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Tayseer Andrawes Saleem

International Journal of Instructional Technology and Distance Learning

Editorial The tyranny of technology Donald G. Perrin

The filmstrip projector and gramophone were educational innovations in the first quarter of the 20th century. Sixteen millimeter motion picture projectors were invented in the mid 1920's, but little used until World War II. After the war, Educational Britannica and Coronet made educational films while parent-teacher groups (PTAs) raised money to hasten their introduction. Projection and listening devices enabled participation of large numbers of students in classrooms and auditoriums. Films were essentially one-way communication devices regarded as teaching aids – a luxury for teaching and easy to eliminate when budgets were cut.

The language laboratory was the first technology for individual student use. In foreign language teaching, students could record their reading out loud, compare it with a native speaker, and through practice, master speaking the language. School administrators manipulated their budgets to get a language lab for their schools, but the technology failed them. Teachers needed training and there were few prepared materials so teachers had to make their own. By the time they got it all working, the equipment broke down and there was no budget for maintenance.

People understood that a car needs fuel, roads, driver training, a license, and maintenance, but for education this was a new experience – the tyranny of technology. Any improvement in education that requires equipment and materials and maintenance and training places stress on educational budgets designed to minimally support teachers, administrators and school buildings.

Sputnik was a disruptive technology that changed the course of U.S. education in the 1960s. It became apparent that our educational systems were lacking, especially in science and engineering. The National Defense and Education Act provided money for research, new curricula, and educational technologies. The new science curricula required new equipment for teaching. Many of the new educational technologies were individualized and interactive, such as teaching machines, programmed learning, and computers. That also meant that multiple units were required for classrooms, enough to teach at least one class at a time.

As federal funds disappeared, school budgets were unable to maintain innovations, and teachers went back to the old way of doing things. It was not until the advent of the computer and the Internet toward the end of the twentieth century that substantial funding was once again available. Unfortunately, much of that original purchase became obsolete with no mechanism in most school budgets for upgrade or replacement.

Today, (according to Wikipedia) new media refers to content available on-demand through the Internet, accessible on any digital device, usually containing interactive user feedback and creative participation. Common examples of new media include websites such as online newspapers, blogs, wikis, video games, and social media.

The tyranny of technology is that it requires resources for training, equipment, materials, and maintenance. Political intervention was used to fund school bus and standardized testing. There is no movement toward adequate funding for schools, particularly for instructional technologies.

Perhaps our hope for the future is that every student will own a digital device that can be used for education.

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Editor's Note: When alternative tools are available to assist learning, we want to know what works best. If we understand how these tools work with different subject matter and different learners, we can select the most appropriate tool for each task. This study compares three tools used for discussion on the web. The results are a valuable starting point for instructors and instructional designers.

Let's share:

How different online platforms support learning communities, collaborative learning and discussion

Lane Clarke

Abstract

The purpose of this study was to investigate how three (3) different online discursive platforms – threaded discussions, voice thread, and Blackboard Collaborate—impacted the types of conversations that students had around content and with each other. Students were given a group assignment to create a PowerPoint on a given topic and then share it with the class as a whole class discussion. Groups were assigned one of these three platforms to conduct a group discussion. In order to better understand how the design of the environment supported student learning and community building, I conducted a multi-layered analysis that gathered student input about the affordances and constraints of each platform, analyzed the interaction patterns supported by each, and examined the tone of the discussions facilitated by each platform. This study revealed that while the student preferred the ease and familiarity of one of the platforms, the choice of the tool did impact the type and tone of the discussions and that we should better understand how the instructional design decisions we make impacts different ways of sustaining learning communities, collaborating and discussing content.

Keywords: learning communities, collaborative learning, online discussion, learning platforms, interaction patterns, higher education, online pedagogy

Introduction

About a decade ago I moved many of my face to face classes online. I jumped into this new way of teaching with gusto as I moved all of my content into a learning management system and thought about how the content would be learned by my students through this new medium. Once I got through the initial learning curve, my interest in *what* I was going to teach shifted to *how* I was going to teach. I started to realize that the how of learning was just as crucial and in many ways more important to my students' success in my courses. I began to explore many different technology tools, ways to discuss, differences between blogs and wikis, videos vs. screen captures, synchronous vs. asynchronous, and small group vs. whole group activities. I immersed myself in thinking about how online teaching could chart new territories and support innovative pedagogical approaches to learning.

While I was getting excited about designing new ways to teach, Norton and Hathaway (2008) point0ed out that while there is growing popularity of online learning as a mode for education there has not be a simultaneous shift in the new creation of pedagogical approaches to learning. This made me think about how we need to be innovative, critical, and reflective in thinking about how online pedagogy can chart new territories not just replicating the traditional modes of learning just with new technology. Norton and Hathaway assert that "a bold new view of learning and schooling is needed—one that is not only research-based but also research-validated" (p.476). It is important that we look closely at pedagogy online—not just the content but the process of

how learning occurs and what tools can we use to support/encourage/facilitate this learning. This study is situated in this *how* of learning, specifically how we can use technology to support what we know about good learning environments and then how can we use research to validate these approaches.

Literature review

This study draws upon research around what we know about *learning communities*, the importance of *collaborative group work* and how *online discussions* support these learning opportunities.

The importance of learning communities

A learning community is the vehicle through which powerful learning occurs. Paloff and Pratt (2007) emphasize that, "key to the learning process are the interactions among students themselves, the interactions between faculty and students, and the collaboration in learning that results from these interactions" (p. 4). We need to be very deliberate when creating opportunities for these interactions, especially in a space that intuitively encourages us to work on our own. Oliver, Harrington, Harrington, & Reeves (2007) assert that even though research has found that building learning communities is one of the most important elements to successful online learning, many instructors do not value this highly and perhaps this is due to the fact that they don't know how to support these communities online.

In my field of teacher education, there has been some research validating the importance of learning communities. Dunne, Nave & Lewis (2000) found that participation in learning communities not only results in changes to teaching practices but also increased teachers' involvement, ownership, innovation, and leadership. Furthermore, Sheer et.al. (2003) found that through participating in professional online communities, teachers met new colleagues and enhanced their knowledge of teaching. It was important to me to embrace the power of learning communities for my students who were practicing teachers—not just to engage them in the content of the course but also to encourage interaction with others from whom they could learn.

Collaborative learning and its role in online learning

In the sociocultural view of learning – social interaction is important (Vygotsky, 1978, Wertsch, 1991). Collaborative learning relies upon social interaction and is defined by the amount of communication, interaction, and reflection that takes place between members of a learning community. In their research, Oliver, Harrington, Harrington, & Reeves (2007) reinforce that there is a continuum of collaborative learning where the most collaborative is when interdependence is required for success. Researchers in online learning have examined different influences in collaborative learning such as:

- Group composition
- Size of group
- Nature of task
- Characteristics of participants
- Role of instructor
- Interaction patterns

One area though that has been under represented in this research is the actual platform or technology tool through which these collaborative activities take place in an online setting. Ioannou & Stylianou-Georgiou (2012) conducted a study where they created a mashup of two platforms—a threaded discussions and a wiki and investigated how this new platform fostered a collaborative learning experience for their students. They found that the format (either a Wikisplit

or a WikiThread) did impact the types of collaborative discussions that took place. The Wikisplit enabled the sharing of diverse ideas and a higher level of integration of materials due to the single screen supporting this discussion. The Wikithread platform had multiple screens for students to navigate and thus hindered the collaborative experience. The Ioannou & Stylianou-Georgiou (2012) study explored how the platform itself was a contributing influence to student collaboration. This current study also examines the impact of the platform on discussion and collaboration, but used traditional technology tools rather than mash-ups to do so.

Importance of discussions as part of the learning communities

Asynchronous written discussions are a way to facilitate collaborative dialogue, build a learning community, and socially mediate learning. Carr-Chellman & Duchastel (2000) define an ideal online course and assert that asynchronous discussions should be a feature as they believe that "students in fact learn as much from one another's experiences as they may from a textbook" (p. 236). Haggerty et. al. (2001) also found that online discussions promoted greater cognitive and exploratory learning while Rovai (2004) found that discussions support more student-to-student conversation and collaboration. Peterson and Slotta (2009) also agreed that written communities are a significant form of communication and even can be seen as a pedagogical advantage as both the students and the instructor have increased accessibility to all students' thinking about the topics. Following this train of thought it makes sense that in an online learning environment much of the social learning would take place through the vehicle of these asynchronous discussions and therefore these discourse communities provide the focal point of social learning in practice.

Although online discussions are a major part of many online courses, it has been recognized that there may be different and more effective ways to structure these discussions. Gao, Zhang, & Franklin (2013) analyzed different formats for discussions and emphasized the importance of aligning the purpose of discussions with the design of the online environment that supports it. They assert that we "need to identify and develop new types of discussion environments that best support the purposes of learning" (p.478). Similar to the Ioannou & Stylianou-Georgiou (2012) study, the investigation of different online discursive environments is what is explored in this study.

Research questions

Thinking about the importance of learning communities and the desire for effective collaboration and engaged communication forced me to think more deeply about how my classes were designed and the implications that my design choices had on my students' learning. The purpose of this study was to better understand how three (3) different online discursive formats impacted the types of conversations that students had around content and with each other. I wanted to better understand how the design of the environment supported my learning objective. The task that I was exploring was group presentations. The learning objective of the assignment was that through group presentations students would interact with both the content and each other to achieve a greater understanding around a topic. The group presentations were conducted through three different platforms: Voice thread, Collaborate (live synchronous web sharing) and an asynchronous threaded discussion. The questions that drove my research were as follows:

- What do the students see as the affordances of each platform?
- What do the students see as the challenges of each platform?
- What are the interaction patterns supported by each platform?

I hope that this research will add to the growing literature and understanding about how discursive interactional patterns are supported in different online settings. As we learn about new ways to interact we need to investigate how different platforms impact different ways of

sustaining learning communities, collaborating and discussing content. I believe that this investigation will continue to help us better understand effective online pedagogical practices to enhance learning and think more deeply about how we teach and our instructional design choices and their impact on student learning.

Methods

Data for this study was collected in two sections of the same course taught by two different instructors. Each course had approximately 25 students. The course was a master's level literacy course in teacher education. For the assignment there were five topics that students had to research with their group. Each group then created a PowerPoint presentation that they shared with the whole class. The discussion that supported the presentation occurred in one of three ways: threaded discussion, Collaborate, and voice thread. The instructor assigned each group the platform they were to use to share their presentations. Altogether four (4) groups used threaded discussion, two groups (2) used Collaborate, and four groups (4) used voice thread (Figure 1).

Topic of Presentation	Format for Class C	Format for Class G
Culture and race	threaded discussion	threaded discussion
English language learners	Collaborate	threaded discussion
Students with disabilities	voice thread	voice thread
Gender	voice thread	voice thread
Social class	Collaborate	threaded discussion

Figure 1: Group assignments

All of the discussions were analyzed both *quantitatively* and *qualitatively* as part of a comparative analysis. Students were given a survey to get their input on how they perceived the three different types of discussions. The descriptive data analysis included examining the length of posts and length of comments as well as analysis of the student survey results. The qualitative data included a discourse analysis with coding around themes of engagement with the content as well as engagement with each other. Other comparative analysis techniques included the coding of surveys for themes and creating a participation matrix of engagement. The layering of multiple analyses allowed for a richer understanding of the differences in the way that these three platforms supported different types of group discussion.

Results

The results are presented around three categories of analysis. First, the descriptive data from the surveys is presented. This data speaks to the students' perceptions of the three different platforms and their perspectives around the affordances and constraints of each as well as how each of these platforms contributed to their engagement in the content and with each other. Next, I share the participation patterns that emerged from analyzing these discussions. This gives some insight into how each platform supported different types of conversations and community building. Finally, I briefly present themes of discussion and how each platform facilitated a different tone of discussion.

Descriptive survey data: What do the students say?

Students were surveyed about their preferences between the three different discussion platforms. There were two parts to the student survey. The first section asked them to rate each platform:

voice thread, threaded discussions, and Blackboard Collaborate. The students rated each of these on a five point scale: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. The tables presented (Figures 2-6) indicate only the ratings for only the Strongly Agree and Agree indicators.



Figure 2: The discussion using _____ made me feel like a part of a *learning community*.



Figure 3: The discussion using _____ allowed me to grow my knowledge about literacy.



Figure 4: The discussion using ____enabled me to feel like I could clearly communicate my thoughts about this issue.



Figure 5: The discussion using ____ helped me to be *engaged* in the presentation.



Figure 6: Rank your favorite way to participate – 1 is most favorite and 3 is least favorite.

The second part of the survey asked students open-ended questions about each of these platforms specifically around what they liked about each of the platforms and what challenges they had with each. The following Figures (7-9) summarize the student responses and include frequency counts of how many students gave the same or similar responses.

What do the students see as the affordances of each platform?	What do the students see as the challenges of each platform?		
Conversation with a group- 6	Too normal/boring- 3		
Having time to think- 4	Lots of reading-3		
Own time-3	Less interaction- 2		
Back and forth discussion- 3	Didn't allow comments during		
Small group-2	presentation-2		
Easy and familiar-2	Didn't get to hear classmates		
Art of writing-1	Commenting vs. discussing-1		
One format-1	Technology-1		
Summarize-1	Hard to review-1		
	Not collaborative- 1		

Figure 7: Threaded discussion open ended responses

What do the students see as the affordances of each platform?	What do the students see as the challenges of each platform?
Convenient/own time and pace- 7	Technical challenges- 8
Choices of responding- 7	Lenghty-4
Comments on each slide- 3	Slides/text cut off- 3
Interacting with peers- 3	Unengaging-1
Seeing everyone's thoughts- 3	Slides hard to see-1
New technology-2	Many did not use voice/video comment-1
Personalize- 2	Overhwhelming-1
Easy to add comments- 2	Time consuming-1
Visual-1	No back and forth discussion-1
More realistic feedback-1	

What do the students see as the affordances of each platform?	What do the students see as the challenges of each platform?
Meet classmates-9	Technology-10
Felt physically present-4	Certain time-7
Could add in real time- 3	Keeping up with the chat-4
Chat feature-2	Not as much time-2
More collaborative-1	
Interactive-1	
More realistic-1	
Summarize a long PowerPoint-1	
Real input-1	

Figure 9: Collaborate open ended responses

Participation Patterns: What do these discussions look like?

Another level of analysis was how these discussions looked. By creating a participation matrix, patterns of participation could be revealed to add another layer to understanding the differences in these three platforms.

Threaded discussions

When groups used threaded discussions they would post their PowerPoints to a new forum. Classmates were required to view the presentation and then have a discussion within the threaded discussion forum. The participation pattern in the threaded discussion was very linear. The group would post the PowerPoint which would receive consecutive comments about the presentation as a whole. There was little back and forth conversation and the majority of comments were aimed at the presentation as a whole. A typical discussion using this platform looked like a straight chain of comments (Figure 10).



