching and learning that occurs asynchronously where the learner(s) and instructor, separated by time and space, use a variety of technical media to support the teaching and learning (Keegan, 1996). (Keegan, 1990)

defined distance education as a system characterized by separation of instructor and student in most of the instruction process. Learning is subject to influence of the educational organization, provision of student assessment, use of education media to deliver course content, and two-way communication between instructor and student.

The demand for distance learning has been increasing in most countries` and as such most institutions offering distance learning have also been increasing in the recent past. This has also seen a tremendous increase in the number of students pursuing distance learning all over the world. In the United States for example, over 3.5 million college students took at least one online course in 2006 (Allen & Seaman, 2007). Despite this phenomenal growth in enrolment of the students pursuing distance learning, there has been no research done to find out what motivates students to pursue distance learning and abandon the traditional conventional method of learning.

Studies by Beggs (2000), Betts, (1998), Gannon, (2003), Schifter,(2000) that were done prior to 2002 and two conducted after 2002 looked at which factors were identified by faculty members as influencing their participation or non-participation in electronic learning (e-Learning) and distance learning courses. These studies however did not address the factors that motivate students to pursue distance learning.

University of South Africa (UNISA) has been offering distance education since 1946. On 15 February 1946, UNISA established a Division of External Studies. This transformed UNISA which was previously regarded as an examining body into a teaching university that became the pioneer of tertiary distance education. Guided by their vision “toward the African University in the service of humanity”, UNISA has sought to find answers to Africa’s education and developmental problems as well as being in the forefront in offering distance learning in Africa and other parts of the world. This can be evinced through the partnership agreements it has with various institutions worldwide including KCA University.

With the intention to expand the university education to more people, KCA University situated in Nairobi Kenya signed a Memorandum of Agreement with UNISA to offer UNISA courses through distance learning. Since then, KCA University has been offering distance learning courses from UNISA to students whose enrolment has been increasing. With this growing numbers the question is therefore what motivates students to study through distance learning.

As one of the biggest licensees in East Africa, KCA University has been offering most of the undergraduate as well as post graduate programmes offered by UNISA. KCA University is the administrative centre for UNISA which recruits students for UNISA programme and administers examinations on behalf of UNISA.

Unlike the conventional method of learning where there is a physical interaction between the students and the lecturers, the interaction is limited in distance learning. One of the most important aspects of distance learning is to ascertain what motivates students to pursue distance learning despite its various challenges.

Literature review

Distance Education, which most people perceived as recent, spans back as long as a century ago.

In the United States, the history of distance education began with the delivery of course materials by mail. This was made possible with the development of cheap and reliable mail services which allowed students to correspond with their instructors. One of the earliest documented home study courses offered in the United States was in shorthand. This was the genesis of distance learning.

The other generation of distance learning is the open universities which started to emerge in the 1970s. These universities used correspondence instruction apart from broadcast and recorded media whereby programmes would be distributed by radio, television and audio tapes.

In 1883 the academic respectability of correspondence teaching was recognized when the state of New York authorized the Chautauqua Institute to award degrees through this distance education.

In 1890 the Colliery Engineer School of mines based in Wilkes-Barre, Pennsylvania advertised a home study course on mines safety which became very popular. Later the school became an international correspondence school.

Brey's (1991) report of U.S. postsecondary distance learning programs predicted that the decade of the 1990's would see such phenomenal growth in distance education programs that most people in the United States would be served by at least one program. The prediction came true through the number distance learning institutions that emerged and the number of students who enrolled to undertake their studies through distance learning.

As of 1994, 80 per cent of community colleges in the United States offered some form of distance education program, and that percentage and the extent of their involvement has continued to grow.

Another generation of distance learning emerged in the 1990s. This was possible with the emergency of information technology where distance learning was based on computer conferencing networks and computer based multimedia workstations. One of the largest institutions of distance learning situated in Africa is the University of South Africa with an annual registration of over 250,000 students from all over the world.

In sub Saharan Africa, despite the fact that internet access is low compared to other developed and developing countries, a large number of students pursue online distance learning. It is estimated that in Sub Saharan Africa, one in 250 people have access to internet as against the global average 1:15 (UNESCO Institute for Statistics, 2007). This ratio is too high and this is limiting the number of students who would like to study through online distance learning. However, this is likely to change and the number of students will increase in future due to the fact that internet costs have reduced drastically and the laying of the undersea cable which will also drastically reduce internet costs. With the continuous evolution of information technology, it is likely to have more students enrolling for distance learning since it is convenient for students.

As pointed out by Darkwa and Mazibuko (2006), the promise of ICT is immense, especially if Africa's long standing problems are resolved. Most communities will benefit from ICT since it will break down the traditional barriers of learners with limited higher education.

University of South Africa is one of the world's ten mega universities (Daniel, 1998). UNISA teaches over 100,000 students throughout the world through distance learning. Their model of distance learning is instructional materials known as study guides and written assignment are sent to students by mail. The students, with the help of study guides, learn from registered modules and attempt assignments that are sent to UNISA electronically or by mail for marking. At the end of the semester, students are examined in the various centers.

Over the years, distance learning has been growing. Institutions offering this mode of study are increasing day-by-day due to ever growing demand. Distance learning is being adopted by most educational institutions to provide education to a wide range of people. Most of the institutions offering distance learning are not limited to specific area of study. Distance learning institutions have taken into consideration the varied needs of the customer and are offering courses at all levels from certificates, diplomas, degrees and post graduate studies.

There are many reasons for the growth of distance education, but none is as compelling as the hunger for learning felt by those who have been denied it for generations (Dhnanarajan, 2001).

The majority of contemporary distance education students study part time while working full time. This has led to increase in demand because of the greater flexibility and mobility within their courses (Jafari, McGee and Carmean, 2006). The increase has also been stimulated by the rapid advancement in technology. Jochems, Merrienboer and Koper (2004) proposed that technological changes have been so extensive that traditional approaches to distance education are no longer adequate and fail to meet the needs of new distance learners.

Moore (2000) looked at what motivates faculties to develop distance learning. He documented the advent of interactive media and the flexibility has also brought about a new generation of distance faculty. Because learners study on their own in distance learning, there is a need to develop support systems to enable students continue with their studies Simpson (2000).

The research done by Ciirtin (1996) found out that learning through distance learning and television has become popular because it provides flexibility and convenient time schedules. Also with similar opinion was Hegarty (1996). In a another research done by Randy (1999) where he was investigating distance learning for MBA programme in Hong Kong found out that students are much more in favor of having their MBA through distance learning. Distance education eases the requirement of attending classes in person.

The uniqueness of distance learning poses both opportunities and challenges for distance learners. According to Winne (2003), apart from the positive aspects related to distance education, distance education is more than just delivering the necessary information to students. What the student do with the information once it has been delivered is the students own responsibility. To be successful students have the responsibility to manage themselves effectively. They need to develop self-regulated learning abilities to cope up with the challenges of distance learning.

From this perspective the researcher tried to identify the various motivator factors and what level of importance these factors play in students making a choice to study in distance learning. Motivation, which has been defined by various scholars, can be regarded as the inner desire or drive that prompts an action. It is important to understand what motivates students to pursue distance learning when the courses they are pursuing are also offered through traditional classroom set up. This was a principal question for the investigator.

The findings of the research will enable institutions of higher learning that offer distance learning, or are intending to offer distance learning, to understand these motivators and address them effectively. These institutions will also be in a position to tailor-make their distance learning programmes to appropriately meet the needs of the students.

Purpose of study

The number of students studying through distance learning has been increasing tremendously worldwide. Unlike in the past, more and more are enrolling to study through distance learning.

Since the introduction of distance learning by KCA University through UNISA, the number of students has been increasing despite the various challenges that distance learners face. The current study was undertaken primarily to find out what are the motivator factors that drive students to study through distance learning despite the fact that the same courses are offered through the traditional mode of study where there is physical contact between the students and lecturers. Further the researcher sought to find out some of the challenges students face while studying through distance learning.

Motivator factors that influence students to choose distance learning include: flexibility of courses, availability of courses, personal commitments, sponsors decision, reputation and image of the institution, cost implications, and desire to get a (foreign) degree.

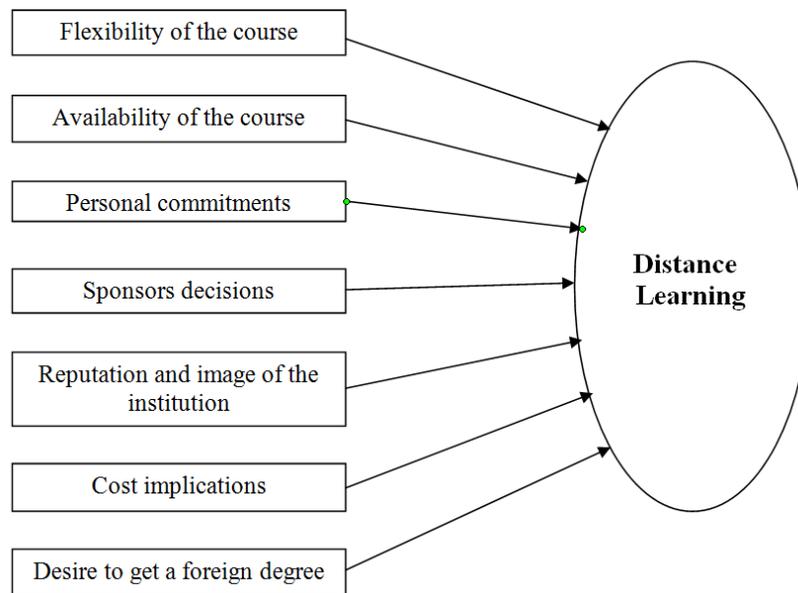


Figure 1: Conceptual framework

The above factors were arrived at through an informal interaction with the students undertaking UNISA distance learning at KCA University. The researcher posed a question to more than fifty students as to what motivated them to pursue the distance learning programme despite the fact that these programmes are offered through the traditional mode of study. The researcher further wanted to find out to what extent these factors motivated the student in making choice to study through distance learning.

Flexibility of the course

People have various commitments which include work, children and other commitments and therefore it is not easy to find time to commit on the traditional classroom studies. Students who juggle multiple responsibilities find it easy and convenient to study through distance learning. Most students enrolling for distance education prefer it because of its flexibility since one does not need to be physically on the university campus or to attend classes at a specific time on a daily basis. Distance learning best suits those people who are not able to attend classes on a regular basis. Through this mode of study, the study materials can be exchanged between the learner and tutor through regular correspondence or via internet. This allows people who enroll in distance learning to utilise time to learn during lunch breaks, evenings and weekends or anywhere with internet access. This type of learning helps students fulfill their career objectives by learning through a flexible method of study. Flexibility may be in terms of the units one has to take as well the numbers of years one has to take to complete the programme. Some students may be in remote areas where learning facilities are unavailable. These students can benefit immensely from distance learning.

Availability of the course

Most distance learning institutions offer a variety of courses. The majority of the students join distance learning institutions because the courses they want to pursue are available. In recent years, the choice of courses has expanded to cover practically every subject and this leads to a wider range of qualified graduates. Since distance learning institutions are less constrained by

facilities, schedules, and face-to-face contact between lecturer and student, they tend to develop many programmes. This gives students a wide choice of courses offered by distance learning.

Personal Commitments

Commitment is one of the reasons why most students enroll to study through distance learning.

Most people have work and family commitments that do not permit time to study through traditional mode of attending regular classes.

Most adult distance learners opt to study at a distance because it not full-time and they do not have to attend classes at specific times. It gives the learners an opportunity to balance a range of commitments including family, work and business.

