INTERNATIONAL JOURNAL

OF

INSTRUCTIONAL TECHNOLOGY

AND

DISTANCE LEARNING

PUBLISHER'S DECLARATION

Research and innovation in teaching and learning are prime topics for the *Journal of Instructional Technology and Distance Learning* (ISSN 1550-6908). The Journal was initiated in January 2004 to facilitate communication and collaboration among researchers, innovators, practitioners, and administrators of education and training involving innovative technologies and/or distance learning.

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In its first six years, the Journal logged over six million page views and more than one million downloads of Acrobat files of monthly journals and eBooks.

Vol. 7. No. 11.

ISSN 1550-6908

Table of Contents – November 2010

Editorial

Communication and Learning

Donald G. Perrin

Communication is the transmission of messages from a source to receiver by means of a common language. The message is encoded, transmitted across a channel, and decoded. Early man communicated through sounds, gestures, and pictures. These became the basis of spoken language, pictographs, and hieroglyphics. By the fourth millennium BC, ancient civilizations had some form of written communication. Their messages have been recorded on cave walls, clay tablets, papyrus, and paper. In the fourteenth century, the printing press became a force to communicate knowledge to the masses. The body of recorded knowledge grew exponentially in volume and accessibility. Each new generation now benefits from the learning and discoveries of its predecessors.

Nineteenth century technologies such as photography, lantern slides, telegraph, telephone, sound recording, motion pictures, Nipkov disk, and radio provided the foundation for audiovisual and television communication. World War II provided research on how people learn, and how best to design instructional materials using text, audio, graphics, images and motion pictures.

In the second half of the twentieth century, research focused on combinations of media (multimedia), feedback (language laboratory and teaching machines); video with audio feedback (ITFS, broadcast TV, satellite TV, and two way video); interactive multi-media (programmed learning, teaching machines, and computers); and applications of gaming, simulation, and artificial intelligence. In many instances, technology developed for business, military, and entertainment was adapted for training and education.

In this third millennium of formal instruction (assuming Plato and Socrates were the first), lightning fast digital technologies including computers and the Internet, global databases fueled by the explosion of knowledge, with ubiquitous and powerful search engines such as Google, create new options for research, instructional design, and management of teaching and learning.

Research continues to identify crucial design elements for effective teaching and learning. It began with simplistic concepts such as concrete vs. abstract learning (Dale's Cone of Experience), single and multi-sensory learning (see, hear, multimedia, feedback); participation and interactivity (collaboration, gaming, simulation, real-life experience); and inherent characteristics of the content, learner, teacher, environment, and communication process. Current developments include the design of *learning objects*, building blocks to customize learning based on individual needs. . Reusable *learning objects* (LOs) can be continually improved based on actual experience. Add to this a learning management system and you have just multiplied the tutorial capacity of your educational system by a factor of ten or more.

So where is this leading us? To diagnostic/prescriptive methods instruction that optimize the intellectual development and growth of every student. These technologies can achieve our educational goals within existing staffing levels and budgets. They may be the only option to enhance quality in this period of budget reduction.

LMSs and LOs supplement rather than replace a human teacher. The teacher becomes the learning manager – researcher, designer, trouble-shooter, and tutor in situations where a student needs additional help. Communication and learning go hand in hand, and the Information Age has provided many new tools to enhance motivation and learning.

Assessment of Learner Support Services in the Turkish Open Education System

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Abstract

This study examined the support service needs and preferences of distance learners studying at the Turkish Open Education System (OES) through a questionnaire. The questionnaire included a broad array of questions to collect data about participants' demographic information, their perceptions about the importance and accessibility of available support services, and their support service needs at different stages of their study. It also included open-ended questions to allow participants to comment on factors that are most assistive and most impeding in their distance learning experience, and also to allow them to offer suggestions for improving and/or expanding the existing learner support services.

The results of this study revealed that several areas of support services need improvements in order to support OES students effectively in their learning experience. Particularly, the affective support needs of OES students are largely unmet. A large needs gap was identified for five of the six affective support services included in the questionnaire. The largest needs gap was for the counseling services to promote student motivation. Moreover, a large needs gap was identified for two of the ten cognitive support services included in the questionnaire. These were face-to-face academic counseling and communication with course instructor. In addition to affective and cognitive support services, a greater needs gap was identified for one of the six systemic support services, which is orientation to the course media/delivery format.

Keywords: learner support; student support; student services; advising; guidance; counseling; distance education; open and distance learning.

Introduction

Providing support for distance learners is a vitally important component of delivering quality distance education (Moore, 2003; Simpson, 2002). The significance of learner support in distance education has been discussed from various points of view. The most frequently cited benefit of learner support is its positive effect on the issue of student retention (Paul, 1988; Simpson). While it has been well-established that student retention in distance education is a multivariate issue involving various interrelated factors and variables (Garland, 1993; Morgan & Tam, 1999), there is some evidence to suggest that learner support can play a significant role in assisting learners to persist (Potter, 1998). Mills (2003) argued that "a greater emphasis on more focused learner support could have the more lasting impact on retention rates if approached in a holistic manner and integrated fully into the learning process" (p. 106).

The value of learner support has also been discussed in relation to the trend towards a more consumer-oriented approach to education, where education is considered as a commodity to be consumed and students as customers of services (teaching and learning services) and products (course materials) (Lentell, 2003; Rumble, 2000; Tait, 2003). With the proliferation of for-profit distance education providers, students, as customers, now have more options from which to choose. In order to become a competitor in such a competitive education marketplace, institutions

have to meet the needs and expectations of learners so that they can attract more students (Tait, 1995; Rumble). Support services have a central role in meeting the unique and changing needs of the learners and, therefore, might add a competitive edge to distance institutions when implemented effectively (Mills, 2003). In fact, it's the quality of learner support services "which provides the competitive edge as more and more learning materials become available from a wide range of providers" (Mills, p. 112).

Marketing—another aspect of the consumer oriented approach to education—can also be promoted by learner support. Mills (2003) suggested that feedback from customers is one of the major driving forces in marketing, and also that collecting valuable feedback from customers requires a medium that encourages customers to interact with the company. He argued that in distance education settings, support services can serve for that purpose. The increased interaction between support personnel and students through a well-designed learner support system can produce valuable feedback from learners about the program or, more specifically, about the course. Such feedback can be used by course designers or administrative personnel so as to improve the quality of the courses or administrative processes, which in turn might have a positive impact on recruitment. In fact, based on his personal experience, Mills argued that this is already happening in the British Open University.

Another valuable aspect of learner support is that it can contribute to the realization of the very basic premise of distance education, which is widening access and learning opportunities for those who were never able to participate in formal education due to unstable socioeconomic backgrounds, poverty, distant geographical settings, family/work commitments, and disabilities of different kinds (Mills, 2003). The challenge that comes with the widening of access is that an increasing number of less-experienced, less-motivated, and more socially and economically disadvantaged students will be participating in distance education programs (Sewart, 1993; Mills). Educators and practitioners suggest that learner support has a major role to play here, as these are learner groups who need more individual support to cope with the difficulty of returning back to formal education, with possibly less motivation and less educational experience (Kenworth, 2003; Mills, 2003; Sewart, 1993).

While learner support affords economic and social advantages for distance institutions, viewing learner support only in terms of its economic and social benefits overshadows the critical role of learner support in the academic success of learners (Brindley, 1995). Moreover, such a view is problematic in the sense that it shifts the focus of learner support from assisting current students towards academic achievement to attract more new students (Brindley; Axelson, 2007).

Tait (2000) recognized the need to expand the view of learner support beyond the systemic and administrative processes. He offered a functional characterization of learner support that recognizes the pedagogic and motivational value of support services as well. He observed that learner support has three primary functions: cognitive, affective, and systemic. Cognitive support refers to facilitation of learning through mediation of standard and uniform elements of course materials for individual students. Affective support refers to establishment of a supportive learning environment that increases students' commitment and self-esteem. Systemic support refers to establishment of administrative processes and information management systems that are effective, transparent, and user friendly. According to Tait, these functions are both necessary and interrelated. For example, in an institution that does not provide affective support, students may feel isolated and drop out. This is more likely to occur no matter how qualified the systemic and cognitive support tools.

Statement of Problem

Despite the aforementioned significance of learner support, learner support mechanisms are often underdeveloped or overlooked in most distance education institutions (Scheer & Lockee, 2003). Most distance institutions have an inadequate understanding of how to plan and organize quality learner support systems. Many researchers have acknowledged the pressing need for more research studies guiding us in the development and implementation of quality learner support systems in distance education (Moreland & Carnwell, 2000; Robinson, 1995; Visser & Visser, 2000).

Considering that learner support systems deal with the individual learner (Moore, 2003; Robinson, 1995), particularly needed are studies that focus on special concerns and needs of individual learners (Potter, 1998). Support systems that do not account for the opinions and preferences of target students would be incomplete and misguiding. The literature indicates that the most effective support services are those that have been re-designed from the learners' perspective (Axelson, 2007; Visser & Visser, 2000). Tait (1995) has suggested that the first step for planning any kind of learner support is to determine who your students are and what their expectations are. Sewart (1993) followed the same line of reasoning by suggesting that "the management of learner support needs to take account of the needs of the learners as expressed by themselves or by the intermediaries" (p. 11).

Research that systematically reviews the learner's support needs from the learner's point of view is scarce (Potter, 1998; Reid, 1995). This study aimed to fill this gap and investigated the current state of learner support services at the Turkish Open Education System (OES) in Anadolu University from the learners' perspective. Anadolu University OES was selected for this study because several related factors suggest that student support is a vital issue in OES and clearly deserves further investigation. First, like many other distance education institutions, OES has high attrition rates. About 40% of the students admitted to OES drop out during their first two years of study; also, graduation rates are as low as 25.4% in Bachelor degree programs and 49.5% in Associate's degree programs (Latchem, Özkul, Aydin, & Mutlu, 2006).

Second, most students find the methods of OES—from initial registration and course selection through the various nontraditional delivery options—difficult, unusual, and confusing. The reason for this is that they are graduates of a teacher-centered primary and secondary school education in which teachers make most of the educational decisions and, therefore, the students' independent and self-directed learning skills are underdeveloped (Gursoy, 2005; Murphy, 1991). The majority of students enjoy structure, stability and supportive relationships, and have less desire to control or manage their own learning. When these students begin their study in a system that emphasizes independent learning—primarily from textbooks—they might need extra support in order to navigate their way through a sometimes confusing set of educational and administrative activities (Murphy).

Third, OES is not considered an alternative to mainstream education; rather, it is usually considered a last-resort option for those who are not able to attend traditional campus-based institutions due to their lower scores in the university entrance examination (Askar, 2005; Gursoy, 2005). In this sense, for most of the recent high school graduates, the decision to attend OES is not an informed one based on their needs, values, motivations and qualifications. Rather, they choose to continue their post-secondary education at OES because there is no other option for them (Gursoy). Therefore, most of these students do not question appropriateness of and requirements for studying at a distance before they enroll. After enrolling, many find that they are unprepared for studying at a distance. A well-functioning student support system is needed to help this uninformed student population develop attitudes and skills associated with distance learning success.

Purpose of the Study and Research Questions

The purpose of this research study was to examine and identify support service needs and preferences of distance learners studying at the Turkish Open Education System (OES). In order to fulfill this purpose, views and perceptions of OES students on importance, availability, and accessibility of student support services at the OES were investigated. The research question formulated to guide this study was as follows: What are the support services that OES students perceive as needed in order to become successful distance learners? The following sub-questions were formulated to guide the researcher in answering this broad research question:

1. What are the perceptions of OES students about the importance and accessibility of learner support services that they receive?

2. At which stages of the distance learning process do OES students need support most? And what particular services do they need?

3. What suggestions do OES students make about improving the existing learner support services at OES?

Methodology

A mixed methods approach that combines both qualitative and quantitative methods was used for data collection. Data collection took place in two distinct phases. In the first phase of the study, available learner support services were identified through literature review, investigation of institutional artifacts, and interviews with the institutional representatives. Institutional artifacts reviewed for this study were the OES website, registration handbook, textbooks, TV/radio programs, e-learning portal, and program brochures. Interviews included one administrator from the central office, two instructors from regional tutoring centers, and one support personnel from a regional administrative bureau.

In the second phase of the study, a questionnaire was designed based on findings of the first phase and administered to OES students. The format of the questionnaire was adapted from the survey tool developed by Potter (1997) to investigate the need, importance, availability, and accessibility of learner support services in three bimode Canadian universities. The questionnaire included a broad array of questions to collect data about participants' demographic information, their perceptions about the importance and accessibility of available support services, their support service needs at different stages of their study. The questionnaire was administered to OES students during and after the supplementary face-to-face tutoring sessions in three different providences of Turkey: Eskisehir, Kayseri, and Ankara. Out of 450 questionnaires distributed, 363 questionnaires were returned. Fifty-two of the returned questionnaires were incomplete and, therefore, discarded from the analysis.

An overwhelming majority (93%) of the questionnaire participants in this study were age 25 or younger. The largest single age group was 18-21 (59%). The second largest single age group was 21-25 (34%). Approximately 58% of the participants were female, 30% were employed, and only 6% were married. This study documented a low participation rate of those who are over the age of 25, employed and married. In terms of their prior education attainment, 90% of the participants reported having a high school diploma. In terms of study time, approximately 29% of the participants were freshman, 40% were sophomores, 26% were juniors and 6% were seniors. For the overwhelming majority of participants (94.9%), OES was their first distance learning experience.