Figure 10: Participation pattern of threaded discussion

Voice thread

When groups used voice thread they would post their PowerPoint to a class voice thread account. From there, classmates could view the entire PowerPoint but could add comments on each slide either through text, video, or audio. The participation flow for the voice thread discussion was different. Because groups were able to put there whole PowerPoint slide by slide on voice thread students were able to comment on individual slides rather waiting until the whole presentation was viewed before contributing to a discussion. While there still was little back and forth discussion, the comments were more specific to individual parts of the presentation and lead to a deeper understanding of the content vs. comments that were made on the whole presentation. A typical voice thread discussion while still linear, was split into more individual pieces (Figure 11).



Figure 11: Participation pattern of voice thread

Blackboard Collaborate

When groups used Blackboard Collaborate they had to log onto a live online presentation tool that is part of our Learning Management System. They viewed the PowerPoint in real time presents by the group members themselves. The participation flow for Blackboard Collaborate was made more complicated by the chat box feature. During the live presentation there were two different types of discussion that were supported through this platform. First, there was the live sharing of the group PowerPoint. Similar to the voice thread, students could make comments on individual slides during the presentation rather than commenting on the whole presentation like they did with the threaded discussion. However, in addition commenting on specific slides or topics, there was also a simultaneous chat box that they students used throughout the whole presentation. This was a place where students tended to engage in more back and forth discussion and had more of a real collaborative discussion (Figure 12).



Figure 12: Participation pattern of Collaborate

Themes of discussion: What do these discussions sound like?

The last level of analysis was to understand the types of discussion that were being supported through each of these platforms. In doing this I looked at what the students said to each other in the discussions. For this study, I only used codes that indicated engagement with the content and with each other (Clarke, & Bartholomew, 2014). In the threaded discussions, there were a lot of very positive and encouraging comments on the presentations. As mentioned above, student comments really focused on the presentation as a whole rather than individual points made in the presentation. Many students used this presentation to connect to experiences that they had in their own lives and used the threaded discussion forum as an opportunity to share these experiences. There was little questioning or challenging as the threaded discussion platform supported surface level engagement around this presentation. For example many of the comments sounded like the following:

- "Your presentation was very informative. We don't have many ELL students in my class but...."
- "This is the first year that I have had an ELL student ... thank you for such an informative and beautifully presented presentation".
- "This presentation offered a lot of important information and useful resources that I want to spend more time looking at! The most important information I took away from this presentation is"

The voice thread discussion also had a positive tone with many students engaged in complimentary and affirmative comments about the presentation. One difference however was that because the students could comment on individual slides this lead to more specific connections and reactions from students about specifics in the presentation rather than the presentation as a whole. For example many students referred to individual points or slides such as:

- "I love your point that many standardized tests"
- "This slide hit home with me. Last year, 10/16 of my students were boys"
- 'In the third article that you reference you mention the phrase "differently literate." ..."
- "This slide was really well done. I find it interesting that two of the articles ..."

Finally, the Collaborate discussion was also positive and similar to the voice thread in that students were able to comment on individual parts of the discussion as it was happening. However, unlike the other two platforms, there were more questions and probing of topics by students both through the comments made during the presentation as well as through the ongoing chat box discussion that was occurring simultaneously during the presentation. This also became a way for students to talk back and forth to each other. For example in the presentation around ELL students, one student asked a question to the group in the chat box and the responses from the group members caused the discussion to go in a different direction:

Student One 8:43 PM

I learned a lot as I put slides into this presentation. It is amazing how many ELL students we have and the fact that this rate is rapidly growing is an even more important reason to learn as much as possible about helping these students become the best readers they can be. (Student Name), did little girl speak any English? Was she present in the meeting?

Student Two 8:43 PM

That is a good question! I have had that problem in the past as well. It has always been a struggle

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Student Three 8:43 PM
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I had a difficult time with translation. We used our cell phones

Student Four 8:43 PM

We have the translator sit with the teacher, parent and child

Student Five 8:43 PM

I would try getting the child involved in the translating and discussion if at all possible Student One reflected on creating the presentation and then used this to ask a question to another student. Others chimed in with ideas and this continued for a while until some other ideas were shared (later on in the conversation there were more ideas shared on this topic).

Limitations

While the results to this study led me to think deeper about the way I approach instructional design it is important to recognize that there are limitations to this specific study. First, the data set that I worked with was small. There were only 50 students enrolled in these two courses and therefore it is hard to make generalizations based on such a small sample size. Also the classes were master's level teacher education courses which draw a very specific population of student and these results may look different with a different population of students and different topics of discussion. Furthermore, I did not have equal sets of data. For example, there were 4 groups that used voice thread and threaded discussions but only two groups that used Collaborate. All of these reasons are important limitations and do impact the ability to make broader statements. However, I did not set out to understand these instructional platforms in all of their uses and with greater populations. My goal was to understand how these platforms impacted my specific learning objective. While I recognize that this study is narrow in scope, my goal is sharing my findings to inspire others to also dig deeper to understand the instructional decisions that they make. I believe that these conversations-even on the micro scale-are important to engage in as they push us all to think about online pedagogy as we continue to shape this new teaching environment and create meaningful learning experiences for our students.

Discussion

The goal of this research was to better understand the implications of what platform I used to support learning community, collaborative learning and discussion. I went into this research hoping that I could find the perfect tool that would support all three of these desired outcomes. I was hoping that by thinking critically about how I structured the assignment I could improve the learning. I was surprised by what I learned. First, I realized that students appreciated the ease and familiarly of the threaded discussions. While student preference is important, I was also surprised to learn that the discussions supported by this platform seemed to be the least complex and did not promote the level of engagement or collaboration from my perspective. I also was interested to realize that the types of discussion were very different given the platform that I chose. As a result of the design of the platform, the students' entry points into the discussion varied and this impacted the types of conversations that they had in each presentation. Finally, I went into this with the belief that one of these platforms have different affordances and constraints and that I need to better understand these in order to align them with my specific objectives for the learning.

Students preferred ease and familiarity

Through the student surveys Threaded discussions rated highest on helping students feel like part of a learning community, be engaged in the presentation, grow their knowledge of the topic, and was their overall favorite way to participate. Students liked that the Threaded discussions allowed them to have a conversation and have time to think own their own time. One student asserted that leaving comments made her an active learner and the time allowed her to gather her thoughts and review and reread her post before she hit send. To the students the threaded discussion felt more "discussion" like, however some students felt that it was too boring and was a lot to read.

Voice thread was the second favorite choice by students. Similar to the threaded discussions, voice thread was not done in real time and therefore enabled students to view and post on their own time and pace. Some students really liked that voice thread allowed them to choose how they interacted—either through text, audio, or video and liked learning about new technology. A few students liked seeing everyone's thoughts especially appreciated that they could comment on each slide. However, Voice thread's biggest complaint was that there were technical challenges and a steeper learning curve for students as this was not a tool that they used frequently. Some also saw this as too lengthy and time consuming. This was not perceived as a back and forth discussion but students did feel like it gave more realistic feedback to the group doing the presenting.

Collaborate was the least favorite choice by students, however many students commented that this felt as close to being in a class as possible in an online environment. They felt more physically present. They liked "meeting" their classmates and liked to add comments in real time. While these were perceived as positive qualities technology was a big issue and many students pointed to the fact that the technology did not work or was frustrating to them. They also did not like having to log on during a certain time and some students found the chat box overwhelming to keep up with.

The threaded discussion felt the most familiar and comfortable to students. Students in these classes were used to the threaded discussions as they were used frequently in the classes. They had less technical problems and already knew their way around this platform. They relied on this platform most frequently as a discussion tool and therefore, I was not surprised that this was rated as their favorite platform for discussion.

The choice of the tool impacts the type of discussion

I went into this assignment looking for a way for group's to share their findings to educate each other and build a sense of community. All three of these platforms resulted in positive conversations but the type of discussion and the depth of conversation was impacted by the format of the discussion. The threaded discussions supported a linear discussion where students contributed mainly to the group presentation rather than to each other. This resulted in the sharing of many stories and experiences around the topic as a whole. The way that Voice thread was set up students could respond to individual slides which changed the tone of the discussion from a global overview to discussion around more specific topics. This enabled students to dig a little deeper into different aspects of the presentations. However, due to the layout of voice thread the students were not able to respond back and forth to each other in this format but rather just share their own ideas and experiences on each slide. While breaking the presentation into smaller segments enabled a deeper layer of discussion, the lack of back and forth discussion hindered further community building and probing through topics. Finally, in the Collaborate platform students were able to comment one of two ways. They could either raise their hands to talk to the group or they could participate in the chat box. The chat box was a very popular way to communicate and many students used this option to discuss topics as they were being presented. Students were able to probe into issues and topics in real time and also challenge and question each other. Even though the students reported preferring the threaded discussions from an instructor point of view the Collaborate Platform's discussion was the closest to meeting my objective of deepening understanding of content and connection with each other.

Variety of ways to engage students

I went into this study thinking that one of these platforms would yield the best result and align most closely to my learning objective for the assignment. I found however those overall students liked having a variety of ways to collaborate in this course. One student said" I enjoyed the varied formats that were utilized as this kept me engaged and expanding my knowledge of presentation tools". Many of them responded that the variety was a plus and liked the many ways to communicate. I was looking for what way was the best came to understand that having multiple ways is equally important to keep things engaging. Although students liked having a variety of tools to learn, one complaint however that was they did not get to choose which platform to which they were assigned. This student's comment made me think more about how I could differentiate the choices so that students could possibly select the type of platform that worked best for them. Also, as a result of these findings I began to think more critically about the types of assignments I give and how I engage my students. Perhaps there are some times when having a linear discussion on a broad topic may be more preferable and therefore I would choose a Threaded discussion to support this objective. There may be some topics or assignments that would be better suited to a more dynamic multiple format discussion that is supported through Collaborate. Thinking through my learning objectives and matching these objectives to the strengths of a platform will enable more productive and successful learning opportunities.

Conclusion

It is important that we as teachers and researchers engage in reflection and analysis of our individual teaching practices. It is also necessary for us to share these as a part of a conversation as a whole in order to shape and propagate innovative online teaching pedagogy. This collective effort will continue to advance what Norton & Hathaway (2008) call a "bold new view of teaching and learning ..." (p. 476). Hopefully this bold new view will include thoughtful consideration around building learning communities, supporting collaborative experience and facilitating effective discussions. One piece of this conversation needs to be rooted in the instructional design choices that we make and understand their implications. This study adds to

the research around these design considerations and explores how the use of different platforms impacts learning objectives and student experience. I hope that this is one of many more studies on this topic to come.

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Editor's Note: Learning technologies require a transformation in the way a University operates, particularly with respect to funding. When you buy a car, you need training, a license, roads to travel, money for fuel and maintenance. It requires careful planning and a substantial investment of time and money to equip libraries, laboratories and classrooms with computers and peripherals, software, networks, and connections to the internet. Add to this: training for faculty and students, software, applications such as Word and Excel, persons to assist users and technicians to troubleshoot and maintain equipment. Also, plan for obsolescence. The useful life of computers and software is about five years assuming you buy medium priced equipment.

Evaluating the convenience of content delivery to distance learners of the University of Nairobi

Ouma Omito and Florence Yambo Odera

Kenya

Abstract

The study seeks to investigate the convenience of course delivery to distance learners. A specific objective was set to guide the study: to investigate the convenience of distance learning courses of the University of Nairobi to distance learners. The target population was 500 students of the last cohort of the External Degree Programme of the University of Nairobi. A sample size of 217students was drawn using a table provided by Krajcie and Morgan 1970. A well designed questionnaire whose validity and reliability was tested by subject area experts was used. The following were the findings: 86 (74.9%) students had no access to computers. This implied that majority of the students had a very low access to computers. Similarly, on access to the computer labs of the University of Nairobi, it was found that majority of the students 68 (59.2%) disagreed with the fact that computer labs of the University of Nairobi were adequate for student's learning purposes. It was also found that majority of students, 56 (48.6%), agreed that their local area of residence did not have access to the internet. 84 (73.0%) students agreed that the cost of internet from the cyber café was expensive for students. 72 (62.6%) students disagreed that it was cheap to buy/own a computer for distance learning. Hence, the researcher concluded that computer hardware and software were unaffordable for B.Ed (Arts) students. It was therefore concluded that both the institution (University of Nairobi) and students still lacked the capacity for effective and convenient distance learning.

Keywords: Convenience, distance learning, distance learning access, distance learning content and support, extra mural studies, distance education, geographical location, e-learning capacity, external degree programme, education.

Background of the study

The growing digital divide is actually leading to greater inequalities in development. This gives rise to paradoxical situations in the External Degree Programme of the University of Nairobi where those who have the greatest need for distance learning (the disadvantaged groups, rural communities, illiterate populations or even entire country) do not possess or have access to distance learning tools that would enable them to become fully fledged members of the knowledge society (UNESCO, 2002).

Under the University of Nairobi Act of 1985, six distinct colleges were established (University of Nairobi, 2013) .These were College of Education and External Studies (CEES), College of Agriculture and Veterinary Sciences (CAVS), College of Architecture and Engineering (CAE), College of Biological and Physical Sciences (CBPS), College of Health Sciences (CHS) and College of Humanities and Social Sciences (CHSS). As early as 1966, there was an Act of Parliament which was intended to establish the Board of Adult Education (Anyona, 2009). The University of Nairobi under the College of Education and External Studies established distance

learning programme in 1986 (Odumbe and Kamau, 1986) and so far the enrolment is over 3000 students (Bowa, 2011). To bring learning closer to the distance learner's environment, extramural centres were established in all corners of Kenya (Odumbe and Kamau, 1986).

In the years 2006 and 2007, the University of Nairobi trained lecturers of Bachelor of Education (Arts) to technology driven education and ways to design online courses for distance learning students. In the year 2006, 15 lecturers were trained. In 2007, an additional 15 lecturers were trained (ICT Centre, University of Nairobi, 2009). The training was meant to popularise e-learning among students and lecturers. However, the records showed that no Bachelor of Education (Arts) students from the School of Continuing and Distance Education had been trained (ICT Centre, University of Nairobi, 2009).

Further, to decentralise e-learning, the University of Nairobi connected all of its campuses to an intranet and the internet. At least one computer laboratory for students was established on each campus.

As knowledge and technology evolve, materials from the traditional sources of information and textbooks used in learning institutions become obsolete in a shorter time; it is consequently becoming difficult and expensive to adapt them to the specific contexts (Gunga and Ricketts, 2006).

Statement of the problem

Based on the information given under the background of the study, it is evident that the University of Nairobi is committed to decentralize distance learning to students to their places of convenience. Several extra mural centres of the University of Nairobi have been introduced in different parts of Kenya. Development of e-courses is also on the rise. But are these distance learners receiving distance learning content at their places of convenience?