Sponsors decisions

With the continuously changing business environment, there is need for organizations to improve the knowledge and skills of their employees. Some organizations invest in education and training because it is important to gain a competitive advantage. In so doing, most organizations sponsor their employees to pursue courses to improve their skills. Sponsor organizations may also dictate the institution from which to study and courses they would like their employees to pursue. In addition to organizational support, some students are also sponsored by their relatives and parents

In this research study, the researcher will look at the sponsor's decision from two perspectives.

- 1) Sponsor as paying the fees for the student
- 2) Sponsor from the organizational perspective.

Reputation and image of institution

Institutions of higher learning are ranked worldwide. High ranking institutions have a good image and reputation and are ranked among the best.

Reputation is all about the past actions of the organization and how the public perceive these actions. An institution's reputation is regarded as a mirror of the organization's history being reflected currently to communicate the quality of the products and services. It enables the target group to compare the quality of services of its competitors. An institution's image is the impression made on the minds of the public about the organization (Barich and Kotler, 1991). Reputation and good image of an organization maintains loyalty by the public since it is perceived that it will consistently offer quality services.

The two principal components that come into play when the image of an organization is mentioned are the functional and the emotional components (Kennedy, 1977). The functional component is related to tangible characteristics which can be measured while the emotional component is concerned with the psychological dimensions that are manifested in feelings and attitudes.

Cost implication

Cost has been considered as a motivator factor for consideration in selecting a course to study as well as an institution to study in. Institutions charge different fees for different programmes. With increased competition in institutions of higher learning, the pricing strategy has become a common phenomenon in higher institutions. Cost is therefore a factor that students consider when making a decision on which institution to enroll.

The introduction of Information Communication Technology (ICT) has made distance learning become more exciting. In developing countries the use ICT involves cost that students must bear.

Both learners and trainers can choose applications which are more appropriate and flexible in time, place, personalized, reusable, adopted to specific domains and cost effective (Fisser and Pelliccione, 2001).

Unlike other institutions where students have face to face interaction with the lecturers, distance learning is considered as a cost effective since their costs are relatively low.

Desire for foreign degree

There has been a desire for students to acquire foreign degrees in most developing countries. This has been due to the fact that most developing countries have insufficient institutions of higher learning. The notion that foreign degrees are more superior has also contributed to this. Demand for higher education leads students to pursue the option of getting a foreign degree. The African continent has been one of the highest exporters of students to developed countries to pursue various programmes. One of the favorite destinations for African students is the United Kingdom. It has been argued that the colonial link between the United Kingdom and the African countries has contributed to this despite the fact that United Kingdom universities also aggressively market their programmes. Most of universities in the UK adopt a strategy of having local representatives appointed in some countries to be the link between the institutions and the locals and to also participate in marketing their courses

According to publications by ukuniversities.ac.uk, the number of international students has increased by over 60 per cent in the last five years. In the 1960s and 1970s there was a significant number of international students' flow to Europe which was around 9 percent Hughes (1998).

Methodology

The motivator factors were arrived at by the researcher after having an interview with students studying through distance learning on the factors that motivated them to pursue their studies through distance learning.

The interviews were entirely unstructured and informal. The researcher wanted to find out to what extent these factors influenced the students decision making in studying through distance learning. The interaction with the students enabled the researcher to develop the instrument and the structure of the questions.

Sample

The study sample comprised of University of South Africa (UNISA) students pursuing their studies through distance learning at KCA University which is a UNISA licensee in Kenya.

A sample size of 110 was selected representing students pursuing different courses in Bachelor of Commerce, Arts, Science and Bachelor of Laws. The researcher used convenient sampling to select the sample since most of the students are distance learners who rarely come to KCA University. The respondents were both male and female aged between 21 to 60 years.

Survey instrument

The researcher used a well structured questionnaire having both closed and open ended questions. A four point opinion Likert scale was used where the respondents were asked to choose the most appropriate response by circling the number from 1 to 4 where 1 being 'Strongly Disagree' and 4 'Strongly Agree' on the factors that they considered were motivators to pursue distance learning. The second part of the questionnaire asked respondents to list some areas where they felt the institutions needed to improve on the delivery of student services.

Data analysis

Since this research was explorative in nature, data analysis was restricted to the use of descriptive statistics such as percentages as found in Kirsten and Rogers (2002).

Findings

Respondents were asked to rate the following motivator factors as they experienced them in studying through distance education. The factors they considered include flexibility of the courses, availability of the course, personal commitments, sponsors' decisions, reputation and image of the institution, cost of study and desire to get a foreign degree. A four point opinion scale was used with 'Strongly Agree' at one end and 'Strongly Disagree' at the other end. Likewise respondents were asked to indicate area that the university needs to improve on in delivery of their services to the students.

Table 1
Response analysis

MOTIVATORS	Strongly Agree	Agree	Disagree	Strongly Disagree	TOTAL
Flexibility	71	31	5	2	110
Availability of the course	53	48	2	7	110
Personal commitment	44	54	6	6	110
Sponsors decision	10	24	29	37	110
Institution reputation	50	51	9	1	110
Cost implication	16	53	28	13	110
Desire for foreign degree	27	31	33	20	110

Table 2
Percentages of response analysis

MOTIVATORS	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
Flexibility	65	28	5	2	100
Availability of the Course	48	44	2	6	100
Personal Commitment	40	50	5	5	100
Sponsors decision	9	21	26	34	100
Institutional Reputation	50	50	9	1	100
Cost Implication	15	48	25	12	100
Desire for Foreign degree	25	28	29	18	100

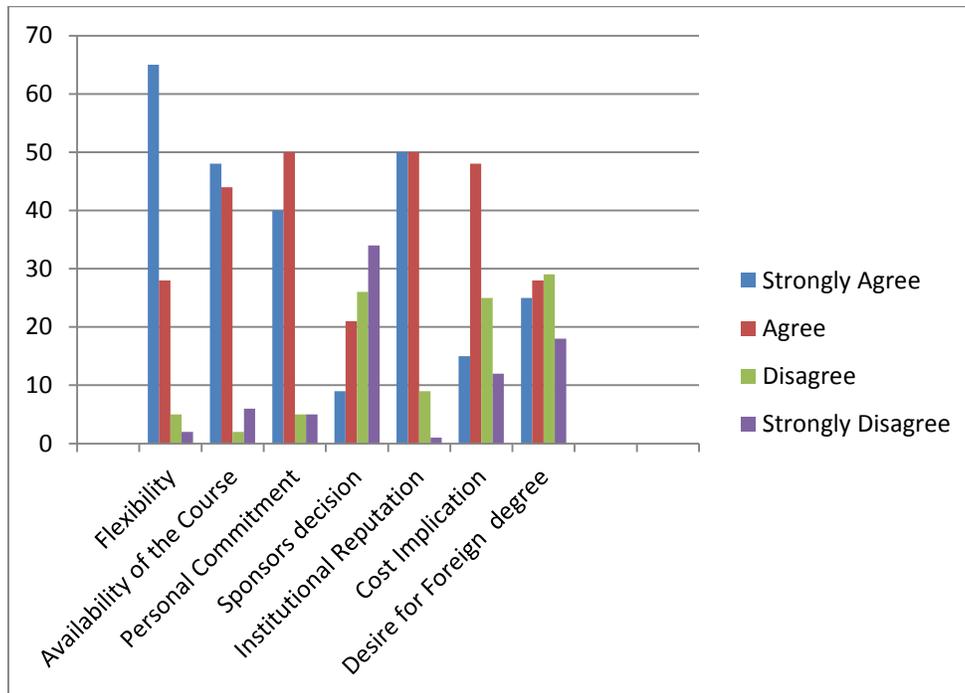


Figure 2: Motivators for distance learning

Flexibility

The respondents were asked to rate flexibility as a motivator factor they considered to study through distance learning. A majority of the respondents - 71 (65 per cent) strongly agreed, 31 (28 per cent) agreed, while 5 (5per cent) disagreed and 2 (2 per cent) strongly disagreed that flexibility is a factor they considered when they chose to study through distance learning.

A majority of respondents were of the opinion that flexibility is a major factor they considered in studying through distance learning.

Course availability

Of all the 110 (100 per cent) students who considered availability of the course as a motivator factor, 53 (48 per cent) strongly agreed as a factor they consider, 48 (44 per cent) agreed, 2 (2 per cent) disagreed while 7 (6 per cent) strongly disagreed.

A majority of the respondents were of the opinion that availability of their chosen course of study is a reason why they considered studying through distance learning.

Personal commitments

Of the total 110 (100 per cent) respondents 44 (40 per cent) strongly agreed that personal commitment is a factor they consider in studying through distance learning, 54 (50 per cent) agreed that personal commitment is a factor they consider while 6 (5per cent) disagree as well as 6 (5 per cent) strongly disagreed.

Majority of the respondents were of the opinion that personal commitment was a reason to study through distance learning.

Sponsors' decision

Of the total 110 (100 per cent) respondents 10 (9 per cent) strongly agreed that the sponsors decision is a motivator factor for studying through distance learning. 24 (21 per cent) agreed that sponsors decision is a motivator while 29 (26 per cent) disagreed and 37 (34 per cent) strongly disagreed

The respondent's decision to study through distance learning was never influenced by the sponsor's decision.

Institution's reputation

Out of the total 110 (100 per cent), 50 respondents (45 per cent) strongly agreed that institution reputation affected their decision to study through distance learning. 50 (45 per cent) agreed that institutional reputation is a factor they considered in making a decision to study through distance learning. 9 (8 per cent) disagreed while 1 (2 per cent) strongly disagreed.

A majority of respondents were of the opinion that the reputation of the University of South Africa was a factor they considered to study through distance learning.

Cost implications

The respondents were also asked to rate cost implication as a factor they considered in studying through distance learning. 16 (15 per cent) strongly agreed, 53 (48 per cent) agreed while 28 (25 per cent) disagreed and 13 (12 per cent) strongly disagreed.

Most respondents were of the opinion that cost was a factor they considered when choosing to study through distance learning.

Desire for a foreign degree

27 (25 per cent) of respondents strongly agreed that a desire for foreign degree was a motivator factor for studying through distance learning. 31 (28 per cent) agreed while 32 (29 per cent) disagreed and 20 (18 per cent) strongly disagreed.

The majority of respondents were of the opinion that desire for foreign degree was not a motivator factor for choosing to study through distance learning.

Areas of concern

The respondents were asked to state areas that according to them need to be improved by UNISA in the provision of their services.

The respondents highlighted the following broad areas.

Timely communication

Most of the students felt that communication from UNISA was not timely and it takes a long to get responses. Some respondents said that their inquiries never received a response.

Delivery of study materials

There were concerns by the respondents on the delivery of the study materials. Most students were of the opinion that they rarely get study material when they have been indicated out of stock in the initial dispatch. Some respondents indicated that they get study material that were indicated out of stock too late, some a few weeks prior to the main examination.

This affects students in timely submission of assignments which ultimately affects their performance.

Giving feedback on assignments

Another area the respondents pointed out as a challenge is the feedback on assignments.

One of the respondents indicated that he received his assignment after he had sat for the main examinations. He went ahead and said “it does not make sense to receive feedback on assignment after you have already sat for the final examination.”

Including prescribed material in the study packages

Most of the students raised the concern on prescribed textbooks. They indicated that the prescribed books are not available in their native countries and whenever they want to purchase them they find at times some books are out of stock from the bookshops.

They pointed out that this is a disadvantage compared to their colleagues studying in their native countries and can easily access prescribed books. Some of the respondents pointed out that they were willing to buy the books if included in the study materials.

Simplify registration process

Majority of the respondent were of the opinion that the registration process is complicated and felt there was need to simplify the process.