Two different strategies were followed to increase the validity and reliability of the questionnaire. First, two institutional representatives knowledgeable about the provision and development of current learner support services reviewed the questionnaire. The purpose was to ensure that all

Open Education System (OES) provided learner support services are accurately represented and included in the questionnaire. This process also ensured that the wording/language for each of the services was correct and could be easily understood by student participants. Moreover, two experts knowledgeable about Turkish distance education and fluent in Turkish and English languages reviewed the questionnaire in order to polish the translation of the instrument and make modifications. All the concerns noted by institutional representatives and experts were addressed. Second, prior to administration of the questionnaire, it was pilot tested with a group of five OES students to check the clarity of the instructions and questions, and to identify possible problems participants might face in understanding what kinds of answers were expected, or in providing answers to the questions as posed. Students' feedbacks and recommendations were used to modify or validate the questions on the questionnaire.

Quantitative data obtained through the questionnaire were analyzed using the SPSS. Statistical computations of frequency distributions were performed to analyze participants' demographic profile. A 5-point Likert-type scale of zero (unimportant/not accessible) to 4 (very important/ highly accessible) was used for students' ratings of support services in terms of their importance and accessibility. Importance and accessibility mean scores were calculated for each support service to rank the services in terms of their importance and accessibility. Moreover, a needs-gap analysis was performed to identify the gap between importance rating and accessibility rating for each support service. A needs-gap mean score was calculated for each support service by subtracting the accessibility rating of each case from importance rating and calculating the mean of the differences.

In addition to importance and accessibility ratings, the questionnaire asked students to specify the stage(s) throughout their study (pre-enrollment, starting courses/program, moving through courses/program, finishing courses/program) in which each support service was most needed. An option of "never needed" was also given for students to indicate if they never needed the service. Students were given the option to specify as many stages as they wanted. Frequency distributions were calculated for each stage in SPSS to identify the support services most needed in each stage.

Open-ended questions were also included in the questionnaire to allow participants to comment on factors that are most assistive and most impeding in their distance learning experience, and also to allow them to offer suggestions improving the existing learner support services. A total of 237 participants answered at least one of these questions. Responses to the open-ended questions were analyzed using the structural analysis technique, including the following essential sub-processes: coding and categorizing the factors/suggestions and counting how many participants mentioned each factor/suggestion (enumeration).

Results

Assessment of Support Services

Questionnaire participants rated the importance and accessibility of twenty-two different support services. The functional support service categories suggested by Tait (2000) were used to cluster support services into three categories: cognitive (academic), affective (emotional), and systemic (administrative). Out of twenty-two support services rated, ten were clustered into the cognitive support service category, six were clustered into the affective support service category, and six were clustered into the systemic support service category.

Importance and accessibility ratings of support services in each category are discussed below. Moreover, the results of the needs-gap analysis—performed to identify the gap between the importance rating and accessibility ratings for each support service—are provided. Table 1 displays importance, accessibility and needs-gap mean scores for all support services.

For the purpose of this study, a mean score of 3.00 or higher is assumed to indicate a high level of importance/accessibility, a mean score of 2.00 to 2.99 to indicate a medium level of importance/accessibility, and a mean score of 1.99 or less to indicate a low level of importance/accessibility. A needs-gap mean score of 1.00 or higher is assumed to indicate a large needs gap, a needs-gap mean score of 0.50 to 0.99 to indicate a moderate needs gap, and a needs-gap mean score of 0.49 or less to indicate a small needs gap.

Table 1
Importance and Accessibility of Support Services

	SERVICES	Importance		Accessibility		Needs gap	
		N	*Mean*	*N*	*Mean*	*N*	*Mean*
Cognitive	Local study centers	295	*2.64*	296	*1.80*	293	*0.85*
	Face-to-face counseling	309	*3.44*	310	*2.21*	309	*1.23*
	Online counseling	305	*2.23*	303	*2.35*	303	*-0.11*
	TV programs	311	*1.98*	311	*2.16*	311	*-0.19*
	Radio programs	309	*1.05*	309	*1.62*	309	*-0.57*
	Educational software	303	*2.34*	302	*1.82*	302	*0.52*
	Local computer labs	306	*2.18*	305	*1.30*	305	*0.87*
	E-learning portal	306	*2.88*	306	*2.46*	305	*0.42*
	Online practice tests	310	*3.43*	311	*2.47*	310	*0.95*
	Communication/instructor	308	*2.87*	308	*1.54*	308	*1.33*
Affective	Promoting students' self-confidence	310	*2.67*	310	*1.01*	310	*1.65*
	Promoting students' motivation	310	*2.90*	311	*0.96*	310	*1.93*
	Overcoming students' concerns	307	*2.70*	307	*0.95*	307	*1.75*
	Information about OES activities	295	*2.65*	294	*1.61*	292	*1.04*
	Promoting social interaction among students	309	*2.43*	307	*1.03*	307	*1.41*
	Communication among students	303	*2.22*	303	*1.30*	303	*0.92*
Systemic	Help on admission/registration	311	*2.31*	311	*2.14*	311	*0.18*
	Help on technical problems	309	*2.58*	308	*1.71*	308	*0.87*
	Orientation to OES	308	*2.84*	308	*1.31*	308	*1.53*
	Local OES bureaus	311	*2.68*	310	*2.36*	310	*0.33*
	Internet services	308	*2.61*	306	*2.71*	306	*-0.09*
	Mobile-Quest services	301	*1.56*	297	*2.12*	297	*-0.55*

Cognitive Support Services

Participants evaluated ten cognitive support services: local study centers, face-to-face academic counseling, online academic counseling, academic support through TV programs, academic support through radio programs, educational software produced by OES, local computer labs for student use, e-learning portal, online practice questions, and communication with course instructor.

Importance. Participants assigned the highest level of importance to face-to-face academic tutoring (M = 3.44, SD = 0.74) and online practice questions/tests (M = 3.43, SD = 0.73), and assigned the lowest level of importance to TV programs (M = 1.98, SD = 1.18) and radio programs (M = 1.05, SD = 1.01). The rest of the cognitive services were given a medium level of importance.

Accessibility. One half of the ten cognitive support services were perceived to have a medium level of accessibility, and the other halves were perceived to have a low level of accessibility. Services that were assigned a low level of accessibility were local computer labs for student use (M = 1.30, SD = 0.97), communication with course instructors (M = 1.54, SD = 0.95), radio programs (M = 1.62, SD = 0.95), local study centers (M = 1.80, SD = 0.95), and educational software produced by OES (M = 1.82, SD = 0.90).

Needs-gap analysis. A large needs gap was identified for two academic support services: communication with course instructors (M = 1.33, SD = 1.24) and face-to-face academic counseling services (M = 1.23, SD = 1.10). Online practice questions/tests (M = 0.95, SD = 1.07), local computer labs (M = 0.87, SD = 1.50), local study centers (M = 0.85, SD = 1.31), and OES-produced educational software (M = 0.52, SD = 1.18) were four cognitive services with a moderate needs gap. A negative needs-gap mean score was identified for three cognitive services as a result of participants' overall accessibility rating surpassing the overall importance ratings. These services are online academic counseling (M = ?0.11, SD = 1.20), TV programs (M = ?0.19, SD = 1.18), and radio programs (M = ?0.57, SD = 1.23).

Affective Support Services

Participants rated six affective support services: promoting students' self-confidence, promoting students' motivation, overcoming students' concerns about their education, promoting social interaction among OES students, and communication with other OES distance learners.

Importance. Participants' ratings indicated that all affective and community support services were moderately important for them. While the most important affective support service was counseling services that promote student motivation (M = 2.90, SD = 0.97), the least important service was communication among students (M = 2.22, SD = 1.14).

Accessibility. All affective support services received a low accessibility mean score (1.99 or less). The affective services that received the lowest accessibility mean scores were counseling services that promote students' motivation (M = 0.96, SD = 0.84) and counseling services that overcome students' concerns (M = 0.95, SD = 0.80). The most accessible affective service was information about OES activities (M = 1.61, SD = 0.85).

Needs gap analysis. A large needs gap was identified for all affective support services but communication with other OES students. The largest needs gap was identified for counseling services that promote student motivation (M = 1.93, SD = 1.15).

Systemic Support Services

Participants rated six systemic support services in the questionnaire: help with the admission/ registration process, assistance in overcoming technical problems, orientation to the course media/delivery format of OES, administrative services provided at the local OES bureaus, administrative services provided on the internet, and mobile-quest information service.

Importance. Except for mobile-quest information service, all the systemic services were perceived to be moderately important for participants. Participant ratings indicated that the most important systemic support service was orientation to course media/delivery format of OES (M = 2.84, SD = 0.79) and the least important systemic support service was mobile-quest information service (M = 1.56, SD = 1.17).

Accessibility. Two systemic support services were perceived to have a low level of accessibility, and the rest were perceived to have a medium level of accessibility. The least accessible systemic support service was orientation to the course media/delivery format of OES (M = 1.31, SD = 0.90). The most accessible one was administrative services provided on the internet (M = 2.71, SD = 0.91).

Needs-gap analysis. A large needs gap was identified for orientation to course media/delivery format of OES (M = 1.53, SD = 1.00), and a medium needs gap was identified for assistance in overcoming technical problems (M = 0.87, SD = 1.05). A negative needs-gap mean score was identified for three cognitive services as a result of participants' overall accessibility rating surpassing the overall importance ratings. These are administrative services provided on the internet (M = -0.09, SD = 1.13) and mobile-quest information service (M = -0.55, SD = 1.33).

Program Stages when Support Services are Needed

The questionnaire also asked students to specify the stage(s) throughout their study (pre-enrollment, starting courses/program, moving through courses/program, and finishing courses/program) in which each support service was needed. An option of "never needed" was also given for students to indicate if they never needed the service. Students were given the option to specify as many stages as they want. Frequency distributions were calculated for each stage to identify the support services most needed in each stage (Table 2). Services needed in each stage are summarized below.

Pre-enrollment. What participants needed most at this stage were support services that will help them get started with the distance education program. While a majority of these services fall into the systemic/administrative service category, some of them are affective support services. The most desired systemic services at this stage were help with the admission/registration process and administrative services provided at the local OES bureaus. Approximately 75% of the participants indicated the need for these services. Moreover, approximately one-half of the participants indicated the need for orientation to the course media/delivery format of OES at this stage. The most desired affective support services before or during enrollment time were counseling to promote student motivation, activities to promote social interaction, and communication among OES students. Approximately one-third of the participants indicated the need for each of these affective services. Only a small number of participants indicated that they needed cognitive support before or during enrollment time.

Beginning of the Program. Participants indicated that the most support was needed at this stage of the program. Four out of six systemic services, eight out of ten cognitive support services, and all the affective services were identified as needed by at least one-third of the participants. Administrative services provided by the local OES offices and orientation to the delivery format continued to be the most desired systemic services at the beginning of the course/program. Moreover, the need for administrative services provided on the internet and help on technical problems increased at this stage.

The need for all affective support services increased at the beginning of the program. Counseling to promote student motivation continued to be the most desired affective service at this stage. Not surprisingly, the need for cognitive support services increased while engaging in the coursework. Face-to-face counseling was perceived to be most needed support service at this stage, with over one-half of the participants indicating the need for this service. Moreover, approximately one-half of the participants noted that they needed communication with instructors, the e-learning portal, and online practice tests at this stage.

Table 2.
Program Stages When Support Services Are Needed

SERVICES	Before enrollment		Beginning of program		Moving through program		End of program		Never needed	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Cognitive										
Local study centers	21	*7.1*	128	*43.5*	108	*36.7*	22	*7.5*	112	*38.1*
Face-to-face counseling	16	*5.2*	217	*70.0*	288	*92.9*	46	*14.8*	9	*2.9*
Online counseling	15	*4.9*	103	*33.8*	127	*41.6*	20	*6.6*	140	*45.9*
TV programs	7	*2.3*	102	*33.0*	124	*40.1*	14	*4.5*	158	*51.1*
Radio programs	4	*1.3*	18	*5.8*	18	*5.8*	6	*1.9*	282	*90.7*
Educational software	15	*4.9*	106	*34.8*	121	*39.7*	21	*6.9*	136	*44.6*
Local computer labs	9	*3.0*	79	*26.2*	80	*26.5*	18	*6.0*	188	*62.3*
E-learning portal	16	*5.2*	151	*49.2*	196	*63.8*	49	*16.0*	65	*21.2*
Online practice tests	3	*1.0*	155	*49.8*	265	*85.2*	219	*70.4*	21	*6.8*
Communication/instructor	8	*2.6*	160	*51.6*	206	*66.5*	35	*11.3*	80	*25.8*
Affective										
Promoting students' self-confidence	72	*23.2*	103	*33.2*	48	*15.5*	22	*7.1*	145	*46.8*
Promoting students' motivation	104	*33.5*	177	*57.1*	108	*34.8*	44	*14.2*	88	*28.4*
Overcoming students' concerns	63	*20.4*	112	*36.2*	99	*32.0*	42	*13.6*	111	*35.9*
Information about OES activities	25	*8.3*	120	*40.0*	80	*26.7*	20	*6.7*	156	*52.0*
Promote social interaction	104	*35.7*	120	*41.2*	69	*23.7*	28	*9.6*	75	*25.8*
Communication among students	92	*30.0*	122	*39.7*	37	*12.1*	15	*4.9*	121	*39.4*
Systemic										
Help on admission/registration	227	*73.0*	36	*11.6*	2	*0.6*	1	*0.3*	69	*22.2*
Help on technical problems	79	*25.8*	107	*35.0*	31	*10.1*	11	*3.6*	124	*40.5*
Orientation to OES	140	*45.5*	137	*44.5*	18	*5.8*	9	*2.9*	80	*26.0*
Local OES bureaus	228	*73.5*	169	*54.5*	96	*31.0*	119	*38.4*	23	*7.4*
Internet services	108	*35.1*	136	*44.2*	105	*34.1*	76	*24.7*	64	*20.8*
Mobile services	37	*11.9*	53	*17.1*	46	*14.8*	37	*11.9*	204	*65.8*

Moving Through the Program. While the need for cognitive services increased enormously, an overall decrease in the need for systemic and affective support services was observed while moving through the program. More than 85% of participants indicated the need for face-to-face counseling and online practice tests at this stage. Additionally, the e-learning portal and communication with instructor continued to be important support services needed at this stage. In regard to systemic and affective support, services provided at the local OES offices and on the internet, counseling to promote student motivation, and counseling to overcome educational concerns were perceived to be needed by approximately one third of the participants at this stage.