Objectives of the study

The main objective of this study was to investigate the convenience of distance learning courses of the University of Nairobi to distance learners.

Research questions

The following research questions were developed to guide the study:

Do Bachelor of Education (Arts) students of the University of Nairobi have access to distance learning content?

Does the e-learning program of the University of Nairobi take into account the geographical and economic status of B.Ed. (Arts) student of the University of Nairobi?

Literature review

Situational barriers relate to the learner's environment and life's circumstances (Mungania, 2003). Life circumstances such as lack of time for studies, time management issues, prior commitments to multiple roles and responsibilities, interruptions during study (whether at home or at work) also loom large amongst the factors that inhibit uptake of e-learning. For potential e-learners without a home computer resource, one-to-one e-learning support must be built in as a fundamental component of training. According to a piloted online training for mature workers affected by drought, it was found that trainees new to information technology required hands-on direct assistance that by-passed the internet (ACSA Literature, 2008).

Mungania (2003) noted differing results from research in regard to the effects of low levels of education. Her own finding was that a low level of education was not a barrier to the success of elearning uptake. She found out that having a higher level of education does not necessarily mean that one must be a successful online learner and this may be a specific case with Bachelor of Education (Arts) students of the University of Nairobi. Other factors considered by Mungania (2003) in relation to e-learning uptake included work position/status, location of study and prior e-learning experience (ACSA Literature, 2008).

Murray (2000) discovered that 96 % of Canadian employers believe that ICT will be effective in dealing with employee skill gaps. Support for specific aspects of ICT for learning through work was much less dominant. 25 % of employers, for instance, believe that "improved just-in-time learning" is the most important reason to use e-learning technologies and 13% of employers said the top reason for using learning technologies was "improved employee control over learning" Murray (2001), asserted that 'e-learning has the potential to transform how and when employees learn. Learning will become more integrated with work and will use shorter, more modular, just-in-time delivery systems' At the 2002 e-learning conference of the Ontario Society for Training and Development, the cost benefits of e-learning, such as reduced time for training, no or less travel and accommodation costs, were very prominent.

Lack of e-learning skills, low educational completion levels, computer literacy and prior elearning experience are often seen as the strongest barrier to mature-age workers taking on ICTbased training. However, both Bowman and Kearns, and Mungania, found that lack of confidence, or a low sense of self-efficacy, is actually a more critical factor affecting the uptake of e-learning. Self-efficacy is not concerned with skills but measures 'the judgements of what one can do'. 'Highly self-efficacious students (are) usually quicker to discard faulty strategies and display more positive attitudes towards a subject' (Mungania 2003: 39).

When self-efficacy is actively fostered in e-learning programs, e-learning skills can be learned even by mature learners with low educational levels and little or no previous e-learning experience. Mature-age e-learners do not need or want to become ICT 'wiz kids'. Mastery of a limited range of task-specific skills will equip them quite adequately for successful e-learning (ACSA Literature Review, 2008).

Methodology

Research design

The research design used in this study was survey: A survey is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables (Mugenda and Mugenda, 2003). The survey design was suitable because it was characterized by a systematic collection of data from members of a given population.

Target population

Borg and Gall (1998), define "target population" as all of a real or hypothetical set of people, events of objects to which a researcher generalizes the results of the research study. The target population for this study consisted of the final group (part 6) of the Bachelor of Education (Arts) External Degree students of the University of Nairobi. This population was 500 students.

Sample size and sampling procedure

This section describes the procedure used in sampling and gives the sample size for the final group of Bachelor of Education (Arts) students from the University of Nairobi External Degree Programme. To determine the sample size, both probability and non-probability sampling techniques were used. Non-probability sampling was used to pick part 6 from the rest of the parts (1, 2, 3, 4 and5). For an appropriate sample size of distance learners, a table provided by Krejcie

and Morgan (1970) was used. Table 1 gives the required the sample size for various population sizes. The total number of students for this (part 6) cohort was 500. This was inclusive of drop out cases. According to the table provided by Krejcie and Morgan (1970), the sample size for this study was 217 students. Since the population was not homogeneous the researcher used simple random sampling. This involved random selection of the respondents provided they were members of the group under study (Weirsma, 1969).

Table 1 Study Population

Target Population	Study Population	Sample Size	Percentage
Distance-learning students	500	217	43.3

Research Instruments

Since the research design is survey, the researcher used a questionnaire. A questionnaire is a data gathering instrument used when factual information is desired (Best and Khan, 2003). It was important for this study because the researcher administering the instrument had an opportunity to establish rapport, explain the purpose under study, and explain the meanings of items that were not clear. The researcher used a closed questionnaire for this research. The questionnaires were administered to 217 distance learning students. The questions asked were centred more on feelings of students on their comfort with the use of technology for learning.

Instrument validity

According to Weirsma (1969), validity refers to the extent to which the instrument reflects the behaviour under study. It involves a systematic investigation of the instrument's items to determine whether or not they make up a representative sample of behavioural dimensions or traits to be measured. Content validity is a measure of degree to which data collected using a particular instrument represents a specific domain of indicators, content or specific concepts (Mugenda and Mugenda, 2003).The content validity was picked for use in this study as it was based on the results and comments of the pilot study.

Instrument reliability

Reliability of the instrument is the degree of consistency that the instrument demonstrates (Best and Khan, 1998:276). Weirsma (1966) says reliability means consistency of the measuring instrument. Rose and Stanley (1954), refer to reliability as the degree to which an instrument agrees with itself. An instrument is reliable when it can measure the variables accurately and consistently and obtain the same results under the same conditions over a period of time. According to Njagi (2013) in his doctoral thesis, a test must be valid in order for it to be reliable. For this research, a pilot study was conducted on some External B.Ed. (Arts) students from the last cohort that aimed at indicating reliability on the questionnaire. The internal consistency of data was determined from scores obtained from single test that the researcher administered to indicate whether the questionnaires were reliable tools for this research.

Data analysis techniques

The researcher used a number of statistical methods to analyse the collected data. The data was analysed by each research question asked. The researcher also used frequencies, tables, percentages, mean score and total scores.

Ethical considerations

A research permit was obtained from the Ministry of Science and Technology. A copy of this permit was presented to the Dean, School of Continuing and Distance Education, University of Nairobi. All respondents were assured of confidentiality and security. Ethical issues were considered in all components of this research. There was no academic theft. All sourced data and information were properly cited and referenced.

Data analysis and interpretation of findings

Research question 1: Do Bachelor of Education (Arts) students of the University of Nairobi have access to distance learning content?

The researcher perceived barrier to e-learning access and used the following declarative statements to seek opinions from the respondents:

Bachelor of Education (Arts) student frequently accesses computers for learning purposes.

Computer Labs of the University of Nairobi are adequate for B.Ed (Arts) student's learning purposes.

The respondents were then required to Strongly Agree (SA), Agree (A), Undecided (U), Disagree (DA) and Strongly Disagree (A). The following were the responses:

Student access to e-learning							
		SA	Α	U	D	SD	Total
1.Bachelor of Education (Arts) student frequently accesses computers for learning purposes	F	5	14	10	44	42	115
	%	4.3	12.1	8.7	38.3	31.3	100.0
2.Computer Labs of the University of Nairobi are adequate for B Ed	F	9	16	22	35	33	115
(Arts) student's e-learning purposes	%	7.8	13.9	19.1	30.4	28.8	100.0

Table 2 Student access to e-learning

From Table 2, it is observed that 19 (10.4%) of students had access to computers for learning purposes; 10 (8.7%) students were undecided; 86 (74.9%) disagreed. This implied that majority of the students had a very low access to computers. The fact was supported by the findings of Gunga and Ricketts (2006) that the problem in Africa is not the mere absence of e-learning programmes but also the inability to gain access to the few that exist.

Similarly, on access to the computer labs of the University of Nairobi, it was found that majority of the students 68 (59.2%) disagreed with the statement that computer labs of the University of Nairobi were adequate for student's learning purposes; 22 (19.1%) students were undecided; 25 (21.7%) students agreed. In support of the findings, Yieke (2005) found that there is scarcity of computing resources and most African Universities can neither afford them nor cope with changes in terms of costs and relevance since technology is highly dynamic.

Research question 2: Does the e-learning program of the University of Nairobi take into account the geographical and economic status of B.Ed (Arts) student of the University of Nairobi?

		SA	Α	U	D	SD	Total
1.The geographical area of B.Ed (Arts) student is not covered by the	F	28	28	25	24	10	115
internet	%	24.3	24.3	21.7	20.9	8.7	100.0
2. The cost of internet from a cyber café is expensive for B.Ed (Arts)	F	56	28	9	18	4	115
student	%	48.7	24.3	7.8	15.6	3.6	100.0
3. The cost of computer hardware and software are affordable for B.Ed	F	13	17	13	36	36	115
(Arts) student	%	11.3	14.8	11.3	31.3	31.3	100.0

Table 3Responses on students' economic and geographical status

Table 3 presents data on the extent to which e-learning takes into account the geographical and economic status of B.Ed (Arts) students of the University of Nairobi. It was found that majority of students, 56 (48.6%) agreed that their local areas of residence was not covered by the internet; 25 (21.7%) students were undecided; 34 (29.6%) students disagreed. From the given findings, it was found that internet coverage in most regions in Kenya was still low. In support, Mutula (2003) found that inadequate computers and network coverage in Kenya has led to limited access to education.

84 (73.0%) students agreed that the cost of internet from the cyber café was expensive for students; 9 (7.8%) students were undecided. 22 (19.2%) disagreed. Hence, from the findings it was clear that the cost of internet from the cyber café was expensive for B.Ed (Arts) students. In support, Twinomugisha, Magochi and Aluoch (2004) found that internet connectivity in tertiary institutions in Africa is inadequate and expensive.

30(26.1%) students agreed that computer software and hardware were affordable for students; 13 (11.3%) students were undecided; 72 (62.6%) students disagreed. Hence, it was found by the researcher that computer hardware and software were unaffordable for B.Ed (Arts) students. The findings were supported by the National Centre for Education Statistics (1998) whose research findings showed that African Americans did not use computers because they were expensive and their salaries were low.

Conclusion

Access and cost of distance learning are critical factors in the organization of any distance learning program. Based on the findings of this research, it can be concluded that University of Nairobi still needed to do a lot of preparations for better, responsive, accommodative and timely distance learning. The research therefore proposed the establishment of active distance learning centers, provision of necessary e-learning facilities and distance learning infrastructure, and adequate sensitization of distance learning including the provision of adequate IT orientation to distance learners.

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Editor's' Note: This study takes a different approach to instructional design and reporting it as a research report. This is a valuable way to capture information, and represents a step forward in integrating feedback step-by-step in instructional design and development.

An Autoethnography: designing a veteran recruiting training program Nirupama Akella USA

Abstract

The influx of US military veterans in the country has propelled the number of US veteran recruiting programs. In this autoethnographic paper, the author explores the process of developing a sound veteran recruiting training program based on fundamental learning theories of andragogy, adult learning, and Kolb experiential theory.

Keywords: US veteran, recruiting, andragogy, Kolb experiential theory, adult learning, autoethnography, schema, instructional designer

Introduction

US employers struggle to find trained qualified personnel to fill their organization ranks every year (Bureau of Labor Statistics, Department of Labor, 2013). There is a pre-conceived negative bias against 'returned' military trained personnel that keeps private sector organizations from successfully recruiting them (Stone & Stone, 2015). Specialized veteran recruiting and training programs at Amazon, General Electric, Wal-Mart, and Charles Schwab have failed to make an impact (Harrell & Berglass, 2012). In 2012, more than 10,000 military trained truck drivers found themselves jobless (Prudential, 2012). The failure of such programs could be attributed to the disregard of adult learning principles and lack of sound current instructional design assumptions (Allen & Sites, 2012).

In this paper the author writes an autoethnographic account of her journey when designing a successful training program based on contemporary adult learning and instructional design learning principles. Through her autoethnographic account, the author attempts to provide a blueprint of the cognitive and theoretical framework needed to design a comprehensive veteran recruiting training program. The blueprint will enable future instructional designers and training departments to design sound veteran recruitment training programs, aid recruiting teams to hire the right people for the right job, and lead to organizational effectiveness and success.

The author divides her paper into two sections. The first section highlights the methodology being used, while the second section details her training design with respect to instructional design and adult learning principles. In her last section she provides a summative conclusion.

Autoethnography

The author chose the qualitative research method of ethnography which is defined as a 'written description that focuses on selected aspects of how people lead their routine (or remarkable lives) in their environment and the beliefs and customs that comprise their common sense about the world" (Muecke, 1994, pg. 189). Autoethnography as a research method was a mutant or a further dimension of ethnography. The difference was that instead of focusing on a group of people; the focus is personal and individualistic. It is the study of personal and biographical documents that provides information about the structure, culture dynamics, and function of the individual by the individual, wherein he/she traces their cognitive process and guide readers on

their journey to closure (Vickers, 2007). The story depicted the emotional and cognitive states of confusion, anger, humiliation, and constant self-doubt that could only be available for audience consumption through dissection of the author's personal journey (Vickers, 2007). Usually autoethnographies are written in the first person where the sole focus is the individual and his/her experience and thought process. This metacognition and social construction of experience formed the crux of autoethnography and qualitative research (Vickers, 2007). Apart from personal recollection, secondary research documents such as diaries, letters, memoirs, witness statements and even rough written drafts or graphics are used to write an autoethnography (Saramtakos, 1993).

This method is suited for this paper as it presents the author the opportunity to tell her story including all false starts and failed attempts. It enables the author to recount, in first person, her cognitive processes, research, and attitudes. This also allows readers to get a feel for the preparation and thought in terms of research, drafts, and graphics that constitute writing a training program. Knowledge of inner workings will enable a better understanding of the work and process of designing a training program.

The next section traces the author's story in first person, i.e it maps and details my story.

My story

I am employed as an instructional design analyst in the healthcare sector in Southwest Georgia. One of my primary job functions and responsibilities is the design of training programs after obtaining relevant content from the subject-matter-expert (SME). In October 2014, I was contacted to design a training program for recruiting US military veterans. I was given the relevant content, and asked to design a successful 'doable' training program.

My first task was to define all the assumptions underlying the development and design of the training program. Every training program and/or online course is characterized by a few basic assumptions. These foundational assumptions may seem generic to the average person, but constitute the foundation or framework of the entire training program. They comprise the scaffolding structure of the training design allowing the instructional designer to experiment and innovate within the framework (Brookfield, 1986). The primary assumption deals with the type and nature of the learner and/or trainee. This training program is designed for adults who are full-time employed professionals. Armed with this assumption, I formulated my theoretical assumptions in line with adult learning principles. These theoretical assumptions emerged from two divergent streams of thought, andragogy (Brookfield, 1986; Knowles, Swanson, & Holton, 2005) and Kolb's experiential theory (Reyes, 2014).