Cost of the course is too high

Some of the respondents were of the opinion that fees charged by UNISA were somehow high. In terms of fees some respondents raised concerns about the annual increment of fees.

Feedback of assignments to be posted online

Respondents were of the opinion that answers for assignments be posted in ‘my UNISA’ an account where students can access all correspondences from UNISA so that they are able to access since it takes long for the students to receive the feedback from UNISA.

Conclusions

In this article, the researcher explored what were the motivator factors that influenced students to register and study for a course through distance learning. The analysis revealed the factors that influence students to pursue courses through distance learning is flexibility. The flexibility allows them to study at their own time and pace. Other factors that the respondents agreed were motivator factors include availability of the course that they wanted to pursue as well as personal commitment. Personal commitment due to family, business and work was also considered as a factor that motivates students to study through distance learning. The majority of the respondents were of the opinion that University of South Africa’s reputation is a factor they considered when choosing to study through distance learning. The cost factor was also a contributing factor.

On the contrary desire for foreign degree was never a motivator factor they considered for making a choice to study through distance learning.

From the research, among the areas that students felt that the institution providing distance learning must strengthen include, having an efficient and effective communication channels, timely delivery of study material and getting timely feedback. The physical distance between the student and the service providers warrants an effective and efficient communication channels for distance learning to be effective. Study materials are very critical for students studying through distance learning. It is therefore important that students get all their study materials on time to enable them prepare adequately for examinations otherwise it will affect their performance. Assignments feedback should be timely to help students in their revision. Normally people learn when they are given feedback on their performance. Feedback is also important in self-evaluation.

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About the Author

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Editor's Note: In an attempt to optimize learning, researchers continue to study alternative methods of organizing and presenting the content. This paper focuses on structure for online learning and finds that results are influenced by previous knowledge, learning styles, and access to feedback.

A comparative study in learner interaction on *structured and less-structured* course content: Analysis on two post-graduate courses in open distance institution

Lai Cheng Tung
Malaysia

Abstract

While the mission of Open and Distance Learning (ODL) is to promote educational opportunity to all who wish to realise their ambitions and fulfil their potentials, one of the major challenges facing ODL educators is to create an optimum course content that attracts students and enhances their engagement. In that respect, whether course content is highly structured or not is one of the contributing factors that impact students' interaction with the learning material (Chadwick and Ralston, 2010). A comparative study between a structured and a less-structured course at the post graduate (masters) level were used for this study, which looks into students' learning interaction in both a well-structured course and a less-structured course. The finding of this study shows that students are less participative with well-structured course content compared to weak structured course content. Further exploration by the analysis of the five dimensions of the students' interaction in the learning management system (LMS) concluded that with less-structured course content, students tend to rate high in procedural activities such as administrative issues. Survey questionnaires were distributed to students to obtain additional supporting data related to the structured nature of the courses. Implications of the findings were discussed with recommendations and for future research.

Keywords: Learner interaction, distance education, learning management system

Introduction

Open and distance learning has become popular in the past two decades, providing many benefits for students, especially adult learners. In many countries distance universities have been developed to respond to the educational needs of workers who wish to gain skills to advance in their careers. Anadolu University, one of the largest universities in the world, has recorded over 500,000 working adult distance learners. The Open University of Hong Kong has approximately 130,000 learners (Buford, 2005). With increasing interest and concentration in distance education, the concept of open and distance learning (ODL) has seen phenomenal, exponential growth, especially in the Asian region. The growth is partly due to the globalisation and competitiveness of higher education and the development of information and communication technologies (ICT) which have brought a dramatic transformation to ODL in Asia (Jung, 2009).

The ODL model has gained paramount importance partly because of the convergence of virtually anyone can participate (open entry), class scheduling flexibility and the fact that the student can study according to their own schedule, which makes the university experience easier to accommodate while working. These open entrance systems in higher education provide more opportunities for those busy working adults who wish to realise their ambitions, add a competitive edge for advancement, and facilitate a career change or for whatever other reasons. Undoubtedly, the education door is now open to a much wider audience than ever before. The ODL model has been a major factor in higher education, not only posing a challenge for students, but also for ODL educators, who need to create optimum learning content and a context that attracts students and enhances their engagement (Tatkovič, Ružic and Tatkovic, 2006; Hossain,

2010). Whether course content is highly structured or not is one of the factors that impact students' interaction with the learning management system (LMS) in the ODL environment (Chadwick and Ralston, 2010). One of the measureable outputs that can be used to determine effective student interactions with the LMS is manifested in the form of tardiness in submitting their Tutors-Marked Assignments (TMA).

In this paper, the author made a comparative study in an ODL environment at Wawasan Open University (WOU), Penang Malaysia, to look into courses that were either judged well-structured and less structured in a Learning Management System. It was assumed that more organised and informative courses would result in less tardy student behaviour in submission of their Tutor-Marked Assignments (TMA). Further, the author wanted to see if there was a relationship between course structure and student commitment as evidenced by students' tardiness in their assignment submission.

Literature review

Pedagogy for distance education such as the ODL model is unique and requires a different instructional design tailored to the needs of distance learners. Some researchers have termed this online distance education pedagogy as *electronic pedagogy* (Natriello, 2005). Barker (2008) posited that online course design is a complex activity influenced by a wide range of factors from pedagogy to various technologically related factors. Studies on distance education courses contend that learning design which has highly structured course content is more likely to be successful, compared to ill-structured course content, in promoting student learning (Kearsley and Lynch, 1996; Ostlund, 2008; Saba, 2005). The term structure refers to elements in the course content design, such as the learning objectives, information presentations, activities, assignments, and feedback mechanisms that are uniformly controlled and organised in well-structured manner.

Various researchers in the field of distance education have reported that the most critical factors in distance learning are course structure and interaction with students (Stein et al., 2005). Lee and Rha (2009) studied the influence of instructional design and management style on student achievement and resulting student satisfaction with the distance education environment. The researchers developed two web-based instructional programs. One course was developed in a highly structured, resource-based, self-learning mode, with little interpersonal interaction and the other course was used less structured materials with more interpersonal interaction. Their results suggested that a well-structured instructional program can be provided as a substitute for teacher's interaction. Students from the well-structured instructional course can learn by themselves with very little interpersonal activities such as forum discussions. This is important for distance learning because there is in fact a computer mediated-separation between the teachers and the students. A similar study was conducted by Zheng, Flygare, and Dahl (2009) which investigated the impact of cognitive styles on student achievement by examining 116 college students' performance in two differently constructed instructional tasks comparing non-linear and unorganised (ill-structured) to linear and well organised (well-structured) learning environments. The results showed that in the ill-structured environment, the students whose cognitive abilities had been pre-coded as field dependent learners, showed no improvement in their learning. Field dependence is a cognitive style that refers to individuals who are more attentive to social cues, and therefore show interest in others, and seem to benefit from an interactive environment. This study is important because it shows that it is important to take students' cognitive styles into account when designing distance learning courses, to improve achievement.

Because different ways of presenting instructional materials in distance education have been found to have different effects on student achievement, researchers have become increasingly interested in understanding the role structural presentation of instructional strategies plays in learning. Hosie, Schibeci and Backhaus (2005) highlighted that when presenting course content in

the online environment, it is always best practice to play it safe by never assuming anything. The idea behind this comes from the belief that since instructors are not able to have a face-to-face classroom experience with their students, it is very important to make sure the course content be organised in such a manner that it promotes a sense of continuity. The course content must be concise and explicitly clear to avoid any errors or discrepancies that confuse and confound the students. In addition, Junk, Deringer, and Junk (2011) posited that learning management systems such as WebCT, Blackboard or Moodle, designed for online learners, must be well organised and have visually pleasing web content display to “astonish the customer”, since online learners are accustomed to surfing the Internet and viewing commercial sites developed by graphic designers, and have come to expect this level of development in any web-based environment.

One of the criteria in regards to achieving quality in ODL is the interaction between learners and instructors. The interactions between the instructors and learners occur when one gives instruction and the other responds, and it is a two-way communication. Mahesh and McIsaah (1999) notes that the interactions and relationship between instructors and learners in distance education are extremely important, since learners usually carry on a dialog with their instructors that are separated in both space and time. Moore (1991) defined this separation of geographical distance between learners and instructors as ‘transactional distance’. He claimed course structure and learner-instructor dialog are important elements in transactional distance. The theory posits that a rigid and inflexible program structure will reduce dialog, hence increasing transactional distance.

In the early works of Moore (1989), he claimed that there are essentially three types of interaction: learner-to-content interaction, learner-to-instructor interaction, and learner-to-learner interaction. Based on Moore’s ideas, Garrison, Anderson, and Archer (2000) developed what they called the *community of inquiry* model of online learning. In their model, three interactions work together to support learning online. They further defined the existence of other variables such as the cognitive, teaching and social components, which are present in the interactions. The cognitive presence is in the learner-to-content interaction, to the extent which learners are able to construct meaning through sustained communication. The social presence is in the learner-to-learner interaction where learners project their personal characteristics into the *community of inquiry*, thereby presenting themselves as ‘real people’. The teaching presence is in the learner-to-instructor interaction where learning takes place through facilitative and directive processes for the purpose of realising personal meaning.

Research on learner interactions in an online environment were studied by Oliver and McLoughlin (1997) who explored the discourse of interaction and communication in live interactive television (video conferencing in our present time). They investigated five possible dimensions of interactions present in that context. They characterised the dimensions of interactions as: *social*, *procedural*, *expository*, *explanatory* and *cognitive*. Each of the interactions requires different classifying interaction activities such as *social* interaction involves conversations that establish relationship; *procedural* involves dialogue that exchanges information about procedures in general; *expository* involves demonstrating knowledge or skill in general; *explanatory* involves further extending knowledge and developing content in the conversation; and finally *cognitive* involves constructive feedback to a learner’s response resulting in internal reflection. Wu and Teoh (2007) have done a comparative study on two open distance learning higher institutions (one in Malaysia and another one in China) regarding learners interaction in learning management systems (LMS) based on the Oliver and McLoughlin’s 5-dimension construct. They found that the *Explanatory* dimension of interaction was the more dominant dimension in Malaysia’s open distance learners than in its counterpart in China. The *procedural* dimension was the dominant dimension among China’s open distance learners.

For this study, the author look into the structural presentation of the course management system, sometimes referred to as the learning management system, as the basis of effective interaction. Essentially, the course management system provides the platform for the web-based learning environment by enabling the management, delivery and tracking aspects of student learning. Learning Management Systems (LMS) or *WawasanLearn* is a customizable website that enables the Course Coordinators (CC) to create designed spaces associated with specific taught subjects. LMS is based upon an open source system (Moodle™) that enables the CC to place supplementary course materials such as PowerPoint slides, course guidelines, forms, and others static course materials for students to download and use. Additionally, it enables students to interact and participate in the asynchronous forum discussion and exchange information with their peers, tutors and course coordinators. Other key features of *WawasanLearn* are the monitoring function where the course coordinator can track individual activities for the whole semester through the use of statistical reporting features and log functions (WawasanLearn, 2011). Layout of the main page of a sample *WawasanLearn* LMS is shown in Appendix A.

Research model design

What are the factors that determine whether students' are tardy in submitting their assignments in an ODL environment? The author hypothesize that the design of the structural course content (i.e. well-structured versus weak-structured) would motivate students to be more engaged in their materials on a continuous basis, which in turn will promote more student interaction. Secondly, students' participation in online discussions, such as the discussion forums, which are mainly student-dominated rather than instructor-dominated, could be effected by the course structure. For instance students who find the course content in LMS helpful and informative, navigating and finding the information easily, may participate less in online forums, contrariwise, students who find the course content is insufficient, may require more guidance or assistance, hence they may participate more in the online discussions. A variety of "independent" or contextual variables may influence whether students will be tardier in submitting their TMA in an ODL environment. For this study, the author included three such variables. Those who are currently in the well structured and organised course content in LMS should be feel less anxiety and certainty, resulting in higher motivation and higher enjoyment, as evidenced by students submitting their TMA by the stipulated time.