End of the Program. The need for most of the support services declined by the end of the program. Two services stayed important at this stage: services provided at the local OES offices and online practice tests.

Never Needed. Five support services were perceived to never be needed by over one-half of the participants. These were mobile-quest information services, radio programs, TV programs, local computer labs, and information about OES activities. Only three support services were considered never needed by less than 10% of the participants. These were services provided at the local OES offices, face-to-face counseling, and online practice tests.

Open-Ended Questions

There were three open-ended questions included in the questionnaire to allow participants to elaborate on their distance learning experiences. The first and second questions asked participants to indicate the most assistive and most impeding factors in their distance learning experience, respectively. The third question asked participants to provide suggestions for improving the existing support mechanism. Participants' responses to these questions were discussed below.

Assistive Factors

Participants were asked to comment on factors that assist them most in their distance learning experience. A total of 223 participants answered this question. A total of fourteen different assistive factors were identified from the participants' responses. These factors were classified under three categories: cognitive/academic, affective/motivational, and situational/personal.

Assistive factors that were mentioned most frequently fell into the cognitive/academic category, which accounts for approximately 86% of the total mentions. Within this category, OES face-to-face academic tutoring was the most frequently mentioned assistive factor (105 mentions). Many participants indicated that it was impossible for them to learn everything just following the textbooks, and face-to-face academic tutoring helped them simplify and clarify the topics they could not understand from the text. Moreover, some participants indicated that face-to-face tutoring helped them stay on track. This was reflected well by one of the participants comments: "Not everyone has the self-study and time management skills to follow the courses on a regular basis. Face-to-face tutoring helps these students to stay on track."

The second and third most frequently mentioned assistive factors were private supplementary textbooks (74 mentions) and private supplementary tutoring (51 mentions), respectively. Participants indicated that supplementary textbooks by private institutions were assistive due to their brief presentation of subjects and inclusion of more practice tests. Others reported that supplementary tutoring offered by private organizations was assistive because it took place in small classes where little distraction took place and more student-teacher interaction was possible. Moreover, it was reported that OES did not provide face-to-face tutoring for most upper-class courses and, therefore, those students who could afford it chose to supplement OES textbooks through private tutoring.

Personal factors were the second most frequently mentioned factors. Seventeen participants recognized the significance of self-commitment and individual efforts in their success. Twelve participants acknowledged the importance of frequently revisiting the course materials and memorization of important parts. Several participants reported that their time management skills and familiarity with the subject they studied were important factors in their success. In addition to academic and personal factors, participants reported some affective factors that assisted them in their distance learning experience. Self-confidence and motivation were the most frequently mentioned affective factors. Some participants also acknowledged the value of support from family and friends.

Impeding Factors

In response to the question regarding impediments to learning at a distance, 163 participants provided comments. A total of 25 different impeding factors identified from the participants' responses. These factors were classified under four categories: cognitive/academic, affective/motivational, self/personal, and administrative.

Similar to the assistive factors, impeding factors that were mentioned most frequently fell into the cognitive/academic category, which accounts for approximately 65% of the total mentions. Interestingly enough, the majority of the academic impeding factors were related to face-to-face academic tutoring. The most frequently cited impeding factor was lack of face-to-face tutoring for all courses (40 mentions). As indicated previously, OES provides face-to-face tutoring for the ten most common and relatively difficult courses.

The second most frequently cited impeding factor was inefficient and uncomfortable face-to-face tutoring settings (39 mentions). Participants mentioned that classrooms are very crowded and noisy. Twenty-two participants commented that face-to-face tutoring hours were inadequate for some courses to cover the whole curriculum. Some indicated that due to time limitations, instructors either went over some topics very quickly or skipped others. Twelve participants reported that face-to-face tutoring hours and/or days were inconvenient for them.

In addition to face-to-face academic tutoring, participants also considered the exam system as an impeding factor. Eleven participants complained about the short time interval (about two months) between midterm and final exams. Especially, several participants indicated that the midterm exam results were published late, and therefore they did not have time to plan for the final exam. Moreover, ten participants complained about sitting for all exams in one or two days. It was reported that sitting for five or more exams in two days was very stressful and mentally challenging for them. Another related factor was having just two exams for each course in one academic year. One participant commented, "Since there are only two exams, before each exam, units to study accumulate because of procrastination and it becomes stressful and harder to study."

Ten participants indicated that OES textbooks are too detailed and daunting for self-study. Three participants complained that they were discouraged by those instructors who were reluctant and disrespectful. Three participants indicated that OES resources for tests preparation were inadequate. Two participants talked about lack of personal academic background for certain courses.

Affective impeding factors were mentioned 48 times, which accounts for approximately 19% of the total mentions. The most frequently mentioned factor was disregard from public and/or OES staff (15 mentions). Several participants indicated that the public staff neither consider OES a formal education institution nor regarded them as traditional students. According to them this reduced their motivation to continue. For instance, a student who had enrolled in OES with high hopes commented "After I realized public's negative attitude towards OES students, I thought that I am here for no reason" Another related impeding factor, mentioned by nine participants, was lack of motivation (12 mentions). Participants also indicated that it was hard for them to keep focused and motivated all the time.

Personal impeding factors were mentioned 29 times, which accounts for approximately 11.7% of the total mentions. The factors most commonly mentioned were time management issues resulting from job obligations (20 mentions), family commitments, and, most interestingly, preparation for the University Entrance Exam. Only two administrative factors were mentioned as impeding. These were insufficient information about OES procedures (8 mentions) and inexperienced and uninformed staff in local offices (2 mentions). Two students noted that they lost one year just because they were misinformed by the OES staff.

Suggestions to Improve Support Services

The last open-ended question asked for suggestions to improve the current state of OES learner support services. A total of 196 participants answered the question. The majority of their suggestions included strategies to overcome challenges (impeding factors) they experienced throughout their distance learning practice. Suggestions were clustered into three categories: cognitive/academic, affective/motivational, and administrative.

Similar to assistive and hindering factors, a great majority of the suggestions were related to cognitive/academic services. Seventy-eight participants suggested receiving face-to-face tutoring for all courses. Fifty-eight participants called for more tutoring hours and days. Participants from Kayseri, where tutoring took place on Saturdays, especially requested different tutoring days for different courses instead of having them all in one day. Another student noted, "We need more tutoring hours so that we will have the opportunity to ask questions about the topics we don't understand." Twenty-four participants indicated the need to increase the quality of the classroom settings. The most common suggestion, in this regard, was to reduce the class size. Moreover, twenty-one participants called for more practice questions and tests to be solved by the instructors during tutoring sessions.

There were some other suggestions about face-to-face academic tutoring. For instance, participants from Eskisehir and Ankara, where tutoring took place in the evenings, asked for morning tutoring hours. Moreover, several participants complained about getting less than six months of tutoring for courses designed to be yearlong (tutoring starts early in January and ends late in May). Therefore, they requested tutoring to start early in the academic year. Also requested by four participants was effective, energetic, and concerned instructors who do not follow the textbook strictly.

Eleven participants recommended redesigning textbooks to make them short and straightforward. Other academic components that needed to be improved, according to five participants, were TV programs. They asked for better TV programs at convenient times. Two noted that there were times that TV program hours coincided with that of face-to-face tutoring.

Participants offered two recommendations regarding OES examination system. Nine participants suggested extending the time between the midterm and final exam. Moreover, five participants suggested midterm exam results be announced earlier so that they could take action for the final exam as early as possible. Another related suggestion was to increase the number of supplementary practice test books and CDs.

Three more suggestions were made to increase academic opportunities. Nine participants asked for more academic and nonacademic resources such as ability to use the local universities' libraries and attend their conferences, seminars, and social activities. Two participants indicated their demand for internship possibilities. Two others recommended that homework would be helpful to keep students active throughout the academic year.

Participants provided six different suggestions to improve their emotional state. Fifteen participants expressed their expectations of more respect and care from public and OES staff. In relation to this recommendation, thirteen participants suggested informing public about OES to eliminate their negative attitude against OES. For instance, one female participant noted, "Public needs to acknowledge that we are not any different than traditional students," and she added, "To accomplish this, OES needs more publicity." Several participants asked for more social activities (9 mentions), more guidance services (7 mentions), more emotional support (6 mentions), and the opportunity to communicate with other OES students (5 mentions).

Five suggestions were identified from participants' responses about administrative improvements. Five participants asked for clear and accurate information about OES procedures. Specifically,

one first-year participants commented that at the beginning of the year, he needed as much information as possible about registration, fees, due dates, tutoring dates and palaces, and so forth. Four participants indicated the need for a point of address (e-mail or phone) to contact all the time for any type of questions they had. Moreover, several participants asked for experienced and knowledgeable staff at the local offices (3 mentions), scholarship and dormitory opportunities (3 mentions), and lower registration fees (3 mentions).

Implementations

This study has demonstrated several areas of support services that need improvements in order to support OES students effectively in their learning experience. Based on the findings, the following recommendations for implication can be made:

- Participants' ratings of several support services revealed that face-to-face academic counseling and online practice tests are very important cognitive tools assisting OES students in their learning experience. Therefore, OES should not only continue to offer these cognitive support services, but should also augment the quality and quantity of these services. For instance, participants in this study provided several recommendations related to face-to-face counseling. These included more face-to-face academic counseling hours and days for currently available courses, face-to-face academic counseling for all courses, and less populated face-to-face academic counseling classrooms.

- The needs-gap analysis revealed that OES needs to improve its affective support services. A large needs gap was identified for five of six affective services included in the questionnaire. This suggests that OES should develop different support tools and strategies to augment its students' motivational, psychological, and emotional state that might contribute to their affective as well as cognitive involvement. Moreover, OES should not ignore the community dimensions of affective support. It should especially develop strategies in collaboration with other stakeholders to overcome the public's negative perception of OES, which was identified to influence students' affective and cognitive involvement.

- The needs-gap analysis also revealed that there is a need to increase the communication with the course instructions. The recommendation provided in item one (above) can increase the communication between students and course instructors in face-to-face courses (i.e., extending tutoring hours and days). For online academic counseling, OES needs to review the online medium for usability. Although the question-answer forum seems simple to use, students complained about the difficulty of adding math questions. They further complained that they can not know whether their questions are answered or not until they log in again.

- The needs-gap analysis further revealed that OES should provide general orientation sessions at the beginning of the academic year, particularly for the newcomers.

- There should be a communication structure between frontline support service providers and course or delivery system designers and program administrators. It is usually the frontline personnel who deal with the challenges and issues that students face. These personnel can produce valuable feedback from students based on their experiences with the courses, program, or delivery mediums. Provided that the course or delivery system designers and program administrators have limited or no interaction with students to get feedback, such feedback produced by the frontline service providers needs to be conveyed to backend staff so as to improve to the quality of the courses or administrative processes.

Limitations and Recommendations for Further Research

This study was a case study and was limited to students within the Turkish OES. Additionally, the sample for this study was not randomly selected. Instead, a convenient sampling strategy was used to increase participation. Participants in this study were OES students who were regularly attending face-to-face academic tutoring in three different provinces (Kayseri, Eskisehir, and Ankara); hence, the findings from this study might have limited general applicability for this particular population.

While findings of this study provide considerable insight into the field of student support in distance education, it is important to note areas in which modifications to the study may enhance reliability and/or increase generalization. It is highly recommended that this study be replicated with more participants and equally represented student subgroups. Students who don't participate in face-to-face academic counseling sessions should especially be included in future studies. Future research should also investigate the perceptions and experiences of drop out and/or stop out students, graduates, student support personnel, and employers on learner support needs, as they may provide different perspectives.

Future research should investigate the relationship between various support services and student outcomes of grades and course satisfaction. These studies will not only add to our already expanding knowledge of student support, but will also assist the administrators' support service providers in distance education institutions identifying support services that are most important for student satisfaction and success.

Also important is that as the technology continues to transform the modes of instructional delivery in distance education settings, the overall distance learner profile will continue to change. Changes both in the delivery technologies and in the distance learner profile will bring about challenges to the practice of student support in distance education. While rapidly changing delivery technologies urge us to develop new support structures that can encompass the new delivery modes, parallel changes in the distance learner profile require us to develop support services of various kinds that can address the changing profile of distance learners. This also points out the need for institutions to perform continuous evaluation of support service needs for the changing distance learner population in conjunction with the changes in the course delivery mediums.

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Editor's Note: This skillfully crafted research enables us to sort out the factors related to self-efficacy that are significant for low and high proficiency students to learn English as a foreign language.

The Influence of Self-Efficacy and Proficiency on EFL Learners' Writing

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Australia and Iran

Abstract

The impetus of the present study was to investigate the impact of self-efficacy and proficiency on EFL learners' written task performance regarding concept load, fluency, complexity and accuracy. One hundred and forty four low-proficiency and high-proficiency learners of English as a foreign language, between ages 18-25, were chosen. Each participant was requested to execute three tasks: a narrative task, a personal task, and decision-making task and fill out the self-efficacy questionnaire. The participants' performances were then analyzed utilizing the Pearson correlation. The results demonstrated that there was a significant relationship between self-efficacy and narrative and personal tasks in terms of concept load but not in terms of fluency, complexity, and accuracy in high proficiency participants. Also, there was no relationship between self-efficacy and decision-making tasks in terms of concept load, fluency, complexity, and accuracy in both low and high proficiency participants.