Andragogy, also known as the theory of adult learning, holds that adults learn differently from children (Knowles et al, 2005). Adult learners enter into a training contract with a pre-conceived schema. This means that they already have a faint degree of familiarity with the content. The instructional designer has to build upon existent schema. In this case, the recruiting team already has a relevant schema. I had to design a training program that acknowledges and appreciates the accommodative knowledge of recruiting and US military. Thus, unlike students taking a new course of study who have to be directed, challenged and motivated to learn and practice; adult learners undergo training armed with concrete practical experiences that enables them to assimilate and expand new content to learn, demonstrate and perform. Facilitators do not have to engage adult learners with examples and long lectures. Adult learners are intrinsically motivated with an eager orientation to improve their knowledge, skills, and performance. An instructional designer has to be designed to show adult learners the reason for learning that material; the benefits of knowing the content, and its overall importance and usefulness in relation to entire

society. I have to inform trainees at the start about the importance, relevance, and schedule of the program.

Kolb experiential theory mirrors the learning cycle that influences adult learning (Reyes, 2014). According to the theory, adult learners must have 'concrete experience' that enables reflective observation and abstract conceptualization. At this point, learners have grasped the conceptual and/or theoretical meaning of the content, and are eager to engage in active experimentation or practice (Reyes, 2014). Experiential theory is based on the four instructional design principles of ARCS i.e. Attention, Relevance, Confidence, and Satisfaction (Keller, 1999). At this stage, I have a nascent mental map of my training design based on adult learning principles.

- My training design has to acknowledge and respect existent and accomodative knowledge about recruiting and US military by the trainees.
- The design has to inform and show them the format and schedule of the program
- It has to build on relevant concrete experiences to allow for reflective observation. This enables confidence and a sense of independent cognition
- The training design has to show trainees relevance and benefits of the content, not only to themselves, but also to the organization and the entire society
- The design has to engage the trainees in a phase of active experimentation and allow them to have hands-on active practice and discussions to gain competence and satisfaction

I also had to consider that adult learners have their own schedule of professional and personal work, and cannot devote long stretches of time as training periods. I have to keep my training short and focused with no inconsistencies. I am designing a training program for qualified professionals who expect accuracy and evidence for every statement and idea. Thus, the training has to be research-based and factual to the point of precision. It has to cater to every learning style. Adult learning training programs have to incorporate:

- Visual learners with videos, pictures, diagrams
- Auditory learners with podcasts, engaged threaded discussions
- Kinestic learners with hands-on activities of role-plays, experiments, games (Adayana, 2015).

This meant that I had to choose varied presentation modes varying from lecturettes or short lectures, podcasts, videos, diagrams, hands-on activities, and discussions. Such activities allow for reflective observation and abstract conceptualization enabling learners/trainees to gain confidence.

I had to add a further dimension of training purpose to my mental map. I had to collaborate with the SME to determine the reason behind training the recruitment team and whether it requires mere knowledge dissemination and communication, or behavior modification through learning. The SME had a dual training purpose of knowledge dissemination including communication of US military characteristics and the recruiting process. The SME also wanted to train the recruiting team on how to recruit US veterans effectively to improve organizational performance. My training program had to train them on how to discern and, recruit the right US veteran for the job. My design had to ensure that trainees left the training room with knowledge and skills on how to recruit a veteran with the right fit for the organization. I read the content given by the SME and rearranged steps in a sequential logical manner. This 'chunking' of content assists adult learners in sensemaking-grasping the relevance and importance of content, activities and examples in a logical manner. My training design has to move the content and the pace of

sensemaking from a simple to complex phase or from general to particular. This is a macro approach that enables me to provide a generic picture before tapering down to the particular.



Figure 1: storyboard draft by author: from author's personal diary

Choosing S.A.M. (Successive Approximation Model)

As seen in my draft storyboard [Figure 1], I now had all essential elements to choose an appropriate training design. I am not in favor of choosing the traditional design model of ADDIE. Instructional design and training designs are more flexible. Contemporary adult training has moved away from linear 'boxy flow charts' to innovative and flexible-learning training designs (Reiser & Dempsey, 1993, pg. 9). Instructional design in the training context provides equal opportunity and voice for trainees to direct and pace the training program (Allen & Sites, 2012). ADDIE still forms the core of every design but contemporary training designs were more flexible and manageable (Reiser & Dempsey, pg. 9). ADDIE i.e. Analysis, Design, Development, Implementation, and Evaluation is a rigid method of designing programs. An instructional designer begins the design process with a learner needs analysis to determine the gap and need for training. The focus then moves to design and development of content followed by implementation and evaluation. The other S.A.M. (successive approximation model) is described as adaptive and more flexible, an improved form of ADDIE. The former does not begin with a training needs analysis. Instructional designers using S.A.M. use existent material and technologies to design and develop iterative and dynamic training. "The benefits [of using S.A.M.] are more efficient and effective processes and superior learning experiences in less time" (Allen Interactions, 2012).

The key word here is learning, as S.A.M training design enables learning by giving equal voice to learners/trainees to edit and change the content of their training or course through a process of constant feedback. Thus, the processes of design, development, and implementation go together as opposed to one after the other. Instructional designers have to be in a mental mode of revisiting the design stage to introduce edits and changes as the material is presented. Implementation and evaluation of content provide necessary fuel to the re-design process. S.A.M is:

- Iterative: The training is designed in phases allowing for feedback and changes to produce an improved iteration the next time of training.
- **Collaborative**: The training design under S.A.M 1s a product of active collaboration and communication. The instructional designer has to work with the SME and the project manager to enable chunking, determine training purpose, and presentation mode.

- Efficient and Effective: A S.A.M. training design has minimal chance of not meeting its training objective as it allows for behavioral change and modification through the latest relevant content, facts, research, technologies and activities.
- Manageable and doable: S.A.M. training designs are always managed by a project team that constantly receives and reviews feedback to make appropriate changes only to receive feedback again. The process is cyclical, manageable and doable.

I design the content in four iterations. Each iteration comprises one session of two hours with a break of 25 minutes between each session. The first iteration is simple and generic in content with learning objectives, agenda and an overview of relevant background content interspersed with a brief video. The first session is the foundational session with a purpose of knowledge dissemination to gauge and understand knowledge level of each trainee. The session ends with a recap and review of content followed by space for feedback or questions by trainees. After the break, session 2 also begins with learning objectives followed by a review of content covered in session 1. This feature incorporates the fact that adult learners are busy professionals who may not have attended session 1. To maintain continuity of the entire training program, a review of previous learning is included bringing all trainees to same level of .knowledge and comprehension. This feature also gives the session an independent stature, meaning that its presentation and delivery are not dependent on the previous session.

Session 2 moves the presentation to a particular sequence or chunk of recruiting US veterans. The session presents relevant content, appropriate hands-on activities (a short role play) and an appropriate video. I incorporate elements of S.A.M. with feedback and query review within the session to enable participant voices in directing the training.

After the mandatory break of 25 minutes, the third session follows a similar pattern of learning objectives to set the tone and pace of the two hour training. This is followed by a review of previous learning in session 1 and 2 succeeded by relevant content and appropriate graphics, namely diagrams and tables. I also incorporate a short relevant video and follow it with a discussive activity allowing for reflection, assimilation, and conceptualization. At this point, I feel it is wise and necessary to deviate from the routine training format of the sessions. I research aspects of 'monotony' among trainees (Allen Interactions, 2012). Trainees are likely to become disengaged and detached if the training follows an established scheduled format. To facilitate effective assimilative learning with easy identification, it is wise to allow for sudden deviations in the routine (Allen Interactions, 2012).

The five-minute break disturbs an established training pattern and rekindles any faltering participation attention and engagement. I develop and incorporate a brief gaming activity to liven the session and engage participants totally in the training session. I follow this with another discussion and feedback activity. This activity is my opportunity to revisit the 'drawing board' and make suitable edits and changes as suggested by participants. The final and last session of the training design focuses solely on suggestions by participants. This is a session where participants speak and I listen to improvise, edit, and improve to facilitate efficient and effective learning. This session holds the key to improved iterations in the future, and for an instructional designer, is paramount. The session is designed along similar lines to session 3. The difference is that I focus more on developing and incorporating activities and discussions that propels trainees to think beyond conceptualization. The session begins where the previous session [session 3] has left the participants-at the stage of conceptualization. It enables them to engage and perform active experimentation, and gain another concrete experience during the process. Performance games, where participants have to think and demonstrate along with writing games, allow opportunities to make connections, reflect critically and learn for themselves.



Figure 2: Rough draft of training design

As seen in the above diagram [Figure 2] each phase of the training design could be presented as a separate session on each day and yet have a thread of continuity connecting all the four phases of training as one training program covering a single unified topic. Each phase allows room for feedback enabling recognition of participant voice to structure the training content. The benefit of such a flexible training design is that that it enables trainee participation in structuring and selecting content, including format, in form of active feedback recognition that allows refinement and modification of each phase as it is being presented. It means that the instructional designer does not have to wait for one full iteration of all four phases, and can revisit the drawing board to restructure and reformat the other phases. Thus, design, development, implementation, and evaluation occurs at the same time. Similarly, the training content is matched to learner needs because the training design depends on trainee feedback to keep it current and precise.

The quality of such a training program will improve depending on its implementation. In other words, the quality of the training will be a function of the quantity of training iterations. I design the iterative training program with an open mind that training is flexible and subject to constant changes to make it more effective and efficient. The journey had ended but the process had just begun.

Conclusion

The author presented an autoethnographic account, written in first person, of how an instructional designer develops and designs training programs. The author's story shows the various considerations to be kept in mind, the theoretical and logical underpinnings that influence and shape a training design. The autoethnography took the form of a map that demonstrated the reason and effectiveness of basing a veteran recruiting training program on fundamental adult learning principles. But, the research paper faces several limitations, mostly due to the choice of method. Autoethography is not suited for generalizable research purposes. It is low on reliability

and validity with no clear standard research protocol. Authoethnographies are privy to subjectivity making it a free space that could be influenced by researcher bias and prejudice. Perhaps, the paper's research purpose could be better served by choosing the parent body of ethnography that allows research into a slice or a particular profile of participants i.e. instructional designers. Even the qualitative research method of a multiple case study could be used. Thus, the paper as a piece of original research does carry weight in the field of instructional design and training. It needs more than one story to gain valid research recognition in general academic practice.

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About the author

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Editor's Note: This study compared the ability of two forms of visual stimuli to facilitate motivation and cognitive learning.

The effect of difference of visual stimuli in photo sharing websites (Instagram) on cognitive achievement for secondary students in the curriculum of computer and information technology

Hussain Hadi Al.harbi and Akram Fathy Mostafa Saudi Arabia

Abstract

This study aims to clarify the effect of the difference of visual stimuli in Photo Sharing Websites PSW such as Instagram on cognitive achievement for secondary education students in computer and information technology curriculum through the answer of the following question: What is the effect different visual stimuli in PSW (Instagram) on the cognitive achievement for secondary education students in the computer and information technology curriculum? To answer this question, two different accounts in Instagram were signed up: the first account's subject was visual stimuli (Real Visual Stimuli) and the second's was visual stimuli (Graphical Visual Stimuli). The sample was (60) students of Al-Hateem Secondary School in Jeddah. The sample was divided into two homogeneous groups. The first was taught using RVS, and the second was taught using GVS. A research tool (achievement test) was applied for the experimental groups after confirmation of the validity and reliability of the achievement test.

Keywords: visual stimuli, real visual stimuli (RVS), graphical visual stimuli (GVS), photo sharing websites (PSW), Instagram, cognitive achievement.

Introduction

Education opportunities are increased by visual stimuli due to the rapid development in the field of communications and information. One of the said visual stimuli is the photo-sharing websites, through which information can be rapidly transferred, where educational systems are in need of new thinking and modern strategies, in order to prepare a generation with skills necessary to deal with variables and requirements of the current century.

Thus, education institutions try to provide the students with a high level of competence and skill, through self-education and keeping pace in all fields (Dosougi, 2006, p. 474).

Educators paid attention to meeting diverse educational needs through the development of educational systems, and utilization of the modern technologies in order to find possible solutions to the posed problems, and the best ways providing suitable learning environment.

Social networking is one of the modern forms of the Internet, second-generation applications, Web 2.0, which allows interaction and communication between users. The above applications are represented by the Facebook, Twitter, YouTube, blogs Blogs, Instagram, and Flickr and others.

Al-Amoudi (2009) thinks that these applications enable users to build new relationships with others, share them the "intellectual, cognitive feedback, and hobbies" and disseminating the whole via the multimedia including the text, sound, photo and video - the technologies that represent the next generation important attributes. All the applications listed rely primarily on visual stimuli.

Most articles discussing the visual stimuli indicate the acute need to increasingly use the visual materials in education; this is obviously noticed from frequent use of optics in all aspects of life,

and the emergence of the same in the field of education (Abdul-Hadi and Abdul-Rahman, 2004, p. 8).

Whereas visual stimuli (real photo, graph) constitute the most important means expressing the facts and ideas interestingly and impressively that contributes to student learning well, where those stimuli could be efficiently utilized, focusing on the most appropriate and common mean that provides learners with the necessary learning materials efficiently.

(Paivio 2006) who wrote "the dual coding theory" thinks that the memory is divided into two types: one of them is to represent the verbal information, and the other to represent the non-verbal information, the encoding of which in both memories leads to a level of remembering better than encoding of one memory, and this method supports learning when visual stimuli used.

Instagram is one of the photo-sharing sites and one of the Web most famous applications Web 2.0, which basically depends on the use of visual stimuli realism, both real and graph. It is a free application for photo and videos sharing, as well as social network, where web photo allows discussion to a number of diverse learners who are interacting about these photo and encourage others to publish other photos related to the same basic sharing subject, it is rather, host digital photos for the learners willing to share them over the Web. Every learner is allowed to download photos and add comments and different explanations about these photos, and establish & manage his own set of photos through using the social context to share other learners.

The visual stimuli including the photo sharing sites, constitute the way by which the emerging younger generations think, and that adherence to traditional methods of education will lead to a gap and a sharp separation between what is delivered to students in educational institutions, and ways of thinking in the outside world, so it is necessary to educators to take advantage of these visual stimuli to have educational that adapted to the around as awhole(Klopfer, Osterweil, Groff, and Haas, 2009).

According to the previously mentioned points, it obviously that the importance of utilizing the photo-sharing sites in both teaching and learning processes enforce the educational institutions to adopt strategies and teaching aids allow optimal utilization of visual stimuli through photo-sharing sites.