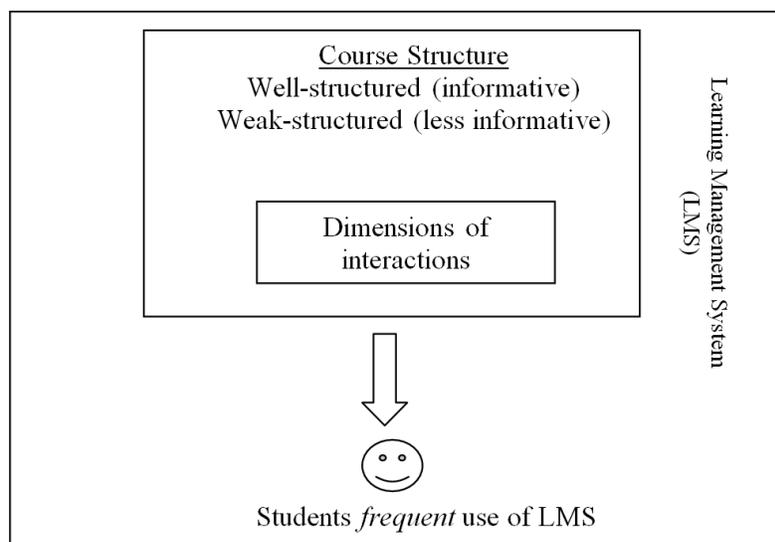


Figure 1: Research Framework

Students who are actively participating in the online discussion forums are those that are finding the course content insufficient (weak structured or less organised) resulting more interaction in LMS and uncertainty, which lead to late in TMA. Finally, there is high involvement of the course coordinator in procedural interactions (such as assessment tasks, involved explanations about course related procedures, requirements and administrative issues) in the forums for weak-structured course content design than for the well-structured course content.

Synthesising the review of literature from the previous section, Figure 1 illustrates the research framework for this study.

Research, questions and hypotheses

A. Research questions

- Q1: Are students less participative in the LMS and hence less tardy in their TMA submission in a well-structured course compared to a weak-structured course?
- Q2: What is the form of interactions, in the context of the five dimensions, in a well structured course compared to a weak-structured course in the online discussion forum?
- Q3: What differences exist in the students' interaction pattern in LMS between a well-structured course and weak-structured course?

Methodology

The study was conducted in the January semester of 2011 at Wawasan Open University Penang Malaysia. All participants in this study are students from two post-graduate CeMBA courses, one course was well-structured and organised and the other course was less-organised and less-structured. CeMBA stands for the Commonwealth Executive Master of Business Administration. This is a collaborative programme between the Commonwealth of Learning (COL) and open universities in Asia. Data was obtained from LMS from two courses selected for this study. Both courses had a significant difference in terms of the level of structure in presentation of the course material. The courses were: *Project* course and an *Operation Management* course. Both courses were taught in the January semester 2011 running from January of 2011 to June of 2011. A total of 117 students enrolled in the *Operation Management* course and 45 students were enrolled in the *Project*. Since the *Project* is the prescribed last course that CeMBA students take before graduating, the course requires pre-requisites compared to the *Operation Management* course, hence, the enrolment is generally small. The *Project* is designed to be more content dependent, less-structured and student learning is mainly self-guided in the LMS, although a project supervisor is assigned. *Project* is inherently less-structured as the objectives require the students to synthesise the various bodies of knowledge from the previous courses and demonstrate soft skills such as critical thinking in completing the final project report. The *Operation Management* course was presented in a more traditional well-organised and well-structured. In the *Operation Management* common resources are included within each study unit/tutorial in a folder that contains additional summaries/notes in presentation files and documents, hyperlinks to relevant external websites, online quizzes and other online activities, is tutor-guided, TMAs, sample of TMAs, and all necessary information pertaining to the course are included. On the other hand, resources presented in the *Project* contain only a folder for download which has information about conducting a final project. Layouts of the LMS main page of both courses are shown in Appendix B.

To measure tardiness, the author looks into students' TMAs submissions for the semester. We defined that total tardiness is the number of TMAs submitted after the due date, hence considered late, to be divided by the total number of TMAs submitted. The *Project* course had 3 TMAs as opposed to the *Operation Management* course which had 2 TMAs. On another construct for this

study, the author adapted Oliver and McLoughlin's (1997) and Wu and Teoh's (2007) framework for analysis of interactions, in which the author define the five dimensions of interaction as shown in Table 1. The author characterised and coded the students' interactions in the asynchronous forums (announcements from course coordinators, announcements from tutors, public forum, general group discussion, etc).

Table 1
Five Dimensions of Interactions

Dimension One: Social	The author looked for any discussions of social or personal greeting not directly associated with the course. For example, "Greetings! I am Janice Oh and I am new to WOU", "Hi, nice to meet you all in this forum" etc.
Dimension Two: Procedural	The author defined the procedural interactions as any communication related to administrative procedures/ issues for the course. Some examples of this would be: "When is the TMA1 due?" "Can I get an extension for my TMA2, because I am going overseas for assignment... ", etc.
Dimension Three: Expository	Here, The author defined any request that involves some demonstration of knowledge and facts which may or may not require further explanation. For example, "Operation Management is derived from the operation aspect of business", "What do methodologies in a study look like?", etc.
Dimension Four: Explanatory	The author defined any discussions on the topic for the course as explanatory when there is a need for explanations or elaborations of certain ideas/theories/ concepts. For instance, "What are the pros and cons associated with working with small sample population for the study?", "Can you elaborate on the concept of variables, how to define it in a study?", etc.
Dimension Five: Cognitive	The author defined cognitive discussions as those that require feedback and commentary via critical thinking that would lead to knowledge gains between the students, CC, or tutors. Example would be "I know the literature review is the part where we review the available or related literature on my topic, but how can I find or locate good reference articles in our library? And, if our library doesn't have the articles or books where else might I find them? ", etc.

To add to the body of data for this study, the author conducted an end-of-semester Student Opinion Survey to students in both courses, giving them opportunities to respond to open-ended questions in addition to pre-coded questions. Students were asked "In your opinion, what were the good features of the course and why?", "In your opinion, what were the poor features of the course and why?" At the end of the questionnaire they were asked "How could this course be improved?" The survey was conducted online where students from both courses were informed about the survey through announcements from the Course Coordinator (as one of this study's authors is course coordinator for both courses) in LMS as well as through an email message sent through student email to remind them about the survey. The findings and results for this study were reported in following session.

Findings and results

Descriptive statistics were used to summarise the study findings. The details of students and course information are summarised in Table 2.

Table 2
General Information about the Two Courses.

General Information	C1	C2
Course Title	CeMBA Project	CeMBA Operation Management
Type of Structured in LMS	Weak-structured / less informative	Well-structured/ very informative
Number of students	43	117
Rate of Participation (No. Online/No. Enrolled)	25/43 = 58%	21/117 = 18%
Average postings (No. of postings/No. Enrolled)	170/43 = 4.0	72/117 = 0.6

The number of students for C1 is much smaller than C2 due to the nature of the program, as C1 is the final capstone project for students who are near to the end of the programme, either of the last two semesters for the degree in Commonwealth Executive Master of Business Administration. In this study, the author considered the percentage (%) as opposed to the absolute value (number), for comparison purposes in this study. As explained in previous section, C1 is a less-structured design and less informative while C2 is well-structured design and very informative in nature.

In the Rate of Participation, C1 shows a high participation rate of 58% which means that 58% of all the students enrolled in this course participated actively by posting in the LMS. On the contrary, C2 shows a low participation rate of only 18%. This suggests that C2, being highly structured, facilitates self-learning by the students resulting in a lower rate of participation in the LMS. Conversely, C1 being inherently less structured, causes more students to post in the LMS in order to obtain the directions in which to proceed. The need to obtain clarifications is rooted in the fundamental structure of the CeMBA programme. The programme requires that the students pass in a minimum of 8 core courses which are highly structured before they can enrol in *Project*. The pre-conditioning by the 8 highly structured courses may have created a high uncertainty avoidance mentality in the students when they encounter a less structured course such as C1. This mentality serves as an impetus that drives more students to make postings in C1 to minimise any uncertainty.

The Average Number of Postings is 4.0 postings per student for C1 which is more than 6 times higher than the 0.6 postings per student for C2. The wide difference further supports the notion that a less structured course C1 creates a high uncertainty avoidance mentality and results in a much larger average number of postings per student.

Q1: Are students less participative in the LMS and hence less tardy in their TMA submission in a well-structured course compared to a weak-structured course?

The author hypothesised that students from the C1 course would be more tardy but more participative in their interactions in LMS. The interaction responsiveness the author defined as the number of total postings and interactions collected throughout the semester. Table 3 shows the number of postings and tardiness measured by TMA submission.

Table 3
Number of Postings and Tardiness in TMA submission

Participative	C1		C2	
Public Forum Postings	122		57	
Announcement from CC Postings	45		3	
Announcements from tutors Postings	3		12	
Total Participative	170		72	
Tardiness	C1	%	C2	%
TMA 1: No. students submitted on time	4	10%	69	58%
TMA 1: No. students request extension 7 days	28	67%	43	36%
TMA 1: No. students request extension 8 to 14 days	10	24%	8	7%
TMA 2: No. students submitted on time	11	26%	101	95%
TMA 2: No. students request extension 7 days	19	45%	5	5%
TMA 2: No. students request extension 8 to 14 days	12	29%	0	0%
TMA 3: No. students submitted on time	12	29%		
TMA 3: No. students request extension 7 days	11	26%		
TMA 3: No. students request extension 8 to 14 days	19	45%		
Tardiness +7 days	58	46%	48	21%
Tardiness 7 to 14 days	41	33%	8	4%
Total Tardiness	99	79%	56	25%

This finding indicated that C1 students have a high ratio of postings (170) compared to C2 which recorded 72 postings. The results imply that the C1 students are perhaps *more uncertain* or *need more guidance* during their course and are communicating with their peers, tutors, and course coordinator, hence, the students are using the LMS and postings are considerably higher in comparison to the C2. In the tardiness construct, the result shows that C1 students have the tendency to be late in submission of their tutor-marked-assignments, which is three times tardier than C2 students.

Q2: What is the form of interactions, in the context of the five dimensions, in a well structured course compared to a weak-structured course in the online discussion forum?

To answer this question, the author adapted Oliver and McLoughlin's (1997) and Wu and Teoh's (2007) framework in analysing C1 and C2. Table 4 shows the dimension of interactions in between C1 and C2.

Table 4
Dimension of Interactions

Five Dimension of Interactions	C1	%	C2	%
1. Social (e.g. Welcome Message, not directly related with course content)	5	3%	2	3%
2. Procedural (Learning Obj/outcomes, assessment tasks, involve explanation on course related procedures, requirements and administrative issues)	95	56%	12	17%
3. Expository (Demonstration of knowledge without much further elaboration)	15	9%	7	10%
4. Explanatory (Elaborate explanation on knowledge and developed content based on learner's response)	16	10%	29	40%
5. Cognitive (constructive feedback and commentary on course content via critical thinking which leads to knowledge development)	39	23%	21	30%

The findings highlighted that C1 students are high in procedural activities such as administrative issues and assessment requirements related to the course. At the same time, this may also imply that they are very dependent on the LMS and their tutors/supervisors, and course coordinator to gain knowledge from the course. Students in the C2, however, are mainly reflected in the explanatory dimension, which may indicate that they are exploring and elaborating the knowledge. It appears that C2 students are more independent and concentrate on gaining knowledge in the course, which may imply they are self-confident in term of the course content presented in the LMS hence require less administrative support.