Keywords: self-efficacy, proficiency, task type, concept load, fluency, complexity, accuracy, writing performance

Introduction

Self-efficacy is a cognitive construct that represents individuals' beliefs about their ability to act and successfully produce outcomes at a given level (Bandura, 1977). Self- efficacy theory provides explicit guidelines on how to enable people to exercise some influence over how they live their lives. A theory that can be readily used to enhance human efficacy has much greater social utility than theories that provides correlates of perceived control but have little to say about how to foster desired changes.

As maintained by Bandura (1997) people make casual contributions to their own psychological functioning through mechanisms of personal agency. Among the mechanisms of agency, none is more central or persuasive than beliefs of personal efficacy. If people believe they have no power to produce results, they will not attempt to make things to happen. Unless people believe they can produce desired effects by their actions, they have little incentive to act. Efficacy belief, therefore, is a major basis of action. People guide their lives by their beliefs of personal efficacy. Thus, perceived self- efficacy refers to "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura: 2-3).

Self-efficacy and Social Cognitive Theory

Bandura's (1997) social cognitive theory is a theory of human functioning that subscribes to the notion that humans can regulate their behavior. Individuals possess self- beliefs that enable them to exercise control over their thought, feelings, and actions.

Social cognitive theory stresses the influential role of self- efficacy beliefs on human behaviors. Beliefs of personal efficacy are not dependent on one's abilities but, instead, on what that person believes might be accomplished with his or her personal skill set. Such beliefs influence an individual's pursued course of action, effort expended in given endeavors, persistence in the

conformation of obstacles, and resilience to adversity. Self- efficacious individuals will therefore approach challenges with the intention and anticipation of mastery, intensifying their effort and persistence accordingly. These individuals rapidly recover their lowered sense of efficacy after enduring failure or difficulty, and attribute failure to insufficient effort or deficient knowledge. According to Bandura, "people's beliefs of personal efficacy affect almost everything they do; how they think; motivate themselves, feel and have" (Bandura: 19).

Perceived self- efficacy occupies a pivotal role in social cognitive theory because it acts upon the other classes of determinants. Through choice of activities and the motivational level, beliefs of personal efficacy make an important contribution to the acquisition of the knowledge structures on which skills are founded. Beliefs of personal efficacy also regulate motivation by shaping aspirations and the outcomes expected for one's efforts (Bandura, 1997). In short, perceived self-efficacy is concerned not with the number of skills you have, but with what you believe you can do with what you have under variety of circumstances.

Self-efficacy and Achievement

Perceived self-efficacy, or students' personal beliefs about their capabilities to learn or perform behaviors at designated levels, plays an important role in their motivation and learning (Schunk, 2003). As Zimmerman (1997) said students' perceived self- efficacy influenced their skills acquisition both directly and indirectly by highlighting their persistence. The direct effect indicates that perceived self- efficacy influences student's learning through cognitive as well as motivational mechanisms. Considerable support has also been found regarding the effects of perceived self- efficacy on persistence. The overall findings of cross- sectional, longitudinal, and experimental studies are quite consistent in showing that beliefs in personal efficacy enhance effort and persistence in academic activities. Because perceived self- efficacy fosters engagement in learning activities that promote the development of educational competencies, such beliefs affect level of achievement as well as motivation. Efficacy beliefs have been shown to affect all three forms of academic performance (i.e. basic cognitive skills, performance in academic course work, and standardized achievement tests).

According to Bandura (1997) people's beliefs in their efficacy have diverse effects. Such beliefs influence the courses of action people choose to pursue, how much effort they put forth in given endeavors, how long they persevere in the face of obstacles and failures, their resilience to adversity, whether their thoughts are self- hindering or self- aiding, how much stress and depression they experience in coping with taxing environmental demands, and the level of accomplishments they realize.

Furthermore, research findings demonstrate that more generalized self- efficacy perceptions are also good predictors of more generalized performances such as obtained grades, choice of academic majors, and intention to enroll in math- related courses speak to the practical utility both of self- efficacy and of expectancy beliefs in general (Pajares, 1996).

Self-efficacy and Writing

Mills, Pajares, and Herron (2007) pointed out that students' self- efficacy beliefs powerfully affect their academic performance in various ways. Students with a strong sense of academic self-efficacy willingly undertake challenging tasks, expend greater effort, show increased persistence in the presence of obstacles, demonstrate lower anxiety levels, display their flexibility in the use of learning strategies, demonstrate accurate self- evaluation of their performance, and greater linguistic interest in scholastic matters, and self- regulate better than other students. As a consequence, they attain higher intellectual achievement. Conversely, students with low self-efficacy prefer to complete only uncomplicated academic tasks to which they apply minimal

effort and limited persistence or they might choose entirely to avoid the completion of an academic assignment. For these reasons, self- efficacy beliefs are often said to be better predictors of academic success than are actual abilities (Bandura, 1997). In the case of writing the researchers demonstrated that self-efficacy plays a primary role in predicting student writing performance.

Pajares and Valiante (2001) investigated the influence of writing self-efficacy, writing apprehension, perceived usefulness of writing, and writing aptitude on the essay-writing performance of 218 fifth grade students. They found that self-efficacy beliefs made an independent contribution to the prediction of performance despite the expected powerful effect of writing aptitude.

Hidi, Berndorff, and Ainley (2002) examined the relation between students' general interest in writing and their genre-specific liking and self-efficacy in writing. The results showed that children's genre-specific liking and self-efficacy in writing are closely associated and that both of these factors are also associated with their general interest in writing.

Andrade, Wang, Du, and Akawi (2009) investigated the relation between long- and short-term rubric use (including self-assessment), gender, and self-efficacy for writing by elementary and middle school students (N = 268). They measured long-term rubric use with a questionnaire. They manipulated short-term rubric use by a treatment that involved reviewing a model and using a rubric to self-assess drafts. The authors collected self-efficacy ratings three times. Results revealed that girls' self-efficacy was higher than boys' self-efficacy before they began writing. The authors found interactions between gender and rubric use: Average self-efficacy ratings increased as students wrote, regardless of condition, but the increase in the self-efficacy of girls in the treatment group was larger than that for girls in the comparison group, and long-term rubric use associated only with the self-efficacy of girls.

However, above studies and others examined the relationship between self-efficacy writing and writing. There is no research on relationship between general self-efficacy and writing. Also, there is no research on determining whether a different task type makes a difference or not. Moreover, whereas several studies have considered how the effect of self-efficacy varies according to the different factors imposed by the task or learner such as interest or aptitude, there has been almost no consideration of the interaction between self-efficacy and proficiency. Indeed, these studies have investigated learners with a very limited range of proficiency. They have examined mainly fifth grade students (e.g. Pajares and Valiante, 2001), junior intermediate learners (e.g. Hidi, 2002), elementary and middle school learners (e.g. Andrade, Wang, Du, and Akawi, 2009). Thus, to fill gap in the literature the main purpose of the present study was to investigate the relationship between general self-efficacy and task type in high and low proficiency learners.

Research Questions and Hypotheses

To achieve the purpose of the study, the following research questions and hypotheses were formulated:

1. What is the effect of self- efficacy on narrative tasks in low and high proficiency learners in terms of concept load, fluency, complexity, and accuracy?

2. What is the effect of self- efficacy on personal tasks in low and high proficiency learners in terms of concept load, fluency, complexity, and accuracy?

3. What is the effect of self- efficacy on decision-making tasks in low and high proficiency learners in terms of concept load, fluency, complexity, and accuracy?

Concerning the above- mentioned main research questions, the following hypotheses have been produced:

1. There is a significant relationship between self-efficacy and narrative tasks in low and high proficiency learners in terms of concept load, fluency, complexity, and accuracy?

2. There is a significant relationship between self-efficacy and personal tasks in low and high proficiency learners in terms of concept load, fluency, complexity, and accuracy?

3. There is a significant relationship between self-efficacy and decision-making tasks in low and high proficiency learners in terms of concept load, fluency, complexity, and accuracy?

Method

Participants

144 participants were chosen for this study on the understanding that they would be taking part in two tasks: 1) three tasks of writing and 2) a questionnaire. They were Iranian learners of English in Tabriz University. They formed two proficiency groups: 81 higher proficiency students and 87 lower proficiency students. They were all between 18 and 25 years old, and all were both females and males. At the time of data collection, most of them had been learning English as a foreign language in Iranian schools for 6 years, first in Junior school and then in high school. They had little opportunity to use English for communicative purposes outside the classroom. Although all the students, for pedagogical and practical reasons, were required to do all the tasks, several students were excluded from analysis in advance because they were absent in some of tasks.

The classes had begun 4 weeks before data- gathering was started. It was intended that this pre-research period would allow the classes to become established and would lead to more stable populations. All data were collected during normally scheduled class times.

Materials

All tasks were carried out by participants in dyads. The three tasks (See Appendix A) used were a narrative based on pictures, a personal information exchange, and a decision- making task from Foster and Skehan (1996).

The General Perceived Self- Efficacy scale (Schwarzer and Jerusalem, 2000) was used to assess the participant's self- efficacy (See Appendix B). Self- efficacy is commonly understood as being very specific; that is, one can have more or less firm self- beliefs in different domains or particular situations of functioning. But some researchers have also conceptualized a generalized sense of self- efficacy (Schwarzer and Jerusalem, 2000). The general self- efficacy scale aims at a broad and stable sense of personal competence to deal efficiently with a variety of stressful situations. The German version of this scale was originally developed by Jersalem and Schwarzer in 1981, first as a 20- item version and later as a reduced 10- item version. It has been in numerous research projects, where it typically yielded internal consistencies between alpha= 0.75 and 0.90. The scale is not only parsimonious and reliable, it has also proven valid in terms of convergent and discriminant validity. By confirmatory factor analyses it has found that the scale was unidimensional in all subsamples. The scale has 10 items with 4 point scale, ranging from A to D (A=not at all true), (B=barely true), (C=moderately true), and (D= exactly true).

Data collection procedures

After the participants and the materials were chosen, the procedure commenced. Each participant performed three tasks and filled out a questionnaire. Each class was visited on three occasions at weekly intervals and on each visit was one of the three tasks to do.

To find out the effect of self- efficacy on the participant's performance, the participants were required to fill out the General Perceived Self- Efficacy questionnaire. The questionnaire consists

of ten- item. The respondents were asked to rate how confident they are that they can do each of the 10 activities or tasks at present. Each item was rated by selecting a number on 4- point scale. Where 1 equals "not at all true" and 4 equals "exactly true". A total score was calculated by summing the scores for each of the 10 items, yielding a maximum possible score of 40. Higher scores reflect stronger self- efficacy beliefs.

Measures

Measures of concept load, fluency, complexity, and accuracy were developed to evaluate the quality of the participants' written production.

The word types per square root of two times the words was used as a measure of concept load (Ellis and Barkuizen, 2005), the number of words per T- unit was used as a measure of fluency (Ishikawa, 2006; Kuiken and Vedder, 2007), the ratio of clauses to T- units was used as a measure of complexity(Mehnert, 1998; Yuan and Ellis, 2003; Ellis and Yuan, 2004; Arnold, 2008; Wiggleworth and Storch, 2009), and the number of error- free T- units per t-units was used as a measure of accuracy Rahimpour (1997, 2008), Errasti (2003), Larsen- Freeman (2006), and Arnold (2008). These measures were used for analysis because these indices have been determined to be best measures of second language development in writing (Larsen- Freeman, 2006).

Results

In this section, the results were explained in two sections: 1) low proficiency learners and 2) high proficiency learners.

Self-efficacy: Low Proficiency Learners (Language Performances)

Table 1 provides a summary of the correlations for language performance of low proficiency participants in narrative tasks.

Table 1
**Correlation between Self-efficacy and Language performance
in Narrative Tasks**

Measures		Self-efficacy
Self-efficacy	Pearson Correlation	1
	Sig. (2-tailed)	.
	N	72
Concept Load	Pearson Correlation	.083
	Sig. (2-tailed)	.491
	N	72
Fluency	Pearson Correlation	-.018
	Sig. (2-tailed)	.883
	N	72
Complexity	Pearson Correlation	-.102
	Sig. (2-tailed)	.393
	N	72
Accuracy	Pearson Correlation	.083
	Sig. (2-tailed)	.487
	N	72

As can be seen, the significance of Pearson correlation for concept load equals to 0.491, for fluency equals to 0.883, for complexity equals to 0.393, and for accuracy equals to 0.487 in low proficiency participants. According to Table 4.51, the research hypothesis predicting that "there is

a significant relationship between self-efficacy and narrative tasks in terms of concept load, fluency, complexity, and accuracy in low proficiency learners" is not confirmed.

Table 2
Correlation between Self-efficacy and Language Performance
in Personal Tasks

Measures		Self-efficacy
Self-efficacy	Pearson Correlation	1
	Sig. (2-tailed)	.
	N	72
Concept Load	Pearson Correlation	-.078
	Sig. (2-tailed)	.514
	N	72
Fluency	Pearson Correlation	-.147
	Sig. (2-tailed)	.217
	N	72
Complexity	Pearson Correlation	-.036
	Sig. (2-tailed)	.767
	N	72
Accuracy	Pearson Correlation	.070
	Sig. (2-tailed)	.559
	N	72

Table 2 provides a summary of the correlations for language performance of low proficiency participants in personal tasks. As can be seen, the significance of Pearson correlation for concept load equals to 0.514, for fluency equals 0.217, for complexity equals to 0.767, and for accuracy equals to 0.559 in low proficiency participants. Therefore, the alternative hypothesis claiming that "there is a significant relationship between self-efficacy and personal tasks in terms of concept load, fluency, complexity, and accuracy in low proficiency learners" is not supported.