Due to the growing turnout and the interaction between users, the researcher tries to utilize photosharing sites in education through Instagram site and take advantage of these presentations and try recognizing the visual stimulus which help students understanding interestingly and effectively.

Problem:

Under the Web-second generation applications, the importance of using photo-sharing sites rises in both teaching and learning process, which is a new reality utilized in the educational process. In this study, the researcher tries to recognize the right part, in order to utilize such sites that depend on the idea of showing digital photos-sharing sites, but said photos have many types, including real photo and graph, the real one have many characteristics, some of which, is that they simplify reality and focus on the basic details of the photo excluding unimportant details, but recognizing the preference one type in comparison to another together with utilizing the same in the teaching the high level Computer and Information Technology curriculum can only take place through scientific research.

Some study results have pointed to the effectiveness and essence necessary to utilizing the visual stimuli in both teaching and learning processes such as Fath Allah (2007)and (Stavy, 2008) study, in addition, (Tibell, 2010) study discovers the effectiveness of using visual stimuli, real photo using animated and still photos in teaching science subject to the high school students, where the results showed the effectiveness of visual stimuli- real photo regardless of its kind in the students' achievement and trends.

But the studies paid attention to the effectiveness of the graphic photos as opposed to traditional education and the impact of which on student achievement (Grabowski study, 2004)), which aims at identifying the impact of the diversity of visual stimuli photos – the fixed graphical photo in comparison to the animation on the student's achievement and performance. The study reveals that there are no differences related to the diversity of visual stimuli in achievement and performance, in addition to (Hughes study, 2007), which targeted the impact of the graphic photos through animation on student achievement, and the results showed superiority by the group of education (through the graphical photos) over the traditional education group (in the field of achievement).

From these studies, it is obviously that they focus on the comparison between the two types: real photo and graphic photo to discover which are more effective, and in (Al-Sarraf study, 1998) that targeted the recognition of the effect of the real photo as opposed to graphic photos, the results showed that the real photos are more preferred by learners unlike the graphic photos, whereas in (Khalaf Allah study, 2010) which targeted the recognition of the effectiveness of different real photo in comparison to the graphic photos, the results showed that the graphic photos are more effective than real photo.

Such studies conducted the comparison process in other environments other than the photosharing sites. In this research, such as (Fath Allah study 2007), conducted through educational activities, or (Khalaf Allah, 2010), which took place through a proposed program, or (Erigin, 2008)) and (Stavy study, 2008), which took place through photos presentation via computer.

Even in these studies framework, which paid attention to a comparison between the types of photos using different environments, we find that they focused mostly on the comparison between still photos and animation (Grabowski study, 2004)) and (Tibell study, 2010), then they thought in conducting study to compare between real photo and graphic photo, but in a different and modern environment –photo sharing sites.

Al-Halfawi (2009) has pointed out to the importance of relying on photos sharing sites in delivering some curriculum that can be delivered through these environments.

In a study conducted by (Waycott and Kennedy, 2009, pp. 1085-1095) targeted the recognition of the effectiveness of using photo sharing tool as one of the Web applications 2.0 in the teaching chemistry at the University of Melbourne, Australia, where the experiment was based on the use by educators to their mobile phones in photocopying some chemical phenomena that occur in everyday life, and then disseminating the same in the Web through Flicker, as one of the photo sharing sites and exchanging discussion about those photos. The study result emphasizes that the sharing of the photos enabled the students to see many phenomena and recognize some details that are difficult to be achieved in conventional methods. The study sample of students has upload (1894), of which (1849) photos of which were subjected to comment, and the total comments is (4262), which demonstrates the attraction of the students towards the photo sharing tool among educational topics study.

Nov and Ye (2008, pp. 1-11) study that everyone has a set of self-motives that encourage him to share photos through different locations, which indicates that the learners of the current generation have what may help to adopt Photos sharing in the learning processes idea.

For the attention paid to photo sharing among the learners, (Kucuktunc, et, al study, 2008, pp. 61-73) targeted building a system integrating between photos and texts to increase the effectiveness of learning process, where the study has developed a system that allows the learner to raise upload his photos, together with posing a description or explanation to these photos in the system, whereas this description is compared to the system database, and in turn it is essential to display all photos associated with this text description that the learner uploaded through the system, the matter making retrieval process easy to enrich learner.

Accordingly, the research problem can be formulated in the following question:

What is the impact of different visual stimuli in the photo sharing sites Anstagram on the computer and information technology cognitive achievement development by the high school students?

Objective of the research:

Identification of the suitable visual stimuli (real - graphical) in the photo sharing sites Anstagram photos on the computer and information technology cognitive achievement by the high school students.

The need for this research

The research is highly important due to:

- 1. Identifying the appropriate visual stimuli (real graphical) in the delivery of computer and information technology curriculum through photos sharing Anstagram sites.
- 2. The research is an attempt to utilize visual stimuli in sharing photos sites to urge teachers and students alike in using Anstagram in both teaching and learning processes.
- 3. The research represents a response to the previous studies that recommend taking advantage of the features and potential found in modern applications Web 2.0 (Al-Khalifa, 2006); (Weller and Dalziel, 2007, pp. 1-7); (First International Conference of e-learning and distance education, learning industry, Saudi Arabia Industry, 2009).

Research hypotheses:

There are significant statistically differences at 0.05 level between both mean scores of the cognitive achievement test for the experimental group (real stimuli) and the second experimental group (graphical stimuli) due to the impact of different visual stimuli in the photos sharing Anstagram sites.

Methodology

Participants

Research group consisted of 60 students from the first grade high school students, who are randomly selected and divided into two groups, each group consists of 30 students, according to the following table:

Experimental Design:

The current research uses a semi-experimental method to recognize the impact of different visual stimuli (real - graphical) Anstagram on the high school students cognitive achievement in the computer and information technology curriculum by both groups of research.

Independent variable	Visual stimuli			
	Real	Graphic		
Groups	First group (m1)	Second group (m2)		
Dependent variable	Cognitive a	achievement		

Table 1 Experimental Design

Independent variables

The research includes two variables:

- Independent variable: both types of visual stimuli (real graphical).
- Dependent variable: high school first class students' cognitive achievement in Computer and Information Technology

Literature and theoretical review

The first aspect: Visual Stimuli:

The concept of visual stimuli:

Introduced by Abdel Moneim (1999, p. 66) all the matters with which the learner deals through sight, except the verbal written language.

Hamid (2004, p. 111) think that they represent a set of visual aids represented by lines, words photos, graphs, photographed materials, , posters, which express the ideas, facts, and relationships in a plain visual photo with which the learner deal through his perception.

Accordingly, the visual stimuli are real or digital graphical photos expressing the reality with all details or through summarizing, some of its elements to serve specific educational purposes, and those are produced either through the direct digital imaging or programming the same from the paper form to digital form.

Types of visual stimuli

(A) Real visual stimuli

Khalaf (2010, p. 11) introduced it as all what address the sight including photos and things representing a real embodiment to the reality of learners without nature or component change.

The real visual stimuli represent the display of life real natural elements to bring that to the mind of the learner, such as photographing living organisms or landscapes, and so and provide the same to the learners, they express reality using photos, and those stimuli could be utilized in the courses, in addition to usage in the presentation of real things needed by some courses, the absence of which from the learner's mind, may lead to incomprehension.

It means that the visual stimuli are photos "providing learners with the reality without any change."

(B) Graphical visual stimuli

Khalaf (2010, p. 11) defines it as a set of animations, still photos, graphics, and brides describing the imagination which used as a mean expressing the skill or idea that suit the pupils.

Graphical visual stimuli represent a "set of photos that simplify reality and focus on the key elements to help the learner understanding and recognizing the facts more effectively."

Othman and Othman (1994, 185) indicate that the graphical visual stimuli are important due to many factors as follows:

- 1. The visual stimuli have strength and exciting by which they attract the attention of students unlike all other means.
- 2. It is a preferable mean of communication and make students paying attention, therefore their usage in the field of education enriches the educational field.
- 3. Representing the abstract reality that is difficult to be perceived through senses, and animation can interpret the graphical scientific facts to be easily perceived.
- 4. Such stimuli characterized with vast imagination which are not restricted by the known natural laws.
- 5. Simplifying the events and comic things to be rigid reality, and the potential simplicity make such stimuli as a tool that is necessary to the interesting scientific, technical and social topics to be accepted by young and old.
- 6. They are used to facilitate some difficult topics to highlight the defects or for the avoidance of obstacles that in the absence of any other solution.
- 7. The stimuli represents a tool to help explain the complicated sciences and phenomena such as the functional relationships between components.
- 8. Making learners interested.
- 9. Provides rare experiences, efficient and diversified learning

The importance of visual stimuli

Visual stimuli are important due to their vital role in the translation of verbal ideas, overcoming of difficulties to understand the abstract information, and convert verbal educational content into easy content through various visual stimuli (Shibl et al., 2013, p. 14).

The visual stimuli may be of vital role in the learning process as Hamid indicates (2004, p. 148) as follows:

- 1. Students experience attention and concentration.
- 2. Increasing motivation among students due to the availability thrill element.
- 3. Help to understand the ideas, abstract concepts, through the translation of those ideas and concepts visually.
- 4. Having proper meanings to the abstract phrases and ambiguous names less errors on the least time
- 5. Sincere impressions that reach the minds of pupils together with surviving learning impact for a long time.
- 6. Making the student more willing to learn
- 7. Provides a lot of sensory experiences that represent basis in the formation of sincere perceptions.

Mixer, et, al 2008 pointed out to the importance of utilizing visual stimuli in the preparation of educational material for students by describing how to use visual stimuli as a tool to improve student learning; and (Schlosser, 2008) thinks that visual stimuli play a crucial role in the integration and the use of teaching techniques.

Educational design of visual stimuli

The educational Design is one of the main processes for Educational Technologies, and the beating heart of any educational program. The principles of educational design as a whole constitute a turning point rather than being an application on the web, to become an educational application achieving educational goals that are precisely prepared and defined by the educational designer.

In the light of the system theory, educational techniques pay attention to the design field of teaching and learning, in which views overlap through knowledge and curriculum Engineering-the structure that is designed around an organized and flexible principle on the basis of scientific study, which utilize educational technology that is necessary to apply modern techniques of the relevant curriculum. One educational model do not fit all levels of education attitudes of teaching & environment in addition to the future needs.

There are many forms that discuss the educational programs design as per their levels in terms of comprehensiveness, depth, objective nature, targeted learning results and learning mastery. All these taken place in accordance with the learning theories that depend on the educational strategies aiming to application in different techniques to realize educational purposes and objectives that represent the learning maps main structure.

Yeh "2008" indicates that the current educational designers prefer including the visual stimuli in the educational products, in order to help learners to understand the academic content better; due to the results of scientific studies that the visual stimuli in addition to text can improve learning through providing more enriched learning environment.

For researchers to design the visual stimuli properly, it requires a great deal of knowledge and skill with regard to the principles of the visual stimuli educational design.

Visual stimuli educational design principle

They are principles and guidelines derived by specialists to guide the effective design process of the visual materials ((Yeh, 2008, 10), Both Abdel-Monem (1999, p. 41), Shawgi (2007, p. 38), Shibl et al. (2013, p. 26) pose a set of visual stimuli design principles as follows:

- **Simplicity**: It has a relation with Pragnanz that means accuracy and one of the Gestalt laws which states that the cognitive organization tends to move towards only one general trend (good form) which is characterized by regularity, completeness, simplicity, accuracy and other meanings, and in turn, form will be the best.
- **Clarity**: It means the visual acuity with which we see things according to their farness or proximity, that the near objects can clearly show their details, unlike the distant objects that are difficult to be seen by us.
- **Organization**: Whereas non-organized stimuli are known to be difficult to understand and remember, the system is highlighted is an integrated entity, which consists of overlapping parts and elements between which exchangeable relations are established, then the system is realized.
- **Context** should be taken in account: Stimuli general pattern within the visual scene, which is one of the factors that influence the shape perception.
- **Background** and shape should be taken into account: It is one of the main regulatory steps in the perceptual process, responsible for the separation of the visual field in the form of shape and base, for example, you choose the important shapes in any photo and make more attention compared to the background, so that the designer makes the fundamental information shapes in order to attract the attention and become dominant.

- **Balance**: It regards the elements status and stability within the composition of shape, and balance may be formal depending on the visual stimuli shapes, area, weight, and the method of distribution in the shape base, but balance may not formal.
- **Similarity**: Indicates the similarity degree between stimuli (stimuli popularization, in which there is a response to a new stimuli same as the previous one, and the degree of similarity between the responses (response popularization) requires that stimuli remain the same (identical) in both cases of learning.
- **Reliability**: Stability is related to the interaction front as there are factors influencing the shape stability such as the duration of vision, and to which extend attention is high because flash vision to the shape without high attention makes our understanding confused and inaccurate, but adequate vision that allows the device collecting various information about the shape and its components, accompanied by high attention, will produce true perception to shape and its components, it also helps the optical device to correct the shape.
- Using hints and signals (education keys): Such as using arrows, putting lines under important points or putting circles and rectangles around those points, where the use of these keys and signals makes the learners paying high attention.

Based on what is mentioned, and to realize these principles effectively in the visual stimuli, it is necessary to take into account the principles of good design, select the visual stimuli relevant to student interesting and focus on the photo content and harmony with the instructional message.

Visual stimuli selection criteria in Education

Both Abdul-Hadi Abdul-Rahman (2004, p. 11), Khalaf (2010, p. 22) indicate that hereunder a number of criteria that must be taken into account by teacher before selecting any photo:

- A. Gravity: the selected visual stimuli content should attract the pupils' attention.
- B. **Relevance**: The selected visual stimuli should be related to the lesson and relevant to the lesson topic.
- C. **Easy discrimination**: Students are able to understand the meanings expressed by visual stimuli, it means that each learner can interpret the message that we intend to deliver to him by those stimuli, but the selected stimuli and their components should be in the framework of pupils' information and culture.
- D. **Simple**: Good utilization of visual stimuli. It is preferable to utilize the visual stimuli and not to make it busy through lesson, or propagate the same without the need as this may disperse the attention of students with no attention in the stimuli content.
- E. **Timing**: Displaying the visual stimuli on time. It is preferable to use visual stimuli in the students' education on timely manner, to display the same either before, during or after lesson.

As the visual stimuli are important, they were discussed by some studies and research that indicated the effectiveness and the need to utilize them in both teaching and learning processes such as (Fath Allah study 2007), (Stavy, 2008), and some of which focused on the visual stimuli discussed the effectiveness of real photo separately and graphical photos as well. One of those studies focusing on real photos as opposed to traditional education and the relevant impact on student achievement is that wrote by (Yusuf study 2006) which targeted the recognition of the different visual stimuli density (real - graphic) and the method of delivery to develop the computer programs production skill by the education technology department student at the faculty of education, the results showed the effectiveness of visual stimuli intensity in the achievement

regardless of the visual stimulus type, and (Tibell study, 2010) which targeted the effectiveness of the use of stimuli visual real photos using animation and still photos in the teaching science to high school students, where the results showed the effectiveness of stimuli real photo regardless of their type in the students achievement and trend.