Q3: What differences exist in the students' interaction pattern in LMS between a well-structured course and a less-structured course?

In this question, the author looked into ratios of participation of both C1 and C2 by using LMS to determine their interaction patterns. Using LMS records, the author examined the amount of activities and interactions which the author characterised into (1) static page, (2) folders of course materials, (3) public forum postings, and (4) announcements from CC Postings. Table 5 shows an analysis from the log activities of C1 and C2.

Table 5
Analysis of students' participation in LMS activities

Distribution of use of LMS feature	C1			C2		
	A	B		A	B	
		No.	%		No.	%
Static Page (CC Profile) Viewings	64	26	24%	119	49	26%
Folders of Course Content Viewings	283	43	39%	359	117	61%
Public Forum Postings	127	23	21%	67	21	11%
Announcement from CC Postings	43	17	16%	5	4	2%

Note: A = # times students viewed or posted in the LMS
B = # students viewed or posted in the LMS

About 61% of student activities were focused on LMS folders for course materials in C2, compared to C1 (39%), as the folders of the course content is the most useful information for students is located in the folders. The course content in the folders in C2 is related to the questions posed in the TMAs. On the other hand, the TMAs in C1 do not contain any questions as these consist of the students' individual draft research proposal and the drafts of the first four chapters of the final project report. The presence of specific questions in C2 and the absence in C1 suggests that the former is well-structured while the latter is less-structured. This difference in structure is contributory to the fact that the TMA submission for C1 is about three times more tardy than C2.

However, it is noticeable that there is a vast difference in terms of the percentage posting in announcement from the CC between C1 (16%) and C2 (2%). This may be an indication that C2 students are more independent compared to C1, where C1 students need more guidance and assistance from the Course Coordinator compare to their counterpart.

Form the survey, the author also analysed some responses from open-ended questions. Students from both C1 and C2 were asked to comment what were the good features of the course. The C1 students and C2 students' responses to this question included:

C1 responses:

"I enjoy other course except for Project course. As my opinion, I can't identify what is the good features for the Project course"

"The course enables the students to apply what they had learned"

"It gives me a basic idea of what research is all about"

C2 responses:

"It let me know more detail on the quality management such as what is TG, OPT and how to improve productivity through quality and etc. All of this very useful in my working life as our corporate are very particular on lean management"

"Covering various aspects comprehensively"

"Good and useful content. Excellent tutor"

"Very straightforward."

"The theory apply"

When students were also asked "What were the poor features of the course", answers included from C1 and C2 students' feedback included:

C1 responses:

"poor supervisor support"

"Time constrain to complete to project"

"When the university introduced the e-course materials it has caused the university to go forward ICT savvy but to the expenses of the more conventional students whom are used to hard copies of the course materials and made some of them believed as if the university had cheated on them since they have to print the hard copies themselves."

"Course materials is not fully supported what the student looking for. Some course materials contain errors & make student confused."

C2 responses:

"The course materials are somehow not well organized in the perspective of its content structure. The contents are relatively lacking in Unit 4. Fortunately, the supplementary notes from CC had been very handy and helpful to deliver the same message."

"Too focused on course materials. Need more examples from current news or occurrences."

"No much practical examples samples"

"In addition, there are less reference books in the library."

"Notes given in CD. Difficult no navigate the notes through the CD. Prefer printed notes"

“Library do not had (sic) sufficient resources for conducting research project. For instance, I need to go to USM to look for share price data. Some more the subscriptions of the e-journal is limited. Some articles that is relevant cannot be access at all.”

“There are some loopholes in the Project Guideline.”

“Course co-ordinator must give clear instruction to tutor to guide student rather than both parties keep on pushing responsibility to each other. Very frustrating to call here and there during office hours!”

The last question the author asked was “How could this course be improved?” C1 and C2 students’ feedback included:

C1 responses:

“More structure system, force it down on both the student and the supervisor.”

“Definitely a better CONCISE instruction manual for candidates”

“It is suggested to compile all the necessary guidelines so that the students have a better understanding on the subjects”

“Finalise course guideline for TMA and project before published instead of keep on changing and publish in LMS. FYI, not all students always refer to LMS for information updating.”

“Guideline should provide more detail information, or maybe we should have a portal that summarize the information discussed in the portal, so the students do not need to spend too much time to read and combine all the relevant information again and again.”

C2 responses:

“more real cases should be presented”

“It may be improved by providing more related links to the particular course modules, and also the tutors can narrow down the scope and their expectation so that learners can get the right direction to explore the TMAs' questions scope”

“Post more case study and successful examples in the public forum, especially explanation on the technical terms likes Six Sigma and etc.”

“The TMA should be broken down to 4 (one for each month) at 10 % each (if possible). Breaks into Part A , 1 case study question (5 %) and Part B , 3 question for 5 % .Just a suggestion.”

Overall, the results of above questions suggested that students found the C1 is poorly structured and information posted in LMS are constantly changing which cause inconveniences for some students. Many students in C1 felt that although the course enables them to apply what they had learned throughout the programme, the limitation appears to be the *lack of information, errors in guideline, un-finalised course guidelines, and constant changes in guidelines causing confusion* are among the issues students pointed in the survey. On the C2 comment, students’ criticism mainly focused on theories or application on expanding knowledge on knowledge learned on certain rather than content or structural related matters. These students’ comments either positives or negatives are valuable for improving the teaching quality in ODL environment because these responses identify some weakness of current structural setup on both courses. Furthermore, these comments provide some clues for future ODL research in designing structured and unstructured learning content. To some extent, active student LMS participation is a matter of students being comfortable with the medium. In this case, C1 students having difficulty in getting supportive information from the LMS and the involvement in forum interactions were comparative high.

Conclusions and Recommendations

In conclusion, students in the well structured and organised course content in LMS felt less anxiety and more independent to navigate the LMS resulting in higher motivation and enjoyment, as evidenced by submitting their TMA less tardy compare to students in weak structured and less organised course content. Similarly, students who are actively participating in the online forums were those that are finding the course content insufficient (weak structured or less organised) resulting more interaction in LMS which lead to late in TMAs submission. Evidence of high involvement of the course coordinator in procedural interactions such as involved explanations about course related procedures, requirements and other administrative issues in the forums for weak-structured course content design than for the well-structured course content.

The study provides an initial research model that may be expanded and generalised for future ODL studies on the impact of structural design on students' homework submission. Our study is also one of the few studies that identify underlying factors that affect students' tardiness in submission their homework in distance learning environment. Although the limitation of only a simple study like this cannot prove "causality", this study did evidence that in distance education environment, learners need a well structured, well organised and informative course content for them to be self-guided, self-explored, and independent for continuity of learning, thus resulting less tardy in submitting their TMAs. Future research is needed that looks at a much larger data set such as comparison from multiple open universities and add additional contextual variables such as students' learning styles as a new factor into the structural course content design. It is also desirable to redesign this study to further explore the measures of motivation and enjoyment of learners in relation to tardiness in submitting their TMAs.

To reduce the tardiness in the submission of TMAs in an inherently less structured course such as C1, our recommendations are as listed below:-

A welcome posting in LMS by the course coordinator detailing the differences between C1 and the highly structured courses. These differences include:-

No tutorial classes in C1 whereas there are 5 tutorial classes in the well structured courses.

No units or chapters of study material whereas there are 5 units of study material corresponding to the 5 tutorial classes in the well structured courses.

No fixed questions in the TMAs in C1 whereas the opposite applies for the well structured courses.

A framework of the course assessment in table form posted in LMS to explain the difference in assessment between C1 and the well structured courses.

C1, *Project*, being an individual research by the student necessitates individual meetings with the supervisor. Hence the absence of tutorial classes which the students are pre-conditioned to. To assists the students in less structured courses, the author recommend having at least 2 tutorials at the beginning of the semester where the students attend classes to revise on the fundamental concepts such as literature review, research methodology etc. The inclusion of the 2 tutorial classes serves to add structure to *Project* and bring a sense of familiarity to students pre-conditioned to well structure courses.

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Appendix A

Wawasan LMS » BPA503/03

My courses

- BBM102/05 Microeconomics
- BBM103/05 Principles & Practice of Management
- BBM104/05 Principles of Marketing
- BBM202/05 Macroeconomics
- BBM203/05 Business Statistics
- BBM205/05 Business Accounting I
- BBM206/05 Business Accounting II
- BBM207/05 Human Resource Management
- BAC302/05 Advanced Cost & Management Accounting
- BAC303/05 Accounting Information Systems
- BAC304/05 Company Law
- BAC305/05 Advanced Financial Accounting & Reporting
- BBF302/05 Financial Management and Analysis
- BBF305/05 Investment Management
- BBF307/05 Business of Banking
- BBF308/05 International Financial Management
- BIS301/05 Data Warehousing & Knowledge Management
- BLC302/05 Logistics Management
- BLC303/05 Supply Chain Management
- BLC307/05 Inventory Management
- BMG301/05 Services Management
- BMG304/05 Strategic Human Resource Management
- BMG306/05 Introduction to International Business
- BMK301/05 Consumer Behaviour
- BMK303/05 Sales & Distribution Management
- BMK304/05 Marketing Research
- BMK308/05 Strategic Marketing
- BCS201/05 Law and Practice of Meetings
- BMG511/03 Managing Human Resources
- BAC501/03 Accounting and Finance
- BBM521/03 Research Methods
- BIS551/03 Electronic Commerce
- BMK501/03 Marketing Management
- BMG521/03 Strategic Management
- BMG541/03 Disaster Management
- BMG551/03 Project Management
- BPA502/03 Public Policy
- BPA503/03 Development Planning and Administration
- BBM601/06 Project
- BPA601/06 Project
- Moodle Sandbox 102

Topic outline

BPA503/03 Development Planning and Administration

Important TMA Announcements

Online Assignment Submission Guide

- Latest OAS Guide for student
 - Latest Student Guide for Online Assignment Submission
 - Link to Online Assignment Submission System

Turnitin Guide

- Quick guide on how to create a student profile and account in Turn-It-In
- Quick guide on how to access and enroll in a subject class portfolio in Turn-It-In
- Quick guide on how to submit assignment to Turn-It-In for originality checking
- Quick guide on how to retrieve and read Turn-It-In's Originality Report
- Turnitin - Promoting academic integrity and excellence in writing (Brochure)
- Turnitin FAQ

ANNOUNCEMENTS

- Welcoming Letter from Course Coordinator
- Course Coordinator Profile
- Announcements from Course Coordinator
- Announcements from Tutor
- Important Notice on Internet References/Links

ONLINE FORUM

- Public Forum
- General Group Discussion
- Tutorial 1
- Tutorial 2
- Tutorial 3
- Tutorial 4
- Tutorial 5

Latest News

(No news has been posted yet)

Upcoming Events

There are no upcoming events

Go to calendar...