Table 3
Correlation between Self-efficacy and Language Performance
in Decision Making Tasks

Measures		Self-efficacy
Self-efficacy	Pearson Correlation	1
	Sig. (2-tailed)	.
	N	72
Concept Load	Pearson Correlation	-.074
	Sig. (2-tailed)	.535
	N	72
Fluency	Pearson Correlation	.021
	Sig. (2-tailed)	.858
	N	72
Complexity	Pearson Correlation	.049
	Sig. (2-tailed)	.685
	N	72
Accuracy	Pearson Correlation	-.074
	Sig. (2-tailed)	.539
	N	72

Table 3 provides a summary of the correlations for language performance of low proficiency participants in decision-making tasks. As can be seen, the significance of Pearson correlation for concept load equals to 0.535, for fluency equals to 0.858, for complexity equals to 0.685, and finally, for accuracy equals to 0.539 in low proficiency participants. Accordingly, the null hypothesis stating that "there is no significant relationship between self-efficacy and decision-making tasks in terms of concept load, fluency, complexity, and accuracy in low proficiency learners" is confirmed.

Self-efficacy: High Proficiency Learners (Language Performances)

According to Table 4, the significance of Pearson correlation for concept load is 0.002, for fluency is 0.676, for complexity is 0.786, and for accuracy is 0.988 in narrative tasks in high proficiency participants. As a result, the alternative hypothesis predicting that "there is a significant relationship between self-efficacy and narrative tasks in terms of concept load" is supported. Still, the alternative hypothesis claiming that "there is a significant relationship between self-efficacy and narrative tasks in terms of fluency, complexity, and accuracy in high proficiency learners" is not supported.

Table 4
Correlation between Self-efficacy and Language Performances in Narrative Tasks

Measures		Self-efficacy
Self-efficacy	Pearson Correlation	1
	Sig. (2-tailed)	.
	N	72
Concept Load	Pearson Correlation	.360*
	Sig. (2-tailed)	.002
	N	72
Fluency	Pearson Correlation	.050
	Sig. (2-tailed)	.676
	N	72
Complexity	Pearson Correlation	.033
	Sig. (2-tailed)	.786
	N	72
Accuracy	Pearson Correlation	-.002
	Sig. (2-tailed)	.988
	N	72

The result of Pearson correlation test is summarized in Table 5. As Table 5 indicates, the significance of Pearson correlation for concept load equals to 0.031, for fluency equals to 0.128, for complexity equals to 0.542, and for accuracy equals to 0.408 in high proficiency participants. In consequence, the research hypothesis predicting that "there is a significant relationship between self-efficacy and personal tasks in terms of concept load in high proficiency learners" is confirmed. On the other hand, the research hypothesis maintaining that "there is no significant relationship between self-efficacy and personal tasks in terms of fluency, complexity, and accuracy in high proficiency learners" is not confirmed.

A summary of the Pearson correlations for language performance of high proficiency participants in decision-making tasks is presented in Table 6. As can be seen, the significance of Pearson correlation for concept load equals to 0.072, for fluency equals to 0.839, for complexity equals to 0.070, and for accuracy equals to 0.343. Hence, the alternative hypothesis claiming that "there is a significant relationship between self-efficacy and decision-making tasks in terms of concept load, fluency, complexity, and accuracy in high proficiency learners" is not confirmed.

Table 5
Correlation between Self-efficacy and Language Performances
in Personal Tasks

Measures		Self-efficacy
Self-efficacy	Pearson Correlation	1
	Sig. (2-tailed)	.
	N	72
Concept Load	Pearson Correlation	.255*
	Sig. (2-tailed)	.031
	N	72
Fluency	Pearson Correlation	.181
	Sig. (2-tailed)	.128
	N	72
Complexity	Pearson Correlation	.073
	Sig. (2-tailed)	.542
	N	72
Accuracy	Pearson Correlation	-.099
	Sig. (2-tailed)	.408
	N	72

Table 6
Correlation between Self-efficacy and Language Performances
in Decision Making Tasks

Measures		Self-efficacy
Self-efficacy	Pearson Correlation	1
	Sig. (2-tailed)	.
	N	72
Concept Load	Pearson Correlation	.214
	Sig. (2-tailed)	.072
	N	72
Fluency	Pearson Correlation	-.024
	Sig. (2-tailed)	.839
	N	72
Complexity	Pearson Correlation	-.215
	Sig. (2-tailed)	.070
	N	72
Accuracy	Pearson Correlation	-.113
	Sig. (2-tailed)	.343
	N	72

Discussions and Conclusions

As talked about earlier, to realize the relationship between self-efficacy and the written performance of task types in terms of concept load, fluency, complexity, and accuracy, the Pearson Correlation test was employed. The results confirmed that there was not a significant relationship between self-efficacy and narrative tasks in terms of concept load, fluency, complexity, and accuracy in low proficiency participants. As an alternative, the study recognized a significant relationship between self-efficacy and narrative tasks in terms of concept load but not in terms of fluency, complexity, and accuracy in high proficiency participants.

As well, the present research discovered that there was a significant relationship between self-efficacy and personal tasks in terms of concept load in high proficiency participants, but not in terms of fluency, complexity, and accuracy in both low and high proficiency participants.

Finally, this study enlightened that there is no relationship between self-efficacy and decision-making tasks in terms of concept load, fluency, complexity, and accuracy in both low and high proficiency participants.

In his review article, Klassen (2002) examined and summarized 16 research studies examining the writing self-efficacy beliefs of 6th- to 10th-grade students. In the majority of the studies, self-efficacy was found significant to play a primary role in predicting student writing performance. Moreover, the results of the study by Pajares and Valiante (2001) demonstrated that elementary student's self-efficacy perceptions predict their writing performance and play the meditational role that social cognitive theory hypothesizes. Student's self-efficacy beliefs about their own writing capability directly influenced their writing appreciation, perceived usefulness of writing, and essay-writing performance. Besides, Collins and Bissell (2004) established that there was a correlation between self-efficacy and grammar ability.

Thus, the results of this study offer partial verification to be held by the findings of these studies. In fact, the findings are confirmed just in the case of narrative tasks in connection with accuracy of performance in low proficiency participants and narrative tasks relating to concept load of performance in high proficiency participants. The results are not established in the other cases. The reason may be attributed to the different factors such as the participants' gender, grade level, self-efficacy measure, and scoring writing method, and the interest of the participants in writing. As asserted prior, Klassen (2002) investigated and summarized 16 research articles in his review article. He maintained that several studies found gender differences, with boys rating their confidence higher than girls although their actual performance did not differ. Andrad, Wang, Du, and Akawi (2009) also found gender differences. Grade-level differences in perceived efficacy for writing were found in some studies but not in others. Difficulties with specificity of self-efficacy measures, and with correspondence between measure and criterial task were also found in several studies. The findings of the study by Hidi, Berndorff, and Aniley (2002) showed that children's genre-specific liking and self-efficacy of writing are closely associated and that both of these factors are also associated with their general interest in writing.

What's more, researchers have reported that self-efficacy beliefs, motivation, constructs, and academic choices, changes, and achievement although, as will be seen, effects sizes and relationships greatly depend on the manner in which self- efficacy and criterial tasks are operationalized and assessed (Pajares, 1996).

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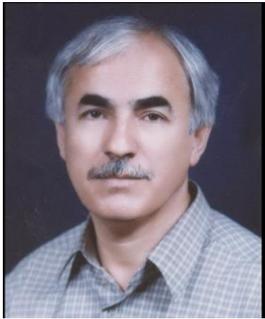
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Appendix A:

Tasks given to the participants in each class

Narrative Task

Write a story based on the following picture series
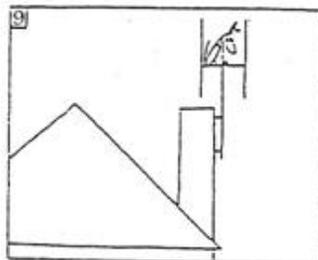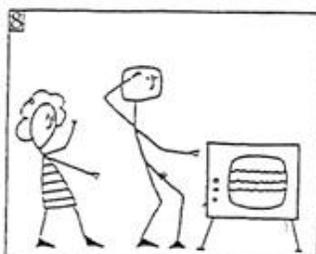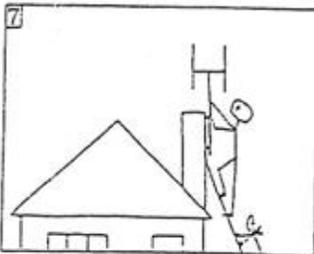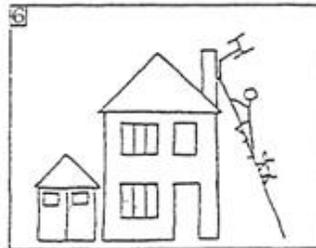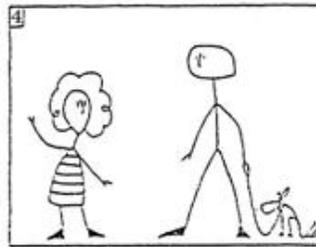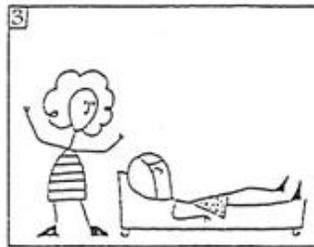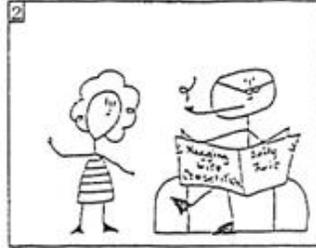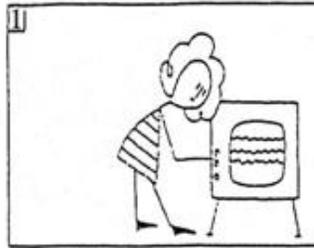
Personal Task

Sending Somebody Back to Turn off the Oven!!

In the afternoon, you are at school, and you have an important examination in fifteen minutes. You suddenly think that you haven't turned off the oven after cooking your lunch. There is no time for you to go home.

Explain to a friend who wants to help:

> How to get to your house;
>
> How to get into the house and get to the kitchen;
>
> How to turn off the oven off.

Decision-making Task

Read the following problem and make sentencing judgment for supposed crime.

At the party, three teenage boys were having a fight with a fourth boy near a swimming pool. They threw him in the water and stood on him until he drowned.

The three boys (and the boy who died) were drunk. They cannot remember anything about the fight in the swimming pool. Another boy at the party said that the fourth boy started the fight.

Appendix B:

General Perceived Self-efficacy Scale

For each of the following statements, please mark the choice that is closest to how true you think it is for you. The questions ask about your opinion. There is no right or wrong answer.

1) I can always manage to solve difficult problems if I try hard enough.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

2) If someone opposes me, I can find the ways and means get what I want.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

3) I am certain that I accomplish my goals.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

4) I am confident that I could deal efficiently with unexpected events.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

5) Thanks to my resourcefulness, I can handle unforeseen situations.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true`

6) I can solve most problems if I invest the necessary effort.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

7) I can remain calm when facing difficulties because I can rely on my coping abilities.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

8) When I am confronted with a problem, I can find several solutions.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

9) If I am in trouble, I can think of a good solution.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

10) I can handle whatever comes my way.

    (A) Not at all true

    (B) barely true

    (C) moderately true

    (D) exactly true

Thank you for your cooperation and kindness

Editor's Note: This research assesses the value of blogging to support the learning process. It shows significant gains for the experimental group and confirms the importance of the teacher to ensure success.

Reflections on Effects of Blogging on Students' Achievement and Knowledge Acquisition in Issues of Instructional Technology

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Abstract

The purpose of the study is to investigate the effects of blogging on Turkish undergraduate students' achievement levels in issues of instructional technology in a computer course. Moreover, this study reflects the observations of the instructor and the opinions of the students regarding contributions of blogging to their knowledge acquisition and information searching and sharing skills. The methodological framework of the study is based on a pretest-posttest experimental design with a control group and qualitative research techniques including interviews, document analyses and observations. A total of 68 undergraduate first year students in two groups (N=34 in experimental, and N= 34 in control) participated in the pretests and posttests. In addition, a total of 21 students took part in the interview process. The results showed that there was no significant difference between the mean achievement scores of the experimental and control groups in pretest. However, there was a significant difference between the mean scores of the experimental group and control group in the post test in favor of the experimental group. Also, the results indicated that the students in the experimental group had significantly higher scores in the posttest than in the pretest phase. As a result, both experimental and qualitative findings suggest that blogs can be used as supplementary mediums to promote achievement and knowledge acquisition of students as well as information searching and sharing skills within a learning community.

Keywords: Blogs, achievement, knowledge acquisition, information sharing, instructional technology, pretest-posttest experimental design with a control group, qualitative research, interviews, observations, Turkish undergraduate students.

Introduction

Blogs, also known as Weblogs, have grown in popularity over the past decade. In their early versions, blogs were simply manually updated components of common Web pages. However, the evolution of tools to facilitate the production and maintenance of Web articles posted in reverse chronological order made publishing process feasible to a much larger, less technical population (Wikipedia, 2010). Particularly, a blog can be defined as a Web site which includes dated entries in reverse chronological order about a specific topic, links to other Web sites, and visual (e.g., images, graphics, etc.) and audiovisual materials (e.g., videos, animations, etc.) and sometimes a search facility (Boulos, Maramba, & Wheeler, 2006). In addition, easy to create, edit and use from anywhere with an Internet connection and minimum technical expertise, blogs are a form of Web publishing that has become an established communication medium (Educasuve Learning Initiative, 2005). Early blogs were mostly considered as mediums for the publication of simple, online personal diaries. However, modern blogs have the capacity to engage people in collaborative activity, information sharing, reflection and debate (Godwin-Jones, 2003; Williams & Jacobs, 2004, Educasuve Learning Initiative, 2005, Hsu & Lin, 2008).