But the studies focusing on effectiveness of graphic photos as opposed to traditional education and its impact on the student achievement are (Grabowski study, 2004)), which aimed at identifying the impact of the diversity of visual stimuli graphical-still photo, in comparison to the animation on the students achievement and performance, the study found no differences due to the diversity of visual stimuli in achievement and performance, and the study prepared by (Hughes, 2007)), which targeted the impact of the recognition of the graphic photos through animation on student achievement. The results showed the superiority of education group through the graphical photo over the traditional education group in terms of achievement.

It is noticeable from these studies we find that they focus on the comparison between the two types- real photo and graphic photos which is more effective, and in (Al-Sarraf study, 1998) that targeted the recognition of the impact of real photo as opposed to graphic photos, the results showed that the real photo are preferable among students unlike the graphic photos, while (Khalaf study 2010) which targeted the recognition of the effectiveness of different real photo in comparison to the graphic photos, the results showed that the graphic photos are more effective than real photo.

As these studies conducted the comparison process in other environments other than the environments of sharing photo sites this research, such as (Fath Allah study 2007), which was through educational activities, or (Khalaf study 2010), that took place through a proposed program, or (Erigin study, 2008)) and (Stavy study, 2008)took place through the presentation of photos via computer.

Under framework of these studies focusing on a comparison between the types of photos, and using different environments, it was obviously that they focused mostly on the comparison between still photos and animation such as (Grabowski study, 2004)) and (Tibell study, 2010), then they thought to conduct a study to compare between real photo and graphic photo, but in a different environment – photo-sharing sites.

Photos sharing sites

Photos sharing sites concept

They are Web pages including a group of digital photos with logic relations to be published through the Web and provide the same using different tools and ways for interaction. Anstagram is a site for photo shows that allows sharing photos, where is used as a host to the digital photos for whom willing to share them over the Web. Moreover, it allows every user to download photos desired through the website and add different comments and explanations about the photos. Nevertheless, every user can establish and manage its own set of photos sharing the same among social context (Al-Halfawi, 2009, p. 34).

Accordingly, represent Web sites allow the publishing of classified groups of digital photos accompanied by additional comments and explanations as well as a set of tools that allow interaction with these photos."

Photos sharing sites importance

The contemporary challenges impose utilizing the modern technologies in teaching and learning activities, one of which is the enormous information flow formed the knowledge society, and in turn there was a need to link and integrate the services between technology, information,

communication and media, and in the past, the learner travels long distance to get information, While at the moment there is an abundance and flow of information.

One of these modern techniques the photo sharing sites where it can be relied upon in a variety of educational situations, where the learner is provided with a variety of photos act also as an educational materials helping the learner to study different content and topics, in addition to some sites allow you to interact with the same photo by focusing on certain parts of the photo by adding some geometric shapes or changing some of the colors of the photo, which is called interactive graphics with the photo and adds fun tothe learning process. In addition, it is highlighted as a tool for continuous support to the learner (Al-Halfawi 2009, pp. 34-35), Cobb, 2008, pp. 51-52)).

The most important photo-sharing sites

Photo-sharing sites are not just for meeting new friends, but it is an amazing educational tool information source if used efficiently. It can also be used in both teaching and learning activities in order to improve communication, and integrate students in efficient activities different from the traditional teaching styles, students also recognize the most useful photos sharing sites. Most important of these sites, as referred to by both (Steiner, Gabarró, and Hausenblas, 2009 pp. 49-51), (Ra, Govindan and Ortega, 2009 pp. 515-528) as follows:

- **Instagram**: free application to the photos sharing, video clips and the social network, it also allows users to pick the photo adding to which, a digital filter, in addition to the possibility of sharing with a variety of social networking services such as Face book, Twitter, Flickr and Google+, which was established in October 2010 and purchased by Face book April 2012.
- Flicker: photo and video sharing site, in addition to saving and arrangement. It represents an association of amateur photographers on the Internet. In addition, the site is used by bloggers through the re-using of the photos. The said site won its fame through its innovations such as comments addition by visitors and tags. On September 2010, it was decided to host more than five billion photos, it was established on February 2004 and bought by Yahoo March 2005.
- **Img.ly**: a server that is necessary to host photos and was established in 2009, through which it is possible to share photos on Twitter.
- **Imgur**: a server that is necessary to host photos and was established in 2009, through which it is possible to share photos on Twitter and Face book.
- **Photobucket**: it was established in 2003 to host photos and videos, in 2011, Twitter announced the exclusive partnership with the site to be as a platform for photos exchange.

Instagram

Free service for photo-sharing, video clips and social network, it allows users to pick photo, and add a digital filter, in addition to the possibility to share the same with a variety of social networking services such as Facebook, and Twitter, Flicker, and Google+, it was established on October 2010, and the number of subscribers reached 30 million only within two years (more than one million subscribers loaded this application only within 12 hour. Face book on April 2012, purchased the company for US \$ one billion (Steiner, et, al 2009 pp. 52).

Instagram characteristics

It referred to as the "Computer and Information Technology" 2015:

- 1. Dealing with different types of cameras, together with the front and back camera support.
- 2. Free-use to all features related to photo sharing and processing.

- 3. Provides various tools for photo processing with friends on various social networks such as Face book, Twitter, Flickr, (Google+), and (Tumblr).
- 4. It is possible to block the account making it as special to host special people.
- 5. It can be used on devices that ran using the Android operating system (ios).
- 6. It is possible to add and classify names and explanations on the photos. And it is allowable to add any comment directly on the photos with no need to go to the networking site.
- 7. The program applies the idea of tracing people whom photos suit you or that you have known and then see all their photos they automatically load.
- 8. Inserting photo search indication (hashtag), where hash means #, that any search indication must be preceded by this sign and then the search word (Example: #ROSE) accordingly this photo will join the search results under this word).

Procedures

First: Educational design of the photo-sharing sites "Instagram" according to Mohammed Attiah Khamis model

Photo-sharing web design is not merely based on steps, but depends on instructional design of the learning environment on the Internet, as in the learning environment it is essential to take account to all the matters related to the educational process through the Instagram photos site such as putting objectives strictly in addition to analyze the needs and characteristics of the target audience rather than its capabilities and compatibility with learning material as well as the design of the learning environment, upon which level identification and teaching strategies could be determined , in addition to taking into account the technical side in the process of design and production in accordance with the principles and criteria (Fathi, 2006, p. 166).

First: Analysis

1. Problem analysis and needs assessment

This takes place through studying the gap between the current and desired reality, which reveals the lack of skills, sentimental or cognitive aspects, so it is possible to benefit from the advantages of the photo-sharing Instagram sites in displaying the visual stimuli allowing the sharing of learners in building the learning contents, interaction and Social communication between learners and teachers, ease of use, and allowance of sharing between learners and many features that are non-existent in the traditional context.

2. Analysis to the learner characteristics and behavior: The determination of learners' academic, social and psychological characteristics helps in building and designing photo-sharing sites accurately.

- Analysis of educational tasks: through using the two visual stimuli (real graphical) in Instagram to support content using the photos and then the teacher participates by adding visual stimuli and provide feedback to learners.
- Environment resources and constraints analysis: students can enter and use Instagram site where students can be provided with mobile devices including Instagram application.

Second: Design

1. Educational goals design, analysis and classification: it is to specify the overall objective through using visual stimuli in Instagram as an increase to the knowledge achievement, learning sharing, and through studying the chosen two educational units - multimedia and

robot, all educational goals are specified, and behaviorally formulated to help determine the educational content.

- 2. Referenced measurement instruments design: represented by the achievement test.
- 3. Content design and strategy of organization: In this step the scientific content elements are determined in light of the overall objectives and procedural objectives that predetermined.
- 4. Learning and education strategies design: the strategy followed in the use of visual stimuli (real graphical) is a self-learning one where the first group deals with visual stimuli (real) and the second group deals with visual stimuli (graphical) under the guidance of the teacher, and through Instagram, the educational content is displayed to raise the learner's motivation.
- 5. Scientific interactions strategies scenario design: to determine the roles of the teacher and learners and learning resources, in addition to specify the form of the learning environment, where the photo sharing sites provide a learning environment that allows opportunities for interaction and sharing in building educational content. The learning resource in the photosharing sites involves the real and graphical stimuli.
- 6. Determining the learning appropriate style and pattern: There are many styles and patterns such as mass distance learning, small-group learning, individual independent learning adopted in the current research.
- 7. Multi-learning sources selection: the sources available within Instagram were selected to meet the learners' needs (visual stimuli).

Third: Development

- 1. Scenario preparation:
 - Objective order and elements of content clearly.
 - A brief and comprehensive description of content as per the order specified.
 - Determine the content of visual stimuli (real graphical).
 - Determine the shape and quality how the visual stimuli.
 - How the visual stimuli appear.
 - Underlying the main ideas for each element as per the order
 - Distribution of appropriate sources that have been identified in the last step of design.
 - Determining the number and kind of pre-test and post-test questions.
- 2. Production Planning: this stage includes underlying the visual stimuli appropriate for both teaching and learning processes.
- 3. Development: obtaining the visual stimuli (real graphical) that obtained by the researcher from the text book of computer and information technology by the ministry of education, and photos libraries available across the Web 2.0.
- 4. Constructional assessment processes: in such a case visual stimuli in Instagram subjected to the adjustments necessary to get the final production, which takes place through pilot experimentation on a sample of (10) students with characteristics that are close to the characteristics of the sample, and were randomly selected from the community in order to identify the extent of ease and difficulty of the use of stimuli in Instagram, and problems facing the learners during the use and the strengths and weaknesses.

The pilot experimentation results discovers the easily used stimuli in Instagram, and in turn the application becomes ready for main experiment.

5. Final directing of visual stimuli and using the same in Instagram after making the necessary adjustments after the completion of constructional assessment, figure 1 highlights the real stimuli, and figure 2 highlights the graphical stimuli.



Figure 1: real stimuli form





Figure 2: graphical stimuli form

Fourth: Research tool building

The current study aims to identify the effectiveness of Instagram to achieve the desired educational goals, this stage has been executed in the current search through pilot experiment and the basic experiment.

The test was prepared from (30) paragraphs by using two types of objective tests, namely, (multiple choice which consists of (22) paragraphs – true and false which consists of (8) paragraphs, and the achievement test was given to a pilot sample composed of (10) of Al-Hateem high school first grade in Jeddah. After that the calculation includes:

- 1. Determining the test time: After the test sample applied to the members of the pilot experiment, time spent in achievement test was estimated (35 minutes)
- 2. Easiness and difficulty coefficient calculation: through calculating the coefficient of easiness and difficulty, for each individual, the researcher discovered that the percentage of easiness percentages range from (0.31-0.62), and the difficulty coefficients ranged between (0.37-0.81) which means they are acceptable rates, and in the light of these results, the Researcher rearrange vocabulary test in accordance with the easiness coefficients and difficulty where they fall from easy to difficult.
- 3. Test stability calculation: Spearman-Brown Spilt Half is used in order to find the correlation coefficient between both parts of single and double test from the correlation equation, and the value of the test stability coefficient (0.85), a coefficient that can be trusted to reach Self-honesty (0.92).
- 4. Pilot study of research: The research tool was applied in advance to ensure the harmony and parity of the both experimental groups, then the researcher uses the significance test of differences between the averages "T" for the Independent samples T-Test in the statistical package related to social sciences program SPSS (22) to identify to which extent there is a homogeneity between the two groups through the pre-test of cognitive achievement results.

Table 2 includes Test results, (T) Independent Samples, and T-test to independent samples to study the significance of differences between student averages of the both experimental groups in the pre-test.

Crown	No	Maan	Std.	T-Test			
Group	NO	wean	Deviation	Df	Т	Significance	
First pilot (real visual stimuli	30	16.80	5.241	5.241			
Second pilot				58	1.831	0.05	
(graphic visual stimuli							

Table 2Summary results of the statistical analysis to pre-test

Under extrapolating the results took from the previous table, we notice the value that the "T" was (1.831) at (58) degree of freedom and with capacity (0.887), which is a significance level greater than (0.05) which refers to the lack of statistically significant differences between the mean scores of both students groups in achievement of pre-test, which refers to equal levels of knowledge to the students before the experiment.

After completing the search experiment and both groups have been taught the Instagram in accordance with the open visual stimuli.

Results

Search results and recommendations

First: Find display and interpret results and discuss

Hereunder the results given by the statistical analysis. Such results are related to imposition termed "there are statistically significant differences at the level of 0.05 between the mean scores of the knowledge achievement between the first experimental group (real stimuli) and second experimental group (graphical stimuli) due to the impact of different visual stimuli in the photo sharing sites Instagram".

To test the validity of this hypothesis the of test significance of differences between the averages T-Test "Independent Sample" for independent samples in the statistical package for social sciences, SPSS program (22) to calculate the arithmetic mean, standard deviations, and then the value of "T" and its statistical significance between the mean scores of both experimental groups (real stimuli - graphical stimuli) in the cognitive achievement posttest. The following are the results of Independent Samples T-test related to the sample individual degrees achievement posttest.

Independen between the	t Samples mean sco	T-Test res re of stude	ults (v) to stud nts in both ex	dy the significa perimental gro	ance of ups in	differences the posttest.
			Standard			

Table 3

Group	No	Mean	Standard deviation	Df	Т	Sig
Real stimuli	30	21.70	5.50	58	1.60	Non-
Graphical stimuli	30	20.13	4.93			significant at 0.05

Under extrapolation of results in the above table, it is clear that the value of "T" was (1.60) at (58) with significance level (0.329) greater than (0.05) which indicates that there is no statistically significant differences between the mean scores of both student group in the post application of cognitive achievement test.

Based on this result researcher refused the research hypothesis where statistical results indicated that "there is no statistically significant differences at the level of statistical significance (0.05) between the mean scores of the knowledge achievement test between the first experimental group (real stimuli) and the second group (graphical stimuli) due to the impact of different visual stimuli in the photo-sharing sites Instagram.

There are no statistically significant differences between the two groups of research in the postachievement, due to the different visual stimuli (real - graphical) in Instagram for the following reasons:

- The nature of content delivery using visual stimuli (real graphical) helped increasing the knowledge achievement through Instagram.
- Through the dual coding theory, visual stimuli deliver better education to students when they are prepared properly in a manner supports the delivery of the educational content, as those stimuli have a vital role in the formation of knowledge when they are of equally impact or they may differ in their power to attract the attention of the learner.