Calendar

July 2011

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Group events Course events
Group events User events

Section Links

1 2

Search Forums

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Advanced search

1 SUPPLEMENTARY COURSE MATERIALS AND RESOURCES

- Course Overview
- [Tutorial 1](#)
 - Course Materials
- [Tutorial 2](#)
 - Course Materials
- [Tutorial 3](#)
 - Course Materials
- [Online Activities](#)
- [Tutorial 4](#)
 - Course Materials
- [Online Activities](#)
- [Tutorial 5](#)
 - Course Materials

2 ASSIGNMENT FILE, SELF-TEST AND ONLINE QUIZZES

- Tutor Marked Assignments (TMAs)
- Specimen Examination Paper

You are logged in as TUNG LAI CHENG - (Logout)

Appendix B

Final Project Course (weak structured and less informative)

<ul style="list-style-type: none"> Organisational Behaviour BMG303/05 Strategic Management BMG305/10 International Business BMK302/05 Services Marketing BMK304/05 Marketing Research BMK305/05 Marketing Communications BMK306/10 Strategic & International Marketing BMG501/03 Management in Organisations BIS541/03 Managing Information Systems BBM511/03 Quantitative Techniques BLC571/03 Operations Management BMG531/03 Quality Management BBM521/03 Research Methods BMG521/03 Strategic Management BMG542/03 Business Law BMK511/03 International Marketing BMG543/03 Corporate 	<p>1 SUPPLEMENTARY COURSE MATERIALS AND RESOURCES</p> <ul style="list-style-type: none"> Course Overview Resources <ul style="list-style-type: none"> Student's Guide to Manage Project Course Forms WOU Citation Guide Breakdown of Course Assessment Slides for Video Conferencing 2011_1 Slides for Video Conferencing 2011_2 <p>2 ASSIGNMENT FILE</p> <ul style="list-style-type: none"> Tutor Marked Assignments (TMAs) / Preliminary Project Reports <p>3 GUIDE FOR PROJECT SUPERVISOR</p> <ul style="list-style-type: none"> Dean's Corner Project Logbook CCProject Supervisor Forum Permission to use hyperlinks Latest OAS Guide for tutor <ul style="list-style-type: none"> Project Supervisor Online Submission System (OAS) Guide Turnitin step-by-step guide for Instructor Turnitin - a Guide for Tutors Project Supervisor's Guide to Manage CeMBA Project
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Operation Management Course (Well structured and more informative)

<ul style="list-style-type: none"> BMG303/05 Strategic Management BMG305/10 International Business BMK302/05 Services Marketing BMK304/05 Marketing Research BMK305/05 Marketing Communications BMK306/10 Strategic & International Marketing BMG501/03 Management in Organisations BIS541/03 Managing Information Systems BBM511/03 Quantitative Techniques BLC571/03 Operations Management BMG531/03 Quality Management BBM521/03 Research Methods BMG521/03 Strategic Management BMG542/03 Business Law BMK511/03 International Marketing BMG543/03 Corporate Governance & Ethics BPA501/03 Public System Management BPA504/03 Policy Analysis and Implementation BPA505/03 Contemporary Administrative Systems BBM601/06 Project BPA01/06 Project Moodle Sandbox 102 Moodle Sandbox 101 Kurusu Demo 101 	<p>1 SUPPLEMENTARY COURSE MATERIALS AND RESOURCES</p> <ul style="list-style-type: none"> Course Overview WOU Citation Guide Examples of TMAs Errata List No.1 Slides for Video Conferencing 2011_1 Slides for Video Conferencing 2011_2 Tutorial 1 <ul style="list-style-type: none"> Course Materials WHY STUDY OM? The Dell Efficiency Why Europe lags behind the US in productivity Tutorial 2 <ul style="list-style-type: none"> Course Materials Additional Case Study for Tutorial 2 Tutorial 3 <ul style="list-style-type: none"> Course Materials Tutorial 4 <ul style="list-style-type: none"> Course Materials Tutorial 5 <ul style="list-style-type: none"> Course Materials <p>2 ASSIGNMENT FILE, SELF-TEST AND ONLINE QUIZZES</p> <ul style="list-style-type: none"> Tutor Marked Assignments (TMAs) Specimen Examination Paper Samples of TMA <p>3 GUIDE FOR TUTORS</p> <ul style="list-style-type: none"> Tutor Handbook 2010 Tutorial Presentations CCTutor Forum Marking Scheme for TMA Permission to use hyperlinks Latest OAS Guide for tutor <ul style="list-style-type: none"> Tutor Online Submission System (OAS) Guide Turnitin step-by-step guide for Instructor Turnitin - a Guide for Tutors
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Editor's Note: This study dissects reasons why graduate level students generally have a positive attitude toward e-portfolios.

Graduate students' attitudes towards use of e-Portfolios in the College of Educational Sciences at the University of Jordan

Mansour Alwraikat
Jordan

Abstract

The purpose of this study was to probe graduate student's attitudes in the College of Educational Sciences at the University of Jordan towards the use of e-portfolios. The study sample consisted of 90 students, and survey methodology was employed to collect data through a self-administered questionnaire, which included 38 items distributed on three areas. Content validity was achieved by submitting the questionnaire for review by experts in the field of educational studies and instructional technology in Arab Countries before the final version was sent out to the participants. Reliability was ensured by computing the Cronbach's alpha coefficient of the internal consistency. The students expressed positive attitudes toward the use of e-portfolio in all areas (awareness, works and activities, and advantages and disadvantages). There were no significant differences in attitudes across gender and academic specialization in the BA, but there were significant differences in attitudes across academic degree (in favor of PhD students) and computer skills (in favor of students with high level of computer skills).

Keywords: E-portfolio, graduate students, college of education.

Introduction:

E-portfolios are a new study formula now widely used in many developed countries. They can be used in educational institutions or in the economic or technical fields, and they have affected many features of the educational process (Ismail, 2005). The recent spread of these new formulas into many educational institutions around the world has resulted in fundamental changes to the roles of the teacher and the learner.

E-portfolios are a technological innovation which relies on the idea that experience passes one by and may be lost unless it is recorded for further exploitation. Utilizing e-portfolios can help in maintaining the continuity of expertise and taking advantage of experience. In addition, students are enabled to develop self-learning skills, which has become one of the main objectives of new types of curriculum (Abdel-Moneim, 1997). The employment of e-portfolios in the educational process can also lead to an authentic, effective, and reliable method of assessment and works as an evaluation tool of teacher performance according to international and local standards, rather than arbitrary methods of self-assessment and evaluation (Ismail, 2005).

Definition of E-portfolios:

E-portfolios are also known as digital portfolios, web-folios, multi-media portfolios or e-folios. They also include, in principle, the same artifacts as do traditional paper-based portfolios; but the fundamental difference is that the contents are shown in digital format (Kilbane & Milman, 2003). The term 'e-portfolio' has been translated in the Arabic literature into several labels including: documentary file, student electronic file, learning file, delivery file, performance file, and assessment and evaluation file.

According to Abdul-Aziz (2008), the so-called e-portfolio is a "systematic collection of the student's work related to content based topics developed by the learner and under the supervision

of the teacher" (p. 106). Additionally, Ismail (2005) defines the e-portfolio as a "record of the student's best works within a course or groups of courses, and it employs multimedia elements and one can navigate by using hyper-links, and can be published on the Internet or on CDs " (p. 36). Furthermore, Bakkar and Al-Bassam (2001) add that the e-portfolio is a "record that keeps the performance of the learner in order to highlight his work and achievements which indicate the extent of his growth, naturally, socially, psychologically, academically, skillfully, creatively, and culturally" (p. 147).

More generally, Barrett (2001) defines a portfolio as a "purposeful collection of a student's work that exhibits the student's efforts, progress, and achievements in one or more areas" (p. 8). Al-Ahmed and Osman (2006) more specifically refer to the e-portfolio as an "evaluation tool developed by the learner and not for learner, to help them learn how to assess and value their work during their learning" (p. 4). In greater detail, Lorenzo and Ittelson (2005) characterize the e-portfolio as a digitized collection of artifacts including demonstrations, resources, and accomplishments that represent an individual, group, or institution. This collection can be comprised of text-based, graphic, or multimedia elements archived on a web site or on other electronic media such as a CD-ROM or DVD (p. 2).

We can conclude that the student e-portfolio is a meaningful and structured documentation in digital format of work that reflects his/her effort, development, achievements, and accomplishments in a field or a course. Its contents might include examples of homework, exams, essays, impressions, opinions, self-criticism, reflections, readings, reports, summaries and research undertaken by the student cumulatively over a period. The design of the e-portfolio is accomplished with modern electronic media or multimedia, which requires a certain level of technical and computer skills.

Theoretical framework of the study

As an innovative technological product, the e-portfolio stems from the application of constructivist learning theory, and especially the ideas of Dewey, Piaget, Vygotsky, and Bruner. The theory emphasizes the importance of the role of learners in the construction and formulation of the nature of learning through understanding the diverse forms of knowledge and the intellectual content that can be interacted with and practiced. In this sense, Stefani, Mason and Pegler (2007) state that in "constructivist theory, the emphasis is placed on the learner or the student rather than the teacher or instructor. It is the learner who interacts with content and events and thereby gains an understanding of the ideas or events" (p. 32).

Corresponding changes in the understanding of the learning process have led to a radical change in the relationships between all of the elements in the learning process. The teacher's role has shifted from being a controller and the single source of information to becoming a facilitator and coordinator of learning. The learner becomes actively engaged in building knowledge based on his/her previous experience. The evaluation process has similarly moved from seeking to measure the collection of information received by the learner, often through an objective test, to an authentic alternative kind of evaluation which focuses on and tracks the changes that have occurred in the learner because of the learning process. With regard to the curriculum, the focus has shifted from predetermined content and objectives precisely defined in advance to the alteration of relevant behavior in an active learning experience that help learners to understand the subject studied and the community in which they live in (Kelly, 2006).

Student e-portfolios are now most prevalent within teacher education programs. In a survey of schools and colleges of education and academic educational departments conducted by Salzman, Denner, and Harris (2002), the results showed that most participants pointed to the significance of their use of the e-portfolio as part of their evaluation process. Given contemporary enhancements

of educational information technology, many educational institutions are moving towards the process of adopting e-portfolios (Bartlett, 2002; Ismail, 2005).

It has always been accepted that there is no single process for building up the student's e-portfolio. However, students are usually expected to do three things under the supervision of the teacher: to collect together their ideas and their work, to choose what will be included in their file, and eventually to be able to reflect on their learning.

There are some significant benefits associated with the use of the e-portfolio such as the students expressing their views in the choice of activities that are compiled in the file, developing their communication skills, finding innovative solutions to the design of the e-portfolio itself, and providing evidence of adherence to academic standards for accreditation (Barrett, 2000). Collaborative work among students is also encouraged (Barrett, 2000; Irby and Brown, 2000), and the student's confidence may be enhanced. E-portfolios provide an opportunity for students to identify their own weaknesses and strengths through the assessment of their performance, and multiple aspects of the students' learning can be measured (Bakkar, Al-Ahmed, Al-Bassam, Al-Sumairi, & Osman 2003). They can also be used to document the student's best work, effort and academic growth (Bakkar et al., 2003; Ismail, 2005; Abdul-Aziz, 2008). They have also allowed the establishment of the concept of authentic assessment as a means of learning, since the assessment process is not considered in isolation from the learning process (Salzman et al., 2002). E-portfolios can also focus on multiple dimensions of evaluation (such as in multidimensionality scaling) instead of the single dimensions of traditional assessment tools (Ismail, 2005; Lynch & Purnawarman, 2007). This helps in detecting creativity among students (Bakkar & Al-Bassam, 2001). Also, portfolios help in developing strategies for self-learning, self-esteem and metacognition, the application of knowledge, and the development of logical, critical, and reflective thinking skills (Bakkar et al., 2003) as well as research and problem-solving skills (Curry & Cruz, 2000; Czech & Amber, 2002; Wright, Stallworth, & Ray, 2002; Zubizarreta, 2004; Zellers & Mudrey, 2007).