Although, originally blogs served as personal journaling tools, recently there has been growing interest in blog use in educational environments (Wang & Hsua, 2008; Piontek & Conclin, 2009).

For instance, teachers use blogs as resource centers (Oravec, 2002), teaching and learning aids in a higher-education context (Williams & Jacobs, 2004; Martindale & Wiley, 2005), and communication channels among themselves and students (Wang, Hsua, 2008). Furthermore, blogs are applied to demonstrate students' learning processes and finished products (Langhorst, 2006), to support formation of an online learning community (Kim, 2008), to support collaboration on the Web (Godwin-Jones, 2003) and to expand in-class discussion (Wang & Hsua, 2008; Huette, 2006). For instance, according to Huette,(2006), blogs can be used by the students to express their opinions on topics studied in the class, write comments on issues of interest, discuss activities they did in class, write about class topics, and showcase their best writing pieces (Huette, 2006). Additionally, blogs can be used to build information search and retrieval skills (Williams & Jacobs, 2004; Embrey, 2002) and to improve students' academic writing skills (Kelly, 2008; Tekinarslan, 2008; Johnson, 2004).

Moreover, blogs can be used to facilitate students' learning by allowing them reflective practice due to its innovative and user friendly structure (Stiler & Philleo, 2003; West, Wright, Gabbitas, & Graham, 2006; Luehman, 2008) which allows the students to display and share various multimedia materials (e.g., visuals, audio-visuals) (Boulos, Maramba, & Wheeler, 2006). Hence, blogs can also be applied in fields such as information technology and instructional technology to promote students' learning experiences since they may find opportunities to reflect and practice what they have learned about the basic conceptual and theoretical issues. However, little is known about effects of blogging on students' achievement and knowledge acquisition in issues of instructional technology. Thus, this study focuses on effects of blogging on students' achievement in issues of instructional technology in a computer course. Moreover, the study investigates opinions of students about contribution of blogging to their knowledge acquisition, information searching and sharing skills and opinions of the students about their classmates' comments on their blog contents and blogging skills.

Purpose of the study

The purpose of the study is to investigate the effects of blogging on student achievement levels in instructional technology issues in a computer course. In particular, this study explores whether there is any significant difference between mean achievement-scores of students in the experimental group that blogged on issues of instructional technology and the students in the control group that read on issues of instructional technology without blogging on the issues. Furthermore, this study investigates opinions of the students about contribution of blogging to their knowledge acquisition, information searching and sharing skills, and opinions of the students about their classmates' comments on their blog contents and blogging skills. Specifically, this study explores the following research questions:

1. Is there a significant difference between the mean achievement scores of the students in the experimental and control groups in the pretest?
2. Is there a significant difference between the mean achievement scores of the students in the experimental and control groups in the posttest?
3. Is there a significant difference between pretest and posttest mean scores of the experimental group?
4. Is there a significant difference between pretest and posttest mean scores of the control group?
5. Is there any significant difference between the achievement gain scores of the students in the experimental group and control group?
6. What are the opinions of students about contribution of blogging to their knowledge acquisition, information searching and sharing skills?

7. What are the opinions of students about contributions of their classmates' comments on their blog contents and blogging skills?

Structure of the course

Effects of blogging on students' achievement in instructional subjects and opinions of students about effects of blogging on students' information gains were investigated in a four credit Computer II course. The course was given during the 2009-2010 Spring semester in the Faculty of Education at Abant Izzet Baysal University, Turkey. The researcher was the instructor of the course. The students in the course were taught basic applications in database management in MS Access during the first four weeks, followed by basic web design applications in MS FrontPage and MS Publisher for four more weeks. In addition, Web 2.0 technologies (e.g., blogs, wikis) were introduced and blog applications took place during the last four weeks of the course.

Students were expected to create, edit and publish their own blogs in Turkish after they were taught blog applications in a blog publishing service named Blogger (www.blogger.com/start?hl=tr) that allows users to publish blogs in various languages including Turkish. Also, one of the purposes of the course was to introduce instructional technology subjects (e.g., basic concepts related to instructional technology, place and importance of instructional materials in teaching and learning environments, principles in effective uses of instructional technologies and materials, etc.) to the students. The students in the experimental group were required to read about some issues of instructional technology and then publish their blogs with content in these issues. The students in the control group were also required to read the same issues in instructional technology, but they were asked to publish their blogs about other subjects in education (i.e., special education) with which they are familiar.

Methods

The methodological framework of this study is based on a pretest-posttest experimental design with a control group (Karasar, 2005) and qualitative research techniques including interviews, document analyses and observations (Bogdan and Biklen, 1992).

The pretest-posttest control group model

Participants

Two groups of students (N= 57 and N=55) in the Special Education department registered for the Computer II course 2009-2010 Spring Semester. An experimental group consisting of 34 students (12 males and 22 females) and a control group consisting of 34 students (14 males, 20 females) were set up among the students randomly and on a voluntary basis to investigate the effects of blogging on the students' achievement in issues of instructional technology. The students in both groups had not taken any course related to instructional technology prior to this study. In addition, they were not going to take any other course about the subjects during the Spring Semester of 2009-2010 academic year.

Research Instrument

An achievement test in instructional technology subjects, developed by the researcher, was used to assess the students' achievement in the pretests and posttests. The development procedure of the achievement test in instructional technology subjects is explained in detail in the following section.

Development of the Achievement Test

Initially, 40 multiple choice items were written by the researcher in order to measure the achievement of students in instructional technology subjects such as basic concepts related to

instructional technology, place and importance of instructional materials in teaching and learning environments, selection of appropriate instructional technologies in teaching-learning environments, design principles of visual materials, principles in effective uses of instructional technologies and materials, and basic concepts and technologies in distance education. The researcher benefited from two textbooks (Yalin, 2004; Demirel & Altun, 2007) in instructional technology when writing the items of the achievement test. The test items were at knowledge and comprehension levels of cognitive domain in Bloom's taxonomy.

The achievement test in instructional technology with 40 multiple choice items with five choices was applied to a pilot group (N=71) at the Faculty of Education in three different programs (i.e., Computer Education and Instructional Technology, Science Education, and Classroom Teaching). After that, the Iteman software package was used to analyze difficulty levels and discrimination powers of the 40 items. The items with lower than .30 discrimination power were considered to be insufficient. Thus, 4 items out of 40 were excluded from the test. As displayed in Table 1, the KR-20 reliability of the retaining items (N=36) was found to be 0.82, average difficulty of the items (mean P) was found to be 0.53, and average discrimination power of the items (mean biserial) was found to be 0.47 . As a result, it can be stated that the test with 36 items has a sufficient reliability score, difficulty level and discrimination power to assess students' achievement in instructional technology.

Table 1
Pilot test results of the achievement test

Number of Examines	Number of Items	Mean ($\bar{X}$)	Std. Dev. (SD)	KR-20	Mean P	Mean Biserial
71	36	53.04 (19.08 * 2.78)	6.63	0.82	0.53	0.47

Procedures

A pretest and posttest experimental design with a control group was used to find differences between the achievement levels of the students (N=34) who read and blogged on subjects of instructional technology in the experiment group and the students (N=34) who just read on subjects of instructional technology in the control group.

Both experimental and control groups were administered a pretest (i.e., achievement test) before the experimental process to assess their prior knowledge in instructional technology subjects. After that, the instructor taught technical aspects of creating, editing and publishing blogs in both groups, but he did not teach conceptual or theoretical subjects related to instructional technology in either of the groups. However, he required the students in both groups to read the five issues of instructional technology in the two text books. Moreover, they were free to read and benefit from other reliable additional online and written documents about the issues of instructional technology. The students' learning of the issues in the control group was based only on reading. But, students' learning of the issues in experimental group was based on both reading and blogging on the same issues. The students were required to blog on the issues by using at least 1500 words. They were allowed to benefit from visual and audio-visual materials. The students in the control group were required to create and publish blogs as well, but they had to blog on subjects which they were familiar with (e.g., special education) other than instructional technology. Also, the students in both groups were supposed to e-mail the instructor their blog addresses after publishing their blogs.

In addition, the students in the experimental and control groups were required to make comments about each others' blogs and blog contents. Each student had to make comments on the blogs of at least two other students after receiving the blog addresses of their group mates from the instructor through an e-mail attachment. The students were supposed to read the documents and complete their blogs and comments in four weeks. Then, the same achievement test that was used as pretest was also administered as a post-test to both groups after the experimental process.

Data analyses

The data obtained from the pretests and posttests were analyzed by the software program of Statistical Package for the Social Sciences (SPSS). The mean scores and standard deviations were calculated for each group. The t-test was used to determine the differences between the experimental and control groups.

Qualitative Method

Participants

The participants in the qualitative section of the study were the same students in experimental (N=34) and control groups (N=34). Moreover, 21 students (10 males, 11 females) from the same groups voluntarily completed an interview form to provide additional data about their blog experiences.

Data collection

The qualitative method of this investigation was based on fieldwork approach (Bogdan and Biklen, 1992) which incorporated a number of data gathering techniques including interviews, document analyses, and participant observations to analyze blogging experiences of the undergraduate students.

Participant observation

The researcher, who was the instructor of the course, had opportunities to obverse students in a computer lab as the students created, edited, and published their blogs. The researcher took notes about any notable blog activities of the students in the computer lab.

Document analysis

The students in both groups e-mailed the instructor the contents and URL addresses of their blog pages. These e-mails, e-mail attachments and blogs of the students were electronically documented for analysis.

Interview

The students were requested to participate in an interview through e-mail at the end of the course. An interview form containing three questions was administered to get views and thoughts of the voluntary students about blogging. Students were not obliged to provide personal information on the interview form. The participant students (N=21) submitted their interview forms through email attachments within two weeks. The interview questions are provided in the opinions of students about blogging section.

Data analyses

The collected data (i.e. blog documents, email attachments, observations, interview forms) were stored in electronic files. The researcher assigned pseudonyms to the interview forms of the participant students. Content analysis method (Bogdan & Biklen, 1992) was used to analyze the data. The researcher reviewed the data (e.g., blog documents, email attachments, observations, responses of the students) to identify recurring words, phrases, and thoughts, which were subsequently identified as the initial coding categories. Also, the unrelated data were eliminated during the coding process. Then, these coding categories were read again to generate main

categories of the study. Finally, the findings were reported in accordance with the main categories.

Results

Experimental and Control Groups on Pretest

An independent sample t-test was applied to determine if there was any significant difference between the mean achievement scores ($\overline{X}$) of the experimental and control groups on pretest at a significance level of .05. According to the results in Table 2, the difference between the mean scores of the experimental group (31.20) and control group (29.65) was found to be insignificant (t = .853, df = 66, p = .397). Thus, both groups could be treated as equal based on their pretest scores.

Table 2
Significance of the difference between mean scores of the experimental and control groups on pretest.

Groups	N	$\overline{X}$	SD	df	t	*P*
Experimental	34	31.20	6.26	66	.853	.397
Control	34	29.65	8.56			

P < .05

Experimental and Control Groups on Posttest

The independent sample t-test was conducted again to detect if there was any significant difference between the mean achievement scores of the experimental and control groups on posttest. The results in Table 3 indicate that that there was a significant difference between the mean scores of the experimental group (48.28) and control group (37.17) (t = 6.837, df = 66, *p* = .000). According to this finding, it can be stated that the performance of the experimental group on posttest was better than the control group. Moreover, this finding revealed that blogging on the issues of instructional technology affected the performances of students notably in a positive direction and they demonstrated significantly higher achievement levels than the students who just read the issues of instructional technology.

Table 3
Significance of the difference between mean scores of the experimental and control groups on posttest

Groups	N	$\overline{X}$	SD	df	t	P
Experimental	34	48.28	6.01	66	6.837	.000*
Control	34	37.17	7.33			

*P < .05

Experimental Group on Pretest and Posttest

A paired samples t-test result indicated that there is a significant difference between the pretest (31.20) and posttest (48.28) mean scores of the experimental group (t = -12.571, df = 33, *p* = .000) (see Table 4). The students had notably higher scores in the posttest than in the pretest phase. Thus, it can be stated that blogging affected the achievement of the students in the issues of instructional technology positively at the .05 significance level.

Table 4
Significance of the difference between mean pretest and posttest scores of the experimental group

Tests	Experimental Group			df	t	P
	N	$\bar{X}$	SD			
Pretest	34	31.20	6.26	33	-12.571	.000*
Posttest	34	48.28	6.01			

*P < .05

Control Group on Pretest and Posttest

With reference to the paired samples t-test results in Table 5, there is a significant difference between the pretest (29.65) and posttest (37.17) mean scores of the control group (t = -13.813, df = 33, *p* = .000). Based on this finding, it can be stated that reading on the issues of instructional technology positively affected the students' academic achievements in the issues. However, their mean score achievement on posttest is not satisfactorily high.

Table 5
Significance of the difference between mean pretest and posttest scores of the control group

Tests	Control Group			df	t	P
	N	$\bar{X}$	SD			
Pretest	34	29.65	8.56	33	-13.813	.000*
Posttest	34	37.17	7.33			

P < .05

Experimental and Control Groups on Achievement Gain Scores

The findings in Table 6 indicates that the students in the experimental group had mean scores between $\bar{X}$ =31.20 ± 6.26 and $\bar{X}$ =48.28 ± 6.01 respectively on pretest and posttest. The control group had mean scores between $\bar{X}$ =29.65 ± 8.56 and $\bar{X}$ =37.17 ± 7.33 respectively for pretest and posttest. The mean achievement gain scores are $\bar{X}$ =17.07 ± 7.91 and $\bar{X}$ =7.51 ± 3.17 respectively for experimental and control groups. The difference between the mean achievement gain scores is significant in the favor of the experimental group (t = 6.533, df = 66, *p* = .000). According to this result, the mean achievement gain score of the students who blogged on the issues of instructional technology is significantly higher than that of the students who just read about the issues of instructional technology.