- Student could be attracted to the visual stimuli (real graphical), in this regard, students have uploaded (144) photos of which (120) found comment, with total comments (508), the matter improved learning levels, and attract the attention of students.
- The nature of content delivery through Instagram as it is characterized with a great deal of interaction that led to absence of differences that may be due to the impact of the difference of visual stimuli, due to the student easy dealing with the content, either stimuli are real or graphical, in this case we can see that the greatest impact was the nature of the Instagram regardless of the visual stimuli type.
- The visual stimuli (real graphical) provide a solution the knowledge burden theory, one of its principles is the (Attention Focus Principle) which pays attention to changing the traditional education and learning designs that lead to attention absence between different sources of information due to their heavy burden on the working memory. The design of information as an integrated unit including a written or visual stimuli illustrates the text content, is understandable more than the design which is based on the division of educational content into two parts that spatially separate (text and visual stimulus), the matter characterizes the visual stimuli where information can be designed as one unit enabling the student to interact with the educational content leading to learning improvement.

This result was in harmony with what suggested by the previous studies and researches in the field of the use of visual stimuli in the achievement of the cognitive aspects, one of these studies is the one prepared by Grabowski, 2004)), Joseph (2006), Fath Allah (2007), Hughes, 2007)), (Stavy, 2008), (Tibell, 2010), whereas this research result differs with that of result of Al-Sarraf (1998), and Khalaf Allah (2010).

Second: research recommendations:

In the light of the results, the following recommendations are suggested:

- 1. Taking advantage of the visual stimuli (real graphical) in the presentation of the different courses, due to its good interactive and attract the attention of students.
- 2. Using different types of visual stimuli other than the photos in photo-sharing sites such as the video clips, graphical photo and maps for high school students.
- 3. Encouraging faculty members to use of visual stimuli (real graphical) and establishing educational accounts in Instagram helping them in both teaching and learning processes and interaction.
- 4. To study the relationship between different types of visual stimuli in photo sharing with other grades, and assess their impact on many of the dependent variables.
- 5. Conducting further studies that discuss the impact of visual stimuli in photos sharing sites on other educational programs.

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Editor's note: Technology provides many opportunities to improve teaching and learning, but careful planning is needed for success in selecting and adopting technology into educational environments. This is a thorough study of that process including attitudes and commitment of teachers, students, and administrators, and infrastructure and environmental changes needed to ensure success.

The settlement of e-learning

Tayseer Andrawes Saleem Jordan

Abstract

The central focus of this study was to establish schemata which clarify the concept of e-learning and its characteristics and benefits in teaching. According to practitioners in the field, settlement means the immutability of e-learning and establishing suitable circumstances to implement it and make it part of the educational system. In addition, settlement should not only mean exchanging information but also make it lasting and sustainable. E-learning indicates teaching students via different electronic equipments such as DVDs, CDs or self-communication by local network and the internet or (LAN), adopting the self-learning principle or with the teacher help, to fulfill certain objectives now and in the future. It was found that settlement does not occur directly and spontaneously or haphazardly but it needs planning with certain criteria which define a way towards the settlement. It also needs creation steps which each has its own features. The range of responsibility is from the ministries to the university faculties, schools, administrators and finally individuals. The results revealed that absence of the responsible sector to implement e-learning was the most important obstacle. Next was the high cost and the lack of infrastructure, the shortage of effective media, and lack of trained teachers and students. The results also showed that lack of motivation was an obstacle. The study recommended that e-learning is a modern requirement for education, but the above mentioned obstacles are in the way to apply it.

Keywords: settlement, e-learning, instructional technology.

Introduction

Scientific advancement and technological development have brought the world into an age of incredible speed through which communication technologies move with individuals carried by the hand, placed on desks and put in pockets. Because their sizes are small, they have become easy to use any time and everywhere. The computer and the internet are the most important technologies. They are spreading rapidly; no technical system has ever spread so widely among educational groups as the computer (AL-Shoubaki, 2005). As a result, governments in developed and underdeveloped countries employ these innovations in the field of education to better serve the needs of individuals and society. Electronic learning imposes itself strongly and becomes a core concern of human thought and modern life. By taking into account the technical way of life concerning education, it helps to promote its potential and develop methods of teaching using a variety of activities to achieve instructional objectives, based on participation and interaction, to create rich educational environments. This enables individuals to increase achievements and productivity, to reach higher quality educational outputs, keep up with innovations and achieve educational requirements of the present age (AL- Harithi, 2008).

Study problem

There is no doubt that increasing interest in the revolution of communications and information and its employment in various activities has become a distinguishing characteristic of the present age. It is based on a deeper understanding of the role of knowledge and human capital in the development of educational systems, and progress that led to involvement of current societies in the electronic revolution which appeared in the second half of the twentieth century. The result is adoption by education of computers and software, compact discs, multi-media and satellites. These led to development of systems of communications and computer networks in their different forms with the aim of obtaining, processing, storing, recalling and using information (AL-Hadi, 2005).

These changes have had a direct and pronounced impact on the teaching-learning process. The traditional type of teaching, based on dictation and learning by heart, is being replaced by involvement in the skills of wire and wireless communication and blending them with the educational process in a way that lead to a new way of learning, namely, electronic learning. This has been widely spreading in the world. It is imposing new challenges with increasing opportunities for achievement within educational institutions. The revolution of knowledge and technology is changing the face of education with auditory, visual, interactive and participatory means, intelligent electronics and digital devices to create a new teaching-learning environment. It should be durable, vital, free, direct; no longer encumbered by conditions of place and time. It can eradicate the culture of passive learning, rote learning, copying, imitation, and one-way communication in classrooms. It allows the learner to move freely and have access to instructional materials and knowledge resources anywhere and at any time (AL-Mahdi, 2008).

The attitude of settling electronic learning has been great because the revolution of electronic learning is considered the most important innovation of our time. It has brought about significant changes that will enhance future progress and play a leading role in developing the quality educational programs for countries that adopt these new ways of teaching and learning. The real start will be through the gate of education as the statistics point out that the bulk of the electronic learning market in the world is estimated as billions of dollars every year, with between 60 and 70 percent centered in the USA. The bulk of investment in electronic learning during the past few years by Arabic countries is estimated to be in the millions of dollars. In Nigeria, for example, the number of users of the internet is bigger than that the total of all Middle East countries. In Brazil, the number of internet users exceeds the number of the users in all Arab countries, and the expenditure on electronic learning is, amazingly, doubled every year.

The bulk of the international market for information services in the beginning of the third millennium was one trillion dollars and the number of internet users in the world is estimated to be one billion and a half (Hamami, 2010). Because of the great importance of electronic learning, nations and countries are competing in order to build national support from their learner communities and from society at large.

Study questions:

The study will answer the following questions.

- What is electronic learning?
- What is the concept of settlement? And settlement of electronic learning?
- What are the means and ways of electronic learning settlement?
- What are the obstacles of electronic learning settlement?

Study aims

This study seeks to achieve the following aims:

• Shed light on the concept, components and characteristics of electronic learning.

- Identify the importance of electronic learning.
- Study the concepts of settlement and the electronic learning settlement.
- Study the means and ways of electronic learning settlement and its obstacles.

Study significance

This study reflects the importance of dealing with electronic learning settlement in the systems of education in particular and society in general. It implies a group of procedures relating to teachings aims, methods of instruction, study content, infrastructures and financial requirements. It studies the role of both student and teacher in an attractive interactive teaching environment. It tries to set up rules for electronic learning in all teaching fields, in order to cope with knowledge and electronic revaluation and provide new technologies for teaching and learning. The purpose is to achieve the goals of education, meet student needs, serve society and keep up with scientific progress. As a result of this importance, the university should constantly work for development of its programs and curricula for the age of computer technology and internet. Interest is manifested through grasping the concepts of knowledge and the electronic revolution.

This is charged with various information to be presented to university students by developing effective instructional methods that withstand criticism and analysis in light of modern theories and philosophies of learning. It will consider student intellectual and social skills, technical and electronic knowledge and consequences, and the economic and political changes that beset people responsible for university instruction. Instructors face of questions and hypotheses that urge them to get out of routine teaching and imitation and enter the world of communications, information technology and electronic learning, and think seriously how to be benefit from these innovations, their combination and settling, for effective participation of those involved in the teaching process, in order to be reach the criterion performance which meets educational requirements, the settling of electronic learning for the furthering university teaching toward more innovation and progress to achieve high quality teaching products which serve the individual and society because the integrative relationship between university and society. The university leads society as the repository for knowledge, science research, development and training. However, it follows society as being one of its institutions functioning in its ideological, educational, economic and social texture (AL-Ansari, 2008).

Study approach

The researcher will use the descriptive analytical method to collect opinions, information, facts and concepts relating to the study cores to build an integrated system of knowledge through which the problem, background, significance and aims of the study are revealed. A review of the literature will refer to many studies, researches, essays and some international experiments in the field of electronic learning, especially works related to the concepts, components and justifications of electronic learning for settlement it in the teaching process.

Procedure / definitions

- Electronic learning: The learning of students through different electronic media including television, compact discs, computer, the internet, local area networks (LANs), learning management systems (LMS), any other technologies that depend on the principles of selflearning or with the help of the teacher to achieve specific aims that serve the individual and society now and the future.
- Settlement of electronic learning: It means creating rich and stimulating learning environments using instructional technologies.

 Teaching technology is an organized way to plan, implement and assess all the different aspects of the teaching-learning process according to clearly defined objectives, based on research of the educational process, and by employment of human components and educational resources to achieve effective teaching and learning.

Study plan

After reviewing the study background, significance, problem, aims and questions, the study will explore the five aspects of the main core:

First core: concepts and components of electronic learning.

Second core: characteristics and benefits of electronic learning.

Third core: concepts of settlement and settlement of electronic learning.

Fourth core: means and ways to settlement of electronic learning.

Fifth core: obstacles to settlement of electronic learning.

The first core: The concept and components of electronic learning

Some teachers and students think that electronic learning is use of the computer and internet in the classroom, computer lab, or on their laptop; others think that electronic learning is achieved by distributing computers and multimedia to universities, schools and office. Belief is directed to the fact that proponents of electronic learning are the smart and electronic minds that shape this mode of scientific and technical development. On the other hand, the fame of that type of this teaching has recently spread through conferences and the results of research. Moreover, different information media have widely discussed it, identifying its aims and role in the teaching process. But reality is far beyond this because electronic is learning is an integrated teaching system (inputs, process, output, and feedback). (Abed-Al-majeed.2009) it includes:

- 1. Material components which comprise infrastructure computers and a high speed internet network.
- 2. **Software components** that include a system of learning management for the internet that manages entry and exit, authorization and content organization. It performs the following processes: registration of learners' data, scheduling of study syllabi and teaching plan, providing content to the learners, tests and assessment, communications between learners through e-mail and other means of communication checking the learner's performance and stating reports about them. Content management within learning management systems controls study content based on student performance and progress.
- 3. **Human resources** include the system manager, instructional designer, specialized people in instructional design, visualization, programming, evaluation and technical support.
- 4. **Legislations and systems** include assessment methods, attendance, publication and quoting rights, information privacy, academic accrediting and degree conferring.

In light of this the concept of electronic learning has gone beyond the use of educational machines e and instruments and traditional and random methods as it is similar to a complete revolution based on the revolution of computer technology, software and communications. This combination is not just a question of mathematics but doubled capabilities of scientific production relating to quantity, quality and type. This method confirms the integrative view of the system of electronic learning and its mutual relationship with other systems, seeking to reach the aspired aims which ensure high quality teaching and advance its outputs in a way that works in harmony with the requirements of development plans and job market and conforms with student and societal needs in the modern age to keep up with international civilization and cultures.

The second core: characteristics and benefits of electronic learning

Information technology has occupied a leading position among the different sciences and its applications, represented in the use of the computer, its software's and the internet, include most activities and areas society because they accomplish two important functions : expanding the possibility of access to any piece of information, whether it is read, heard or written and its ability to become an active aid or instrument to enhance the individuals perform once skills, their mental and knowledge capabilities (Arafa'at, 2010).

In the fields of teaching, electronic learning programs gain importance from their ability to overcome the problem of knowledge explosion resulting from the huge amount of intellectual product in scientific and human fields and limitations of traditional teaching programs to deal with them within the timer limits of university teaching programs. The internet provides a huge amount of information in a digital environment that is accessible to all people at a reasonable cost.

Electronic learning programs help to break the psychological barriers between the teacher and learner, meet the learners' needs and characteristics, elevate the return in investment by decreasing the cost of teaching. Electronic learning methods can be compared with the traditional learning (AL-Qumayzi, 2014).

- 1. **Design**: electronic learning is designed and structured in a way which has inputs, processes, outputs and feedback by teams, so it is not limited to the views of individuals or companies that design instructional programs and websites.
- 2. **Content**: present digital content in a multimedia environment (written or spoken texts, sound factors, line drawing, pictures, animations, video.....etc)
- 3. Accessibility: provide easy access of instructional digital content to the learner through multimedia on the computer window and its networks.
- 4. Flexibility: ease of updating to cope with scientific advances with minimal cost.
- 5. **Scalability**: ease of adapting to growth or reduction in class size through use of media of and information technologies.
- 6. **Global reach**: moving the learning process away from any stable point of time, walls and classroom in a way that allow the learner to participate at any time or place.
- 7. **Freedom and dynamism**: enabling the learning process to happen inside and outside the walls of educational institutions.
- 8. Adaptation: giving the learner enough freedom and respecting his desire and capabilities of interacting with all part of educational community without the need to be in specific places and certain times.
- 9. **Interaction and participation**: accomplishing the principle of participation and cooperation among students themselves and between them and their teachers regardless of geographic distance.
- 10. Information technology: Efficient design, implementation and application.
- 11. **Portability**: Accessible through any interactive computer-related device and network PC , desktop, tablet, mobile phone.
- 12. Assessment: electronic teaching programs enable the learner himself to evaluate in a continuous way through activities and tests.

Advantages of electronic learning (Al-Namleh, 2015)

- 1. Electronic learning is available 24 hours per day 7 days per week. Students and teachers can access it anywhere and at any time.
- 2. Electronic learning is characterized by constructivist cognitive and intellectual content consistent with modern theories of education.
- 3. Electronic learning has provided remarkable solutions for modern educational studies, especially in reduction of individual differences.
- 4. Electronic learning takes into account Bloom's classification which take the learner from one step to another when moving from a cognitive level to another and the consequent multi-theoretical instruments of measurement and evaluation and the aspects of establishing the piece of information and making sure that it has reached the learner.
- 5. Electronic learning lacks the human interaction of face-to-face learning; however, it has alternative ways to facilitate interaction between students and with the instructor.
- 6. Electronic learning presents the opportunity to apply new theories and instructional attitudes and use feedback to enhance learning to conform to current and future needs.
- 7. Electronic learning enriches instructional training and teaching programs with high quality simulations.
- 8. Electronic learning facilitates the spreading of education because it is not limited by time and geographic constraints.
- 9. Electronic learning enriches human knowledge by using diagnostic-prescriptive methods of analysis and construction, promoting excellence of instructional process and product and enhancing the competence of teachers.
- 10. Electronic learning can integrate reading, listening and visual information and organization of the flow of information.
- 11. Electronic learning provides the opportunities of real networking, social participation and interactive learning, avoiding the need for travel and thus saving time.
- 12. Electronic learning ensures clarity of sound, picture, text, tables, graphs and video.