Statement of the problem and research questions

The University of Jordan has made efforts to meet the accreditation requirements for its academic programs as set forth by the National Higher Education Accreditation Commission. Its eagerness to integrate and employ the techniques of modern technology to meet the needs of a knowledge-based society and to bring its students to the next level of excellence and creativity makes it imperative that the university develops new plans for using student e-portfolio in order to equip candidates in teacher education programs to rise to the challenge. Therefore, understanding student attitudes toward this new initiative would facilitate its successful integration.

In addition, there is a lack of effective tools for evaluating and assessing students enrolled in teacher educational programs in order to help them collect together and document their experience in such a way that they could benefit from it in the future. Experience is easy to forget if not practiced in real situations and if not documented to show the progress, skills, and achievements of the student overtime. According to constructivist perspective, learners must be educated to build on what they have already learned. For example, offering students vocabulary exercises in science and social studies may not result in the appropriate representation of concepts.

Although the educational benefits of e-portfolio are promising, only a few relevant studies have been conducted in Arab universities in general and in Jordanian universities in particular. Sheed and Stone (2006) advocated further studies that attempt to understand the students' experiences and attitudes in using e-portfolios. This study therefore seeks to answer the following research questions:

1. What are the attitudes of graduate students towards the use of e-portfolio?
2. Are there any significant differences in attitudes among graduate students towards the use of e-portfolios with regard to their gender?
3. Are there any significant differences in attitudes among graduate students towards the use of e-portfolios with regard to their academic specialization at first degree level (Scientific, Humanistic)?
4. Are there any significant differences in attitudes among graduate students towards the use of e-portfolios with regard to the level of their academic degree?
5. Are there any significant differences in attitudes among graduate students towards the use of e-portfolios with regard to their level of computer skills?

Importance of the study

This study reflects the desire and urgent need felt by many Arab educators to identify new global developments in teaching and evaluation methods in higher education. The study may contribute to paving the way for faculty members and graduate students in Jordanian universities to explore this technological innovation as a means of learning, teaching, and evaluation. Therefore, educators need to gain better understanding of student's attitudes prior to the integration of e-portfolios into the curriculum. Furthermore, the study adds to the literature a contribution to the body of knowledge about the role of new technological innovations in enhancing learning and potentially transforming society.

Literature review

The existing literature reveals that only a limited number of published studies have been conducted in Arab countries about the use of e-portfolios by students. Studies conducted in Saudi Arabia (Bakkar & Al-Bassam, 2001; Bakkar et al, 2003), Qatar (Ismail, 2005), Turkey (Kokoglu, 2008), and various universities in the United States (Czech, & Amber, 2002; Salzman et al, 2002; Wright, et al, 2002; Sherry & Bartlett, 2005; Wetzel & Strudler, 2006 ; Zellers & Mudrey, 2007; Ntuli, Keengwe, & Kyei-Blankson, 2009) have shown that students have benefited from using the e-portfolios in their learning in various ways.

Ntuli, Keengwe, and Kyei-Blankson (2009) reported that students considered the e-portfolio a useful learning and teaching tool, and an effective means when applying for a job. In addition, they emphasized the urgent need for more training for students and faculty members to help the e-portfolio to be integrated into their courses.

Kokoglu (2008) investigated perceptions about the e-portfolio as a learning tool among student teachers of English as a Second Language at the University of Yeditepe in Turkey who benefited from becoming accustomed to the latest innovations in digital technology, which helped them show their talents and skills.

Zellers and Mudrey (2007) pointed out that faculty staff in the College of Lorain, in Ohio benefited from using e-portfolios in developing students' metacognitive skills and increasing their academic achievement. Students could be guided through reflective thinking, and effective feedback could be provided on different technological and educational topics.

Wetzel and Strudler (2006) investigated the benefits and costs of using e-portfolios in pre-service teacher education by probing the perceptions of students in six academic programs. They found that understanding student perceptions of their experiences can lead to improved practices and policies.

Ismail (2005) found positive attitudes towards the use of the e-portfolios among students in the College of Education at Qatar University. More positive attitudes were also found towards their course and its objectives. It was concluded that e-portfolios may serve as an alternative method of evaluation especially in technological courses, and particularly benefit students in exhibiting their best work.

Sherry and Bartlett (2005) conducted a questionnaire study of the perceptions of graduate and undergraduate students majoring in education about the use of e-portfolios. They found that despite differences in information technology skills between the two groups, they had positive perspectives.

Bakkar et al. (2003) reported that female students in the College of Education, at King Saud University, Saudi Arabia, accomplished three purposes with the use of e-portfolios: documentation of experience, choosing their best works, and growth and progress in their performance. In addition, students were able to describe their own weaknesses in the application of knowledge, skills, and teaching. The results also showed that academic specialization had no significant effect on the use of e-portfolios.

According to Britten, Mullen, & Stuve (2003), 50% of graduate students in 400 U.S academic department used e-portfolio. In a review published by The Society for Information Technology and Teacher Education (SITE), Strudler and Wetzel (2005) found over one hundred papers in 2003-2004 related to the use of e-portfolios in education.

Wright et al. (2002) qualitative research method explored the use of e-portfolios in developing the skills of student teachers. The majority believed that using e-portfolios had contributed to the development of their reflective thinking and practical and organizational skills.

A questionnaire study by Salzman et al. (2002) identified the use of e-portfolios. The results showed that most used e-portfolios as a means of assessment. More generally, recent advances in educational technology are leading many educational institutions to shift from paper to electronic files (Bartlett, 2002).

Czech and Amber (2002) found that the benefits to students of using portfolios lay in providing them with good feedback through reflective thinking, developing their technological skills, and allowing them to exhibit their projects in an orderly and accurate manner.

Bakkar and Al-Bassam (2001) developed a conceptual framework for the definition of the e-portfolio and its benefits. They concluded that more empirical studies should be conducted with learners at various levels ranging from kindergarten to graduate students on how to design, develop, and evaluate e-portfolios. They also highlighted the need to hold training sessions for teachers to integrate e-portfolios into the curriculum.

In summary, the literature clearly shows that the use of e-portfolios is gaining momentum especially within higher education institutions. Most qualitative and quantitative studies considering factors such as academic achievement, specialization, attitudes, the perceptions of learners, learning processes, teaching skills, reflective thinking skills, evaluation and assessment conclude that the use of the e-portfolio is an effective method in teaching and learning

However, there is a marked paucity of Arab studies regarding this topic. In examining the attitudes of graduate students in the College of Educational Sciences at the University of Jordan toward the use of e-portfolios, the present study is the first of its kind to be conducted in the Hashemite Kingdom of Jordan. In this country, some universities already provide the infrastructure required for offering access to e-portfolios while others are considering it, but some have yet to discover their possibilities.

Methodology

To ascertain the attitudes of graduate students, a survey research method was deemed an effective way of gathering the data necessary to examine the attitudes of graduate students toward the use of e-portfolios. Overall, survey research utilizes the responses to questions from the sampled population to formulate inferences about the attitudes. Survey research obtains responses about attitudes that are otherwise difficult to measure using observational techniques (McIntyre, 1999). A written questionnaire consisting of four sections with 38 items was used.

Variables of the Study

Independent variables were: Gender (male, female), academic specialization at bachelor level (human, scientific), academic degree (Master, Doctorate), level of computer skills (low, moderate, high). Dependent variable was student's attitudes towards e-portfolio.

Participants

The target population in this study consisted of graduate students in the College of Education at the University of Jordan for the academic year 2010/2011 totaling (607) comprising Masters (332) and doctoral students (275). Using stratified random sampling, the questionnaire was distributed to (150) students, and only (90) students responded with a return rate of 60.0% of responses subsequently used in the statistical analysis.

Instrument of the Study

In exploring the attitudes of graduate students toward their use of e-portfolios, the questionnaire was developed by examining survey methods previously used in this area, such as in studies by Ismail (2005) and Bakkar et al. (2003) and then constructing a self-administered questionnaire consisting initially of 45 items.

The content validity of the questionnaire was achieved by consulting experts in the field of educational studies and instructional technology in Jordan and other Arab Countries. The amended questionnaire consisted of 38 items distributed in the categories of awareness, work and activities, and advantages and disadvantages. A five-point Likert scale ranging from strongly disagrees to strongly agree was used to measure the attitudes of the students towards the use of e-portfolios.

Cronbach's alpha coefficient was calculated to measure the internal consistency of the questionnaire as a whole (0.89), and for each of the three categories (0.67, 0.76, and 0.84 respectively) which suggested that the instrument was reliable. Furthermore, an item analysis was conducted to double check if items were highly correlated.

Procedure

The self-administered questionnaire was sent to the sample graduate students via their university e-mail addresses, and descriptive statistics for all independent and dependent variables were computed for the data. An alpha level of 0.05 was placed prior to examine if data were statistically significant.

Results and discussion

The findings are reported below according to the research questions asked.

Table 1
Students overall attitudes towards the use of e-portfolio

No.	Area	Mean	Standard Deviation	Degree
1	Awareness	4.05	36.0	high
2	Works and activities	3.89	42.0	high
3	Advantages and disadvantages	3.98	48.0	high
	Total Degree	3.97	37.0	high

The results in table 1 show that the attitudes of the students toward the use of e-portfolios in learning were very positive with a mean of all responses of 3.97. The highest mean score of 4.05 was for awareness followed by advantages and disadvantages with a mean of 3.98, then works and activities 3.89. The results can be attributed to the fact that the e-portfolio represents a shift from traditional methods of learning and evaluation to new methods based on the contents of the e-portfolio such as records of work and projects which integrate multimedia applications that are attractive to students and motivate them to learn. In addition, the development of computer skills among students has contributed to the development of positive attitudes towards the use of electronic methods in learning and evaluation.

Awareness of the e-portfolio

Table 2
Students' awareness towards the use of e-portfolio arranged in descending order

No.	Item	Means	Standard deviation	Degree
9	I feel proud after the creation of my e-portfolio.	4.47	0.57	high
1	Completion of e-portfolio requires a clear ability to organize.	4.43	0.50	high
2	I think that the appearance of e-portfolio (including the design and the cover) is very important.	4.37	0.55	high
4	I think that the content of e-portfolio (with its details and Regulation) is very important.	4.30	0.65	high
5	The preparation of e-portfolio requires computer skills and artistic talent.	4.10	0.80	high
8	I still do not understand why we must complete the student's e-portfolio.*	4.07	0.82	high
6	I was comfortable to compile my projects under a student e-portfolio.	4.00	0.90	high
10	I would be comfortable with an e-portfolio used as a learning tool in all courses.	3.97	0.80	high
7	I think viewing previous samples of student's e-portfolios helped me in forming a better picture about e-portfolios.	3.93	0.97	high
3	I have a clear concept of how to compile and complete e-portfolios.	3.77	0.81	high
12	I am comfortable with assessing my performance through traditional ways such as (pencil and paper exams).*	3.70	1.20	high
11	I am comfortable with electronic portfolios more than paper portfolios.	3.47	1.19	moderate

* Negative items were re-arranged on the scale to become positive items.

Table 2. shows that the students' attitudes towards e-portfolios were very positive for all the items in the category of awareness apart from one. Means of responses ranged from 3.47 to 4.47 with the highest score for "I feel proud after the creation of my e-portfolio", and "Completion of e-portfolio requires a clear ability to organize". The lowest scores were for "I am comfortable with electronic portfolios more than paper portfolios" and "I am comfortable with assessing my performance through traditional ways such as pencil and paper exams".