Table 6
**Significance of the differences between the mean achievement gain scores
of the experimental and control groups.**

Groups	Pretest			Posttest		Achievement Gain Score		t	P
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD		
Experimental	34	31.20	6.26	48.28	6.01	17.07	7.91	6.533	.000*
Control	34	29.65	8.56	37.17	7.33	7.51	3.17		

P < .05

Opinions of Students about Blogging

The students' opinions about blogs were presented in three categories which were generated during the analysis of the qualitative data: The opinions of the students about contribution of blogging to their knowledge acquisition, opinions of the students about contribution of blogging to information searching and sharing, and opinions of the students about contribution of their classmates' comments to their blog contents and blogging skills.

Opinions of students about contribution of blogging to their knowledge acquisition

The interviewer asked, "Do you think that blog publishing has made any contribution to your knowledge related to the subjects that you blogged on? If yes, what is the subject that you acquired the most knowledge about and how?" Most interviewees (18 out of 21) reflected that blogging made contributions to their knowledge in the related subjects (i.e., instructional technology, special education). Eight interviewees among them thought that blogging contributed to their knowledge especially when they bloged and shared their findings and readings about the subjects. For instance, one of the interviewees, Ebru, stated "*Yes I think it [blog publishing] made contributions to my knowledge about instructional technology subjects. Particularly, I acquired most knowledge about place and importance of instructional materials and tools in educational environments when I was writing my blog content and reading blogs of other friends with the same content*". Moreover, another interviewee, Selma, responded "*Yes I think it contributed to my knowledge in instructional technology, because I had a chance to write about and share what I learned through reading about a selection of appropriate instructional technologies in teaching-learning environments*".

In addition, five students responded that blog publishing gave them an opportunity to repeat and reflect on what they learned through their readings about issues of instructional technology. For example, Sinan noted "*Yes I think my knowledge in instructional technology increased through blogging. I at least found a chance to review and repeat what I learned from my readings*". Similarly, Ceyhun stated "*Yes I think it [blogging] contributed to my knowledge in the issues of instructional technology because it gave me an opportunity to repeat and reflect on what I learned while reading about the issues*".

Moreover, three interviewees thought that they practiced some theoretical principles in instructional technology when they were blogging on the subjects. For example, Serap, stated "Yes I think it contributed to my knowledge about the principles of effective uses of instructional technologies and materials. Also, I practiced some principles that I learned from my readings while I was blogging on the subjects".

On the other hand, two students noted that, although their knowledge has increased through blogging on subjects in instructional technology, it would have been more beneficial for them if they had options to blog on other subjects that they specifically prefer. For instance, Zeki stated "*Yes, I think my knowledge about basic concepts and technologies in distance education has increased through blogging. However, I think it would have been more helpful for me If I had been free to choose another subject that I am interested in to blog on*".

Nevertheless, three students in the control group thought that although they had opportunities to repeat what they learned previously blogging has not made any notable contribution to their knowledge in the area of special education since they already know most of the subjects that they blogged on. For example, Deniz stated "*Blogging was helpful to repeat and reflect on what I know in special education but I did not learn so much, because I already learned the subjects in the other courses in special education*".

The opinions of the students about contribution of blogging to their information searching and sharing skills

The interview question was "Do you think that blog publishing has made any contributions to your skills in information searching, finding and sharing? If yes, in which skill blog publishing has made the most contributions, and how? According to the majority of the interviewees (14 out of 21), blogging made contributions particularly to their information sharing skills. Eleven interviewees reflected that their information sharing skills were positively affected when they developed, organized and published their blog contents with visual or audio-visual materials (e.g., pictures, animations, etc.). For instance, an interviewee, Ceren, noted "*Yes I think my information sharing skills have been improved through blogging in terms of organizing the information that I found and publishing this information with pictures*". Similarly, Ayla thought that " *Yes I think blogging has made positive contributions to my skills in information sharing, since blogs are convenient tools to combine and share various types of information and materials and I developed and combined my blog content with related pictures and animations which make the content more concrete and attractive, I think*". Also, Azra, noted "*Yes I think it [blogging] has contributed to my information sharing skills because information sharing through blogs brings more responsibility to bloggers to review the content, correct the expression as well as writing mistakes before publishing it*".

In addition, three interviewees reflected that blogging contributed to their both information searching and sharing skills when searching and publishing the content. For instance, an interviewee, Melih, stated "*Yes, I think, blog publishing has made contributions to my both information searching and sharing skills. Particularly, I had to look for the books in the library that the instructor suggested and I had to search for information on the Web in order to use in blog content about instructional technology subjects. Also, when I was blogging on these subjects I had to paraphrase and organize what I found. I think these positively contributed to my information searching and sharing skills*".

The opinions of the students about contribution of their classmates' comments to their blog contents and blogging skills

The interviewer asked "Has your classmates' comments on your blogs made any contributions to your blog contents and blogging skills? If yes, what kind of contributions have they made?" According to the most interviewees, (16 out of 21), their classmates' comments have contributed to their blog contents and blogging skills. However, interview results revealed that most of the contributions were related to blog templates as well as visual and audio-visual materials (e.g., pictures, graphics, animations) on the blogs rather than the conceptual and theoretical information on the blogs. For example, an interviewee, Caner, stated that *"Yes, their comments have contributed to my blog content and blogging skills. I increased the size of the font for readability,*

and I added more visuals to get the attention of the readers by considering their opinions". Another interviewee, Selim, answered "*Yes they have. After reading their suggestions, I changed my blog template and I found and added free pictures from the Web, which increased the quality of the posts, I think*". Also, Murat noted "*Yes, their comments have contributed to my blogging skills and the content. For example, considering the suggestions of the friends, I replaced the visuals on my blog and I put links to other resources which were related to content that I presented*".

Although most interviewees (N=16) thought that their classmates' comments contributed to their blogs, only five of them mentioned that the comments made by the classmates contributed to their blog contents in terms of information on the blogs. For instance, Ebru stated "*Yes, they have. I reviewed my blog contents after reading the comments made by my classmates and found that there were some repetitions of information and some parts of the information was not sufficient. So, I had a chance to improve my blog contents in line with the comments and critics of the classmates*". Another interviewee, Nazlı, noted "*Yes, they have. I exchanged ideas with a classmate, added some visuals related to the content, edited and reedited the unclear areas of the posted information by considering the comments of my classmate*".

On the other hand, three interviewees stated that their classmates' comments did not contribute to their blogging skills and blog contents, since nobody criticized their blog contents. An interviewee, Cemil, noted that, "*No they have not contributed to my blog content and blogging skills because non of the comments were critical and I did not change anything on my blog*". In addition, two interviewees stated that their classmates' comments have not contributed their blog contents or blogging skills since they did not received any comments or critics on their blogs.

Observations of Instructor

The students created and published their blogs without any major difficulty after they were taught how to create, edit and publish blogs although a few students faced difficulty when they were creating a URL address for their blogs since they used the characters in the Turkish alphabet. Some students faced minor difficulties when editing the blog content (i.e., editing text and removing some visuals, etc.) and sought help from the instructor. Most students easily created, published and edited their blogs, and they enjoyed blog activities and they especially became happy after viewing their published blogs on the web.

On the other hand, content development part of the blog publishing was not very favorable for some students and they requested to be free to choose the blogs topics and contents that they are interested in. Also, many students preferred to use mostly online resources about the subjects when writing their blog contents. However, the resources that they used when developing their blog contents affected their performance in the achievement test. The students who benefited mostly from reliable online and print resources suggested by the instructor usually took higher scores since the test items were based on these resources. For instance, the students (N=15) in the experimental group who used mainly the suggested reliable resources obtained higher scores, which differ between 50 and 61.1, than the other students. However, some students (N=3) who mostly copied and pasted the information into their blogs from online resources instead of paraphrasing took the lowest scores (i.e., 38.89, 41.67). As a result, based on the observations of the instructor, blogs are easy-to-use tools for students and they can be effective supplementary tools in teaching and learning environments if used in accordance with the purposes the course and suggestions of the instructor.

Discussion and Conclusion

The purpose of this study was to investigate effects of blogging on academic achievement of the students in issues of instructional technology, and opinions of students about contribution of blogging to their knowledge acquisition, information searching and sharing skills as well as about their classmates' comments on their blog contents and blogging skills. According to the experimental results, there was no significant difference between the mean achievement scores of the students in the experimental and control group on pretest. However, the results indicated that the posttest mean scores of the experimental group, whose learning was based on reading and blogging, and control group, whose learning was based on only reading, were significantly higher than those of the pretest. These findings suggest that both reading and blogging were effective on achievement levels of students in issues of instructional technology. On the other hand, the results indicated that mean achievement score of the experimental group on the posttest was better than that of the control group. Moreover, the experimental results revealed that the mean achievement gain score of the students who read and blogged on subjects of instructional technology is significantly higher than that of the students who only read on subjects of instructional technology. According to the experimental results of this study, blogging alongside reading is an effective medium to promote students learning and achievement in the issues of instructional technology. However, the mean achievement scores of both the experimental ($\bar{X}$ = 48.28 over 100) and control groups ($\bar{X}$ = 37.17 over 100) were not satisfactorily high, although the differences between the pretest and posttest scores of both groups were significant. This can be explained by the lack of teaching facilities on the part of the instructor about the issues in the classroom. Therefore, although reading and blogging can be considered as effective mediums to facilitate students' learning, teaching activities on the issues are also necessary to achieve better learning outcomes.

Moreover, the qualitative findings of this study revealed that blogging contributed to the knowledge acquisition of a considerable number of the interviewees (N=8 out of 21) when they bloged and shared their findings about the issues of instructional technology. In addition, blogging provided some students (N=5) with an opportunity to go over and reflect on what they learned through their readings about the issues. Furthermore, some interviewees (N=3) reflected that they found chances to practice some theoretical principles in instructional technology when they were creating and publishing blogs. The findings of this study regarding the contribution of blogging to students' knowledge acquisition and reflective practice are consistent with the prior studies (Stiler & Philleo, 2003; West, Wright, Gabbitas, & Graham, 2006; Luehman, 2008) which suggest that blogs can be used to facilitate students' learning since they allow them reflective practice due to their innovative and user friendly structures. Additionally, majority of the interviewed students thought that blogging contributed to their information sharing skills when they developed, organized and published their blog contents with various visual materials. Consistent with the related literature (Kosenen, Henttonen, & Ellonen, 2007; Baxter, Connolly & Satsnfield, 2010), these findings suggest that blogs can be used to promote students information sharing skills in a learning community. Moreover, the findings of this study revealed that the comments of class classmates' on the blogs contributed to the most interviewed students' blog contents and blogging skills, which is also the case in the related literature which suggests that blogs can be used to expand in-class discussion, collaboration and corporation in a learning community (Wang & Hsua, 2008; Godwin-Jones, 2003).

To conclude, based on the findings of this study and related literature, easy-to-use blogs can be effective supplementary tools in teaching and learning environments to promote knowledge acquisition of students and to facilitate reflective practice and information sharing in a learning community. However, the findings of the study suggest that additional instructional facilities are needed besides blogging to yield better results in terms of learning and achievement.

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Online or Not Online: Into the 21st Century Education
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Abstract

Teaching and learning in the Information Age requires different skill sets and thinking models. Professors at a state college agreed that online learning environments have had both positive and negative effects on how they communicated with students and how they delivered their course content. Into the 21st Century, whether online or not online, most professors believed that educators have to continue to give emphasis to people skills.

An Ongoing Debate

Online or not online has been an ongoing debate, not only for how to preserve the value of human relations but also for how to deliver course content. In a traditional or face-to-face classroom, communication and human connections are great assets for knowledge acquisition within a learning community. Exchanges between professors and students as well as among students and other students happen spontaneously. Professors can recognize non-verbal cues and are able to motivate each learner on an individual basis. Students can spontaneously extend supports to or ask for help from their classmates or professors. These connections are vital for students and professors to engage and exchange their knowledge, thinking, concerns, problems, values, ideas, or viewpoints.

When a course moves online, communication dynamics are altered. Non-verbal communication cues disappear, and since students converse asynchronously, spontaneous interaction is impossible. Even with webcams in which students and professors can see and hear each others, interactions are not the same as in a face to face classroom. However, taking into consideration that online education allows students opportunities to learn independently from anywhere at any time, and to construct and acquire learning at their own pace, online education provides many advantages for students beyond the classroom walls (Coates & Humphreys, 2001). In addition, online education also opens up opportunities for adult students, who otherwise would not be able to attend face-to-face classes due to their busy schedules and family commitments. Although many studies that compare online and face-to-face learning environments find no significant differences in learning and other outcome measures, others would argue that these studies are incomplete with poor research designs (Lui, 2005; Meyer, 2002). Although some college professors have opened up to online education, many others are still resistant to the idea.

Changing population

Since more and more students entering college have grown up in today's digital world, they possibly are "digital natives" whose brains could potentially be "wired" differently from the previous generation (Prensky, 2001). Because they have been surrounded with TVs, computers, video games, iPods, MP3s, cell phones, the Internet and all other toys of the digital age, they are multi-task students and probably would not want to sit in a face to face classroom for a long period of time for a lecture. Furthermore, if Bill Gates was correct that the self-motivated learners would not need a college education because they could learn just about anything on the web (Gates, 2010), should professors rethink education for the 21st Century by adopting a virtual classroom?