Benefit of electronic learning

Beside the previous characteristics and advantages, the benefit of electronic learning appear in (AL-Qumayzi ,2014; AL-Houli, 2012).

Electronic learning is characterized by the use of digital technology to support and reinforce:

- 1. Teaching centered around the learners and their needs;
- 2. Developing skill in use of technical devices;
- 3. Meeting some learners private and personal needs;
- 4. Facilitating cooperation through timely corresponding and non-corresponding communication;
- 5. Breaking down cultural barriers between students and teachers using different channels of communication,
- 6. Cutting, copying and pasting text and images through different means of communication;
- 7. Participating in group activities such as games and simulations;

- 8. Sketching illustrations on the computer screen by using graphic software;
- 9. Providing access to just-in-time learning at different stages of life, and lifelong learning;

Third core: concepts of settlement and settlement of electronic learning

The word "settlement" is derived from the word" settle" and the settling of people means helping them to reside and settle down. A man's settlement is his place of residence. Settling involves the processes by which settlement is achieved between a place and another or between a country or another and providing all appropriate circumstances to support it. The issue of settling the sector of e-learning is as important as the issue of settling in some different sectors. This requires a group of relating procedures in order to introduce it and make it a part of man's place and environment and urge him to deal with it as an essential part of him. Settling e-learning should not be restricted to moving technology but also to stabilizing, understanding, applying and practicing it through time.

Settlement of e-learning:

Education, in general, has become the locomotive of development driven by the makers of education who are the intellectuals and composers that make the leading role in guiding progress. Traditional educational methods are no longer able to compete with innovations of the current age. It has become necessary to follow modern positive scientific methods charged by the higher levels of learning, problem solving and decision making. It requires participation of all levels of the educational process through technical programs and comprehensive and objective philosophies characterized by qualitative performance and high quality. It should reflect future visions of education and agile national criteria. It should include international charters relating to human rights, equal teaching opportunities, dealing with technology in the spirit of an honest competition among a variety of instructional resources (Al-kaylani, 2011) Electronic teaching, now, has become an important requirement and urgent necessity imposed by the huge revolution in the world of communications and information technology. Electronic education has granted general and higher education a new face of education that is contributing to growth of educational programs and increasing levels of competence.

Electronic education now gives a distinctive importance that no educational initiative has previously obtained. This makes it a must for countries and peoples to initiate it and try to settle it and make a strategic choice for educational systems. It provides an educational environment which cares about what occurs in the learner's mind and the skill of the task of future generations. It is an important method for teaching and understanding, for eliminating illiteracy and on-going teaching for all sectors of society (Zaytoun,2005). Whoever holds the responsibility of e-learning and settles it in his language is capable of protecting his learners against cultural challenges which have been abundant recently and are otherwise difficult to control. He is also capable of presenting a quality instruction which prepares generations for a promising future who will be able to cope with a rapidly changing society that that generates knowledge and addresses learners in an understandable current language.

The adoption of e-education and its settlement is no longer a free choice, but a necessity imposed by the nature of this age and the system whose effects have appeared clearly. The individual finds himself facing challenges which require questions for which he can never find answer, as well as what happened to his awareness and culture as a result of his daily knowledge about media information which implies models of universal cultures, and the occurrence of a kind of clashes between what is universal and what is local, with what a person feel about worry and anxiety resulting from economic, social and cultural instability (Ouzi, 2005).

Fourth core: means and ways of settlement of electronic learning

Aids of settling e-learning

Electronic education has no specific place like other sciences. However, it is greatly influenced by the environment in which it is made like the other educational branches which should arise from the learner's natural environment. The process of e-teaching does not occur arbitrarily and immediately, but require basic components such as clarity of aims in the minds of the doer, work plan distributed to its areas, appropriate time in travels, familiar aids of achievement the plan used instruments in its achievement and other component which appear in details in planning processes. Settlement aids range from public responsibilities at the level of ministries, education department at universities and schools, to individual responsibilities, carried out by teachers and the learner, to society and street in general these ways appear in.(AL-Houli, 2012 ; Al-Namleh, 201; AL-Mousa, 2005 ; AL-Mohaysin, 2008)

Social field

- 1. Establishing the concept of the culture of change and development in society and persuading individuals that this change and development are a national modern requirement and not temporary action.
- 2. Determining the setting aims and planning for their achievement in a specific period.
- 3. Encouraging individuals and society to interact with this type of education.
- 4. Providing the infrastructure for this type of education represented in the preparation of human trained cadres and also providing the required communication technologies to help in the transfer of this education from one place to another.
- 5. The expansion of communication networks, especially in remote areas and village.
- 6. Making e-learning available for society and inviting the private sector to contribute in producing instructional software and courseware.

Training field

- 1. Forming a national clear strategic vision as a road map toward the settlement and distributional educational of e-learning
- 2. Preparing quality untraditional educational and instructional programs in order to spread the awareness culture of e-learning in regard to the concept and its importance in other nations.
- 3. Training all teachers to use e-learning and include it within all study curricula.
- 4. Enhancing the role of instructional resource centers for settling e-learning as part of their infrastructure with resources, services and equipment for schools and universities.
- 5. Holding frequent conferences, seminars, forums and workshops of e-learning at local and regional levels for educational institutions and universities.

Instructional field

- 1. Integrate e-learning as an important aim of the policies of higher education.
- 2. Require all schools to have special websites on the spider network for students and their parents in order to make it possible for the teacher to expand in his e-communication with students and parents.
- 3. Equip schools and prepare their infrastructure to cope with modern technologies and high speed networks.

- 4. Raise the motivation of teachers and learners and stimulating them to deal with educational technologies.
- 5. Introduce compulsory study curricula in distant learning at schools and universities to increase the student's awareness of the value of e-learning
- 6. Increase the teachers' awareness of the concept and importance of e-learning and its impact on the educational process by holding training courses.
- 7. Advocate and support "a computer for each student" as adopted in many countries.
- 8. Control integration with messaging classroom teaching methods and to ensure that the curriculum is going to according to plan.
- 9. Develop electronic colleges and universities that specialize in e-learning design and programming.
- 10. Support research in the field of e-learning and distance teaching in cooperation with public and private non-profit organizations to develop e-learning programs.
- 11. Provide national incentives for distinctive advances in the field of e-learning. For example, a reward for the best school site; a reward for the best electronic content; a reward for the best e-library; a reward for the best teacher to apply e-learning, and a reward for the best communication with students and parents.

Technical field

- 1. Encourage the manufacture of educational software, courseware, learning management systems, and websites.
- 2. Support establishment and growth of companies manufacturing computers and related technologies.
- 3. Initiate a specialized center for e-learning for each region. These could resemble supervision and education management centers.
- 4. Provide technical support for e-teaching curricula
- 5. Establish a specialized center "bank" for models of interactive software for study courses (game, tests, shows, work papers, educational sketches, and model lessons) for the teacher and the student to view, evaluate, and imitate.
- 6. Establish management centers for e-teaching that attract specialized cadres who take responsibility of e-schools.
- 7. Encourage partnerships with distinguished international centers to benefit from their experiences in regard to planning, design, management and implementation in the field of e-learning and distant learning

The fifth core: obstacles to settlement of electronic learning

Electronic learning as other ways of learning encounters several obstacles which hinder its implementation (AL-Awawdeh, 2012, AL-Shioukh, 2008, AL-Oteebi, 2006 and Khulam, 2007) :

1. **Responsibility**: who is responsible for settling e-learning? Universities, ministry of education, organizations of society or individuals...etc? whatever the answer is, the issue re-quires the formation of a clear national strategic vision to function as a road map toward settling and spreading e-learning on the other hand, it is difficult for some people in charge to understand the role of technology in education, the no recognition of official authorities of the certificated conferred by e-universities and the inability of same

officials of education to participate in selecting stable criteria for electronics curricula and syllabi in a correct way whether they are in the form of textbooks or blended materials.

- 2. **Development of criteria**: Electronic learning encounters some obstacles which hinder its rapids spreading and setting. The most important obstacles are the followed criteria, some educational curricula and syllabi at universities and schools need a lot of modifications and innovations as a result of the different developments every year but even sometimes every month. If a university has invested in purchasing several educational programs and materials in the form of books or CDs, it will be incapable of modifying anything unless these books and CDs can be rewritten. This is a complicated thing even if it is possible. The first standard of e-learning has been introduced in the United States which is based on XML whose name is SCORM (standard sharable content object reference model).
- 3. **Information**: the lower level of informational mobilization of society and spreading of the e-learning culture awareness and increase of informational digital gap among the individuals of society.
- 4. **Rise of financial cost**: Some modern studies have confirmed that the ratio of whole users of the internet's in the Arab countries was %0.05 of the whole internet websites in the Arab countries, besides the scarcity of the speed of computer systems and the difficulty of internet coverage and its being slow in some areas and its high cost for some individuals.
- 5. **Infrastructure**: weak Infrastructure in most underdeveloped countries for providing necessary financing, computers and their supplies, facilitating communications and providing constant maintenance via the internet. A lot of schools and universities suffer from the in availability of rapid communications, network supplies, low supplies of computers, access to a wide space of bandwidth and expansion of the field of wireless communication.
- 6. **System and compensation incentives** of the requirements which encourage students for e-learning as e-education still suffers from in clarity in the systems, ways and methods in which education occurs in a clear way. Moreover, the non-settling of the issue of stimulating incentives of the teaching environment is one of the obstacles which hinder the effectiveness of e-learning.
- 7. **Social aspect**. e-learning sometimes lacks social connection (ties) as it grows students' introversion and isolation as existing in a genuine teaching situation in which real and interactive conformation occurs between teachers and students and lack of awareness of some individual of this type of teaching and passive attitude toward it, besides its concentration on the use of both senses of hearing and seeing more than others. The attitudes individual toward distant e-learning as being less important than normal teaching.
- 8. The science of methodology: technical decision is often taken by technicians depending on their uses and personal experiment, not taking into account the well fare of the user. When things are related to teaching, there should be a plan and standard program because this directly influences the teacher (how he teaches) and the student (how he learns). This means that most people of e-learning are specialized in the technical side or at least the most however, those specialized in the field of curricula, education and teaching do not have a view about e-learning or at least are not decision makers in the teaching process. Therefore, it is important for educated people, teachers and trainers to be involved in the process of taking decisions.

- 9. **Privacy and secrecy**: the occurrence of hacking on the main websites of the internet has influenced teachers and educated people and imposed in their minds many questions about its affect on e-learning in the future. Therefore, hacking content and tests is one of the most important obstacles of e-learning and it requires securing the investment protection of the side adopting e-learning in order to be capable of easily specifying and adjusting.
- 10. **Digital Filtering**: it is the ability of individuals and organization to determine the circle of communication and time for individuals and is there any need for receiving their calls, are there calls restricted or not, and do they cause any harm or damage. This can be done by placing filters to stop calls or close before in desirable calls and the same for commercials and advertisement.

Obstacles relating to the learner and the teacher.

Obstacles for the learner:

- Many students still prefer attending traditional lectures.
- Ability to achieve the instructional aims of e-learning.
- Limited motivation, self-confidence, perseverance and flexibility.
- Ability to blend new ideas with previous knowledge.
- Ability to dialogue, desire to cooperate and interact with teacher and colleagues.
- Ability to discover and apply knowledge.
- Ability to deal with and manage e-resources.
- Willingness to take responsibility for learning and recalling information.
- Skills of time management and effective communication.
- Requires a brilliant student who is self-motivated while not encountering the teacher face-to-face.
- Lack of familiarity (by some students) of skills to use modem technologies to access email, databases and web resources.

Obstacles for the teacher:

- Not all teachers are capable of adapting to this type of teaching.
- E-learning requires teachers who are proficient in communicating via computer.
- Teachers need to be involved in the formation of e-content and design of instructional activities.
- Inability to design different e-tests and ways of assessment and evaluation.
- Difficulty in working with distance students for guidance, academic and electronic supervision.
- Inexperience in co-ordination, role distribution and monitoring learners' progress.
- Apprehension lessening their effectiveness in the teaching process Difficulty with their new role as designers of instructional software and specialists in information technology.
- Non-satisfaction of some teaching staff members who prefer traditional methods of teaching.
- Resistance and refusal to participate by some conservative teachers.

Results and recommendations

Technological and electronic challenges of the near and distance future are enormous. The initiative and the ability to confront them are possible if we clear some restrictions that hinder the transformation of education. Education needs to be reorganized on scientific basis to benefit from the communications and information revolution. The world is heading towards and through the digital revolution and the basic structure of education is being changed to accomplish the inputs, processes and outputs required for the current age. The results must meet the needs, aspirations and aims of individuals and society because education has become the locomotive of knowledge, culture and development for all countries, especially under-developed countries, in an attempt to keep up with civilization and be competitive in international markets. Traditional educational methods are no longer adequate for this age of innovation. It is necessary to adopt modern practices and positive methods with participation of the entire educational system with comprehensive and objective programs and philosophies characterized by quality of performance that reflects the vision of future education. The changes must abide by national standards, ensure equality of educational opportunities, deal with technology in spirit of honest competition and integrate a multiplicity of instructional resources. It is important to consider the scientific, human, objective and physical conditions to avoid every possible failure, delay or resistance in adoption.

Recommendations

- 1. E-learning is a requirement for all educational systems, but its high cost, technical requirements and complicated procedures currently prevent its complete application in the educational process.
- 2. Curricula, programs and implementation strategies must be redesigned for the needs of the electronic and technological revolution. Results must be high quality and accomplish excellence and creativity to meet the needs of individuals and society.
- 3. Mobilization of society and settling the concept and culture of change, development and implementation is a requirement enforced by current circumstances.
- 4. Increased emphasis on the teacher and providing a supportive environment is important for success.
- 5. Continuous training is recommended to support teachers and administrator at all levels as technology is renewed.
- 6. The experience of other countries which already apply e-learning should be studied to avoid mistakes and optimize growth.
- 7. Modify old rules which hinder using technology and set up guidelines to advance education and raise creativity with competence and brilliance.
- 8. Adopt a strict security policy for practical implementation of firewalls to protect computers networks from external threats.
- **9.** Reform laws and regulations for protecting writing and publication rights against piracy and violations to secure the application of e-learning.

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