Work and activities for the e-portfolio:

Table 3
Students' work and activities toward the use of e-portfolio
arranged in a descending order of means

No.	Item	Means	Standard deviation	Degree
24	I am comfortable with e-portfolio more than paper portfolio when collecting and presenting my distinctive works.	4.47	0.62	high
17	Using e-portfolios helped in developing my personal and professional skills.	4.30	0.70	high
19	I feel comfortable to compile my projects within e-portfolio.	4.27	0.82	high
20	I know how to design e-portfolio in the future.	4.27	0.69	high
21	E-portfolio has increased my desire to learn effectively	4.10	0.75	high
14	Goals that I tried to achieve through e-portfolio were difficult and not achievable.*	3.97	0.88	high
22	Using e-portfolio helped me in working within specific standards.	3.90	0.84	high
16	I feel nervous when I work on my e-portfolio.*	3.80	1.02	high
23	E-portfolio helped me in working and learning through a constructivist perspective.	3.80	0.84	high
13	I achieved most of my educational goals through my e-portfolio.	3.73	0.82	high
15	I have placed artifacts for my works to show my progress.	3.53	0.77	moderate
18	Some aspects of learning such as listening or speaking can not be easily exhibited in e-portfolio. *	2.50	0.89	moderate

* Negative items were re-arranged on the scale to become positive items.

Table 3 shows that the students' attitudes towards e-portfolio were very positive for almost all of the items in the area of work and activities, whereas only two items received moderate ratings. Means ranged from 4.47 to 2.50 with the highest scores for "I am comfortable with e-portfolio more than paper portfolio when collecting and presenting my distinctive works" and "Using e-portfolios helped in developing my personal and professional skills". The lowest mean scores were for "Some aspects of learning such as listening or speaking cannot be easily exhibited in e-portfolio" and "I have placed artifacts for my works to show my progress".

Advantages and disadvantages:

Table 4
Advantages and disadvantages toward the use of e-portfolio
arranged in descending order of means score

No.	Item	Means	Standard deviations	Degree
38	Creating e-portfolio helped me reviewing my projects in order to present them in the best manner.	4.52	0.63	high
29	Creating e-portfolio helped in developing my technological skills in teaching.	4.38	0.72	high
34	Creating e-portfolio made me realize that it is possible to learn at any time.	4.31	0.60	high
36	I feel that e-portfolio is not helping to learn.*	4.21	1.10	high
35	Creating e-portfolio helped in showing me efforts to learn outside the classroom.	4.14	0.74	high
31	Creating e-portfolio is a valuable self-learning tool for the future.	4.10	0.89	high
28	Creating e-portfolio helped in planning my own learning style.	4.07	0.59	high
30	Creating e-portfolio helped in knowing my strengths and weaknesses.	4.03	0.90	high
32	Creating e-portfolio helped in showing my best abilities and capabilities.	4.03	0.72	high
37	Creating e-portfolio helped in developing my reflective thinking.	4.00	0.84	high
27	Creating e-portfolio helped in choosing what to read and to listen according to my personal need.	3.86	0.74	high
33	I feel that e-portfolio represents the outcomes of my learning.	3.83	0.96	high
26	I feel that creating e-portfolio increases my academic load.*	3.31	1.16	moderate
25	Creating e-portfolio is time consuming.*	2.97	1.11	moderate

Table 4 shows that the students' attitudes toward e-portfolios were positive for all of the items in the category of advantages and disadvantages, with only two items rated as moderate. Means for the students' responses ranged from 2.97 to 4.52 with the highest score for "Creating e-portfolio helped me reviewing my projects in order to present them in the best manner" and "Creating e-portfolio helped in developing my technological skills in teaching". The lowest scores were for "Creating e-portfolio is time consuming" and "I feel that creating e-portfolio increases my academic load".

In order to answer the second research question, means and standard deviations of scores were calculated according to the gender of the respondents, and an independent t-test was performed to test the significance of any difference between the means.

Table 5
Results of t-test for student's attitudes with regard to gender (male and female) toward the use of e-portfolio

Area	Gender	Number	Means	Df	t	Df	Sig.
Awareness	male	15	4.00	0.42	0.549-	88	0.585
	female	75	4.06	0.35			
Works and activities	male	15	3.73	0.23	1.558-	88	0.123
	female	75	3.92	0.44			
Advantages and disadvantages	male	12	3.93	0.11	0.416-	85	0.678
	female	75	3.99	0.52			
Total degree	male	15	3.86	0.24	1.196-	88	0.235
	female	75	3.99	0.39			

Table 5 shows that there were no statistically significant differences (at $p < 0.05$) between male and female students in their overall attitudes towards the use of e-portfolios, either in the scale as a whole or for the sub-categories.

The absence of differences between male and female students in attitudes towards the use of e-portfolios may be attributed to the fact that all students enjoy the same privileges at university level due to the existence in Jordan of a coeducational system where there is no such discrimination in terms of courses or educational facilities.

To answer the third research question, means and standard deviations for student attitudes toward the use of e-portfolio were calculated for the scale as a whole and for each sub-category with regard to each student's academic specialization at first degree level. An independent t-test was performed to test the significance of differences in the attitudes of students in science and humanities specializations.

Table 6
Results of t-test for student's attitudes toward the use of e-portfolio with regard to their academic specialization at the first degree level

Area	Academic specialization	Number	Means	Df	t	Df	Sig.
Awareness	Scientific	12	4.167	0.435	1.225	88	0.224
	Human	78	4.029	0.351			
Works and activities	Scientific	12	4.000	0.404	1.011	88	0.315
	Human	78	3.869	0.421			
Advantages & disadvantages	Scientific	12	3.929	0.264	0.416-	85	0.678
	Human	75	3.991	0.511			
Total degree	Scientific	12	4.026	0.324	0.590	88	0.557
	Human	78	3.959	0.376			

Table 6 shows that there were no statistically significant differences (at $p < 0.05$) between the students with different academic specialization in their attitudes toward the use of e-portfolios.

This finding corresponds with those of Bakkar et al., (2003) which also found no effect of academic specialization on the attitudes of student teachers in pre-service programs towards the use of e-portfolio. This may be attributed to the existence of compulsory and elective courses in computer skills to bridge the gap between humanities and sciences disciplines. In addition, the rise of computer culture in the community at large, and the focus in secondary education on enhancing basic computer skills and e-learning applications before students enroll in higher education as found in both private and public, helped in bridging the digital divide between students in human and scientific disciplines.

To answer the fourth research question, means and standard deviations for student attitudes toward the use of e-portfolios were calculated for the scale as a whole and for each sub-category with regard to each student's academic degree. The independent t-test was performed to test for significant differences between the attitudes of PhD students and MA students.

Table 7
Students' attitudes toward the use of e-portfolio
with regard to academic degree

Area	Academic qualification	Number	Means	Standard deviation	t	Df	Sig.
Awareness	PhD	36	4.167	0.285	2.717	85	0.008
	MA	51	3.956	0.399			
Works and activities	PhD	36	4.104	0.263	4.310	85	0.000
	MA	51	3.740	0.455			
Advantages & disadvantages	PhD	36	4.089	0.291	1.990	82	0.050
	MA	48	3.879	0.580			
Total degree	PhD	36	4.118	0.219	3.459	85	0.001
	MA	51	3.853	0.421			

Table 7 shows that the attitudes towards the use of e-portfolio among PhD students were in general more positive than those of Masters' students. In addition, the attitudes of doctoral students were significantly more positive in the categories of awareness and work and activities. Moreover, no significant difference was found with regard to the category of advantages and disadvantages.

These findings contradict those of Bakkar et al. (2003) who found in their study at King Saud University in Saudi Arabia that academic qualification did not significantly affect the awareness of student teachers in pre-service programs toward the use of e-portfolios. This may be attributed to the fact that the nature of PhD programs requires students to use computer applications such as internet, databases, and e-mail software, all of which may contribute to honing the skills needed for multi-applications when working on e-portfolios. Such students are then more capable of handling e-portfolios, and may thus have more positive attitudes towards them.

To answer the fifth research question, means and standard deviations for the students' attitudes towards the use of e-portfolio were calculated for the scale as a whole and for each sub-area of the scale with regard to level of computer skills. In addition, a one-way analysis of variance (ANOVA) was conducted to find any statistically significant differences in mean scores between the students' attitudes with regard to their level of computer skills, which were measured via using a three-point scale of low, moderate, and high.

Table 8
Means and standard deviations for student's attitudes
toward the use of e-portfolio with regard to their level of computer skills

Area	Level of computer skills	Number	Means	Standard deviation
Awareness	Low	15	3.767	0.347
	Moderate	48	4.125	0.384
	High	27	4.065	0.256
	Total degree	90	4.047	0.364
Works and activities	Low	15	3.667	0.440
	Moderate	48	3.865	0.382
	High	27	4.046	0.422
	Total degree	90	3.886	0.419
Advantages and disadvantages	Low	12	3.339	0.732
	Moderate	48	4.031	0.254
	High	27	4.183	0.440
	Total degree	87	3.983	0.483
Total degree	Low	15	3.596	0.458
	Moderate	48	4.008	0.265
	High	27	4.102	0.351
	Total degree	90	3.968	0.369

The results in Table 8 show that there are statistically significant differences in the mean scores of students' attitudes with regard to their level of computer skills. A one-way analysis of variance (ANOVA) was conducted to identify any statistically significant differences in the mean scores.

Table 9
One-Way ANOVA- results for student's attitudes toward e-portfolio
with regard to their level of computer skills

Area	Variable Level of computer skills	Sum of Squares	Df	Mean Square	F	P
Awareness	Between groups	1.479	2	0.740	6.249	0.003
	Within groups	10.299	87	0.118		
	Total	11.778	89			
Works and activities	Between groups	1.437	2	0.719	4.401	0.015
	Within groups	14.208	87	0.163		
	Total	15.645	89			
Advantages & disadvantages	Between groups	6.159	2	3.080	18.554	0.000
	Within groups	13.942	84	0.166		
	Total	20.102	86			
Total degree	Between groups	2.645	2	1.322	12.184	0.000
	Within groups	9.443	87	0.109		
	Total	12.088	89			

Table 9 shows that there are significant differences for the scale as a whole and for each sub-category of the scale. The Scheffee test for comparisons was then used to determine where the differences in means lie in terms of level of computer skills.

Table 10
Results for Scheffee test for comparisons between items
with regard to student's level of computer skills

Area	Comparisons	Difference of Means	Standard Error	P
Awareness	Low * moderate	*0.36-	0.13	0.003
	Low * high	0.30-	0.14	0.031
	Moderate * high	0.06	0.10	0.768
Advantages & disadvantages	Low * moderate	*0.69-	0.16	0.000
	Low * high	*0.84-	0.17	0.000
	Moderate * high	0.15-	0.12	0.309
Total	Low * moderate	*0.41-	0.12	0.000
	Low * high	*0.51-	0.13	0.000
	Moderate * high	0.09-	0.10	0.497

Table 10 shows that the students with moderate and high levels of computer skills had more positive attitudes than those with low levels of skills for the scale as a whole and for the awareness and advantages and disadvantages sub-categories.

These differences may be attributed to the fact that students with high levels of computer skills can work on portfolios in the electronic rather than paper version by more readily employing some of the information technology applications required, such as using, organizing, storing, designing, and editing multimedia files. In addition, their skills help them in constructing websites and taking into account the principles of electronic design while working to certain technological standards, which will be reflected in their positive attitudes towards e-portfolios.

Recommendations

In the light of the findings of this study, the following recommendations can be made:

1. Further exploration of the use of e-portfolios as an alternative method of assessment is needed, since this method is now widely used in American higher education and has proved its effectiveness and usefulness.
2. Training courses should be held for graduate students and faculty members on how to integrate e-portfolios into teaching and learning.

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