The problem with Bill Gates' argument is how self-motivated students would know which information is accurate or inaccurate, reliable or unreliable if students do not have experts in the field guiding them. Since the Internet has been used for free exchange of ideas and information based on freedom of speech, internet users have the right to share and receive any information without experts' reviews or censorship by the government (American Library Association, 2005). With immeasurable and unstructured information available on the Internet, students need professors, now more than ever, to teach them how to discriminate the good or the bad information or how to become critical thinkers. The main question today is how college professors provide the best education to students whether it is online or not online. They have to think about skills that their students will need for the 21st Century. If Moore's law (Moore, 1965) is still true for the next decade, how do college professors provide up-to-date, reliable and accurate information to their students that is globally available to the world for every second?

Online Movement

Although many college professors still doubt its efficiency and fear losing human relationships in online education (Bork & Britton, 1998), about 3.1 million college students enrolled in online education in the academic year of 2000-2001. Eighty two percent of those enrolled in credit-granting distance education courses were at the undergraduate level (NCES, 2003). Main features that have appealed to many professors and college students are flexibility and accessibility for students and professors, anytime and anywhere. Forty five percent of all the 2- and 4-year institutions in the study reported that one of many reasons that the institutions offered online education was because these institutions received requests to provide accommodations for students with disabilities. For those institutions that did not offer online education, development cost was the main factor that prevented them from the expansion of online education (NCES, 2003).

At the 2003 Sloan Consortium, E. Allen and J. Seaman predicted that online education would continue to grow at a rate of close to 20% annually. This newfound popularity is due to the many mature and motivated students who have the ability to study independently; and to the faculty's daily exposures to email and the Web (Kearsley, 2000). Six years later, in their *Seventh Annual Sloan Survey of Online Learning*, **E.** Allen, and J. Seaman, (2009) reveal that online enrollment rose by nearly 17 percent with over 4.6 million students taking at least one online course during the fall 2008 semester. This growth for online enrollments far exceeds the 1.2 percent growth of the overall higher education student population. What does it mean for college professors? Whether online or not online, what skills should college professors prepare their students for the 21st Century?

Methodology

An online eSurvey was sent to all faculty members at a state college in Massachusetts via the campus e-mail system with a link to a web-based survey hosted by the college Information Technology Division. The term "online education" was defined as the instructional medium in which college professors and students connect via computers, modems and the Internet. Like many other campuses around the nation, this state college in Massachusetts has adopted BlackBoard where professors can post handouts, syllabi, PowerPoint slideshows, multimedia content and student grades via the online grade-book, as well as hold synchronous and asynchronous discussions, or organize group space for collaborative projects, and receive completed assignments from students via the Digital DropBox, etc**.** With support from the User Support & Academic Services within the Information Technology Division, many professors have adopted BlackBoard for their teaching, ranging from supporting tools for their classrooms to 100% online. The research question focused on how professors utilized the technology and what skills the professors believed their students should have in preparation for the 21st Century.

Results and Discussions

Demographic

Based on responses from 70 professors who filled out the eSurvey, 61% were female professors, 47% assistant professors, 20% associate professors, and 33% full professors (See Figure 1).

Demographic of Participants

61%   47%   20%   33%

Female   Assistant   Associate   Full Professor
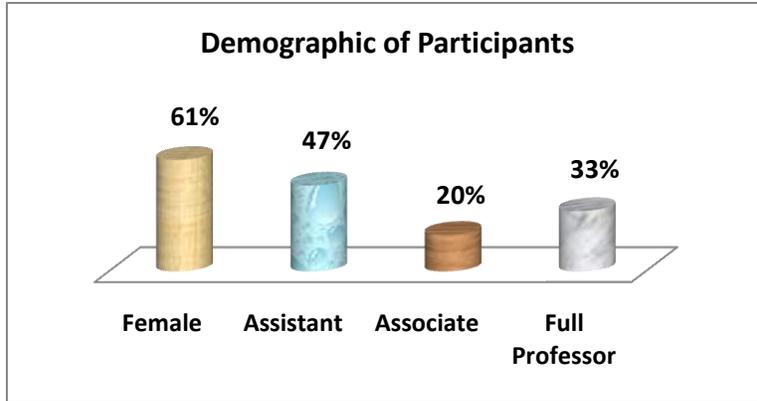
Figure 1: Demographic of 70 Participants

Gender and Rank of Participants

61%   71%   64%
46%   29%   36%

Female
Male

Assistant   Associate   Full Professor
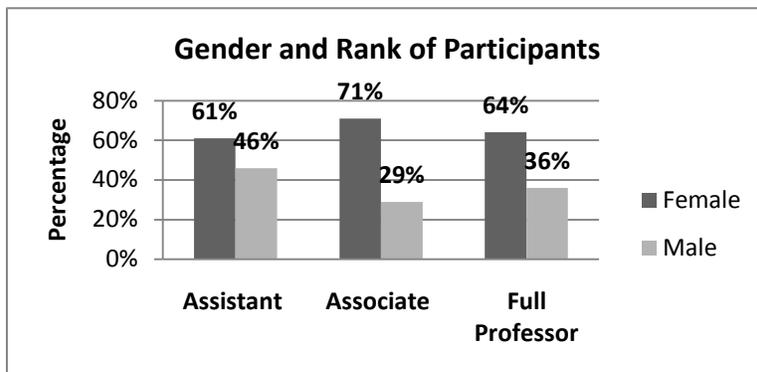
Figure 2: Gender and Rank of 70 Participants

Ranks of Participants

■ Assistant   ■ Associate   ■ Full Professor

46%   29%   36%

Assistant   Associate   Full Professor
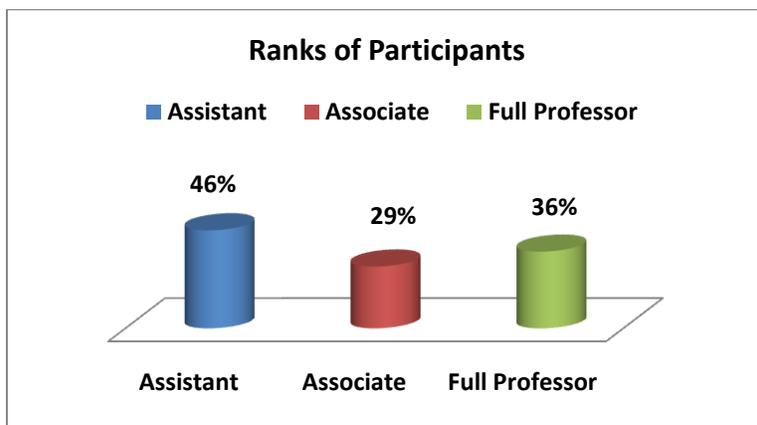
Figure 3: Rank of 70 Participants

In reviewing gender within ranks, the result showed that 54% were female assistant professors, 71% female associate professors, and 64% female full professors who participated (See Figure 2). From the numbers, it could be inferred that female professors across ranks were more interested than male professors in sharing their thoughts with regard to online education. In analyzing responses based on rank, the result showed that 47% responses were from assistant professors in comparison to 20% from associate professors and 33% from full professors (See Figure 3). The result also indicated that more female than male professors reported the use of an online courseware management system such as BlackBoard. Given that this is a self selected group, further study is needed for more insightful interpretation of why more female than male as well as more assistant professors than associate or full professor were willing to respond to an online survey.

Features of an Online Courseware Management System

In surveying different features of an online courseware management system, 62% of participants reported that online education enhanced their communication with students, and that Announcements, Course Documents, Syllabus, Discussion Boards, Emails, Faculty Information and Office Hours features were their best choices. They also believed that online education has both positive and negative impact in their teaching styles. For example, a professor wrote "More things spelled out online" or "Can give more assignments in an online course." However, "Facial expressions are very important in a language classroom. There is no way to reproduce that in a virtual setting," wrote another. In spite of this lack facial expression or non-verbal cues, many professors believed that with immeasurable information available into the 21st Century, online education will enhance student learning abilities in, "analyzing information that they are confronted with, challenging it and seeing if it makes sense," and "collaborating across groups to achieve social justice and peace," wrote another professor.

Of the 38% participants who reported not using any of these online courseware management systems, 30% of them reported that they did not have time to learn and wished to have a course reduction for learning, another 48% asked for some training system, whereas 12% showed no interest or acceptance of these tools.

Utilization of an Online Courseware Management System

For those who have used an online courseware management system, 60% of them reported that they have had the benefit of using Announcements, 60% Course Documents, 54% Syllabus, 44% Discussion Boards, 44% Emails, 42% Faculty Information and Office Hours, 27% Grade Book, 27% Course Statistic, 23% Digital Drop Box, 23% Group Pages, and 14% Real-Time or Synchronous Conference (See Figure 4).

Motivation for professors to move their courses to online or hybrid format (partly online and partly face-to-face) not only saves papers but also enables professors to connect to students anytime and anywhere. For example, posting their syllabi and course documents onto Syllabus and Course Documents helps professors not only save time and paper from copying, but also cuts down distress for students who missed a class or misplaced their syllabi or handouts. Professors also found advantages of posting class announcements online not only in keeping students informed of class events and requirements, but also in saving the professors themselves from sending students emails that sometimes could be lost in cyber space.

Tools Professors Used in BlackBoard
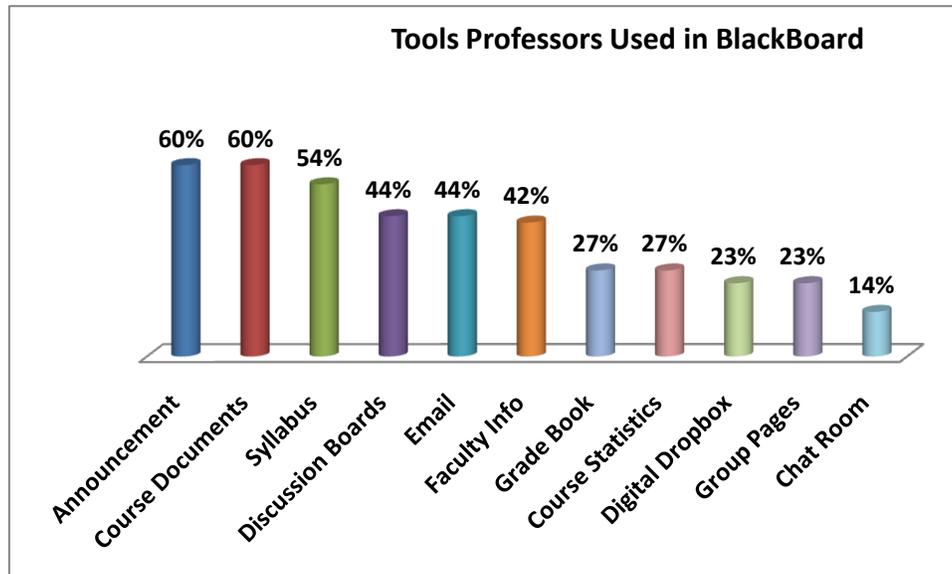
Figure 4: BlackBoard tools that professors used for their courses

The Discussion Board feature has also been commonly reported as an effective tool for class and group discussions. By posting questions online for discussions, students would have time to think thoroughly or to see how others respond to questions before posting their own answers. This explains why professors reported using Discussion Board helps "non-talkers talk."

The least favorite feature of a courseware management system is the Synchronous Discussion or chat function.

How Teaching Style Changed

Out of 46 professors who responded to the question of how their teaching style changed from face-to-face to virtual classroom, 76% would say, "Less human spontaneity and inter-personal grappling with the subtleties of ideas," or ""For hands on interaction, a video would need to be made and would be very time consuming. Also feedback about questions would not be immediate." Many professors negated the online environment because "Virtual classrooms are definitely more visually oriented. The personality of a teacher does not translate in the same manner virtually as it does live. Written communication becomes a premium in the virtual medium. The difficulty that we all face is not sounding 'terse' in our written communications since this can cause emotional misunderstanding at times."

On the other hand, some professors believed that online learning enhanced their teaching because they could save their notes for students to review later at their convenience. One professor articulated his positive analysis toward online learning because the online course "becomes more varied with more tools at hand." Others explained, "You have to be very precise with instructions, policies, etc. You have to be very precise with the use of language and messaging as nuances of tone, body, language, etc., since these are part of face-to-face communications that cannot be discerned online."

When asked how professors translated their content from face-to-face to virtual classroom, out of 35 professors who responded to this question, 46% did not know how because "I don't know yet. I need some information on that" or "I am simply going paperless and requiring students to work online." Some professors would say, "I have no idea. But for anything that I post, it is usually a Word or PowerPoint document, or a URL" or "I would not teach in a virtual classroom." Forty percent suggested: "More illustrations, verbal examples, more humor" or "I use topics from lectures as discussion points in forums on BlackBoard, in hopes that they will spark discussion on

the Internet for which there is no opportunity in a lecture setting. Perhaps, though, my most productive use of BlackBoard is that I can prepare presentation graphics and text which I would normally take class time to put on the board by hand. These presentations can include graphics with better detail and no lecture time is taken up in posting them." One professor described how as, "I assign chapters from the text and also find weekly lab assignments (that use the Internet) to supplement the text. For instance, if students are learning about supply and demand, I would assign the chapter to read, and then give a lab assignment that sends them to the McDonald's web site to answer the question: 'In what ways is McDonald's trying to increase the demand for its product?' Students answers could include Happy Meal promotions, community service projects described there, etc." Another professor would caution others as, "The visual and written become critical for communication in the virtual setting. Statements that are made verbally in the live classroom now are written. This causes the aural learner to be at a disadvantage." Fourteen percent of the teachers used BlackBoard as an aid to their teaching such as "I have students use Discussion Boards as much as possible to make up for the lack of face-to-face time" or "I meet with my classes also. Content delivery is not a problem."

When asked if professors noticed any difference in building a virtual learning community versus face-to-face classroom meetings, out of 33 professors, 76% answered yes with equally positive and negative difference. Those who believed that using a virtual learning community would make be a better tool would say, "I can make non-talkers talk," "Keeping students motivated" or "There is much more electronic communication, which, for some students, is a big plus, both in terms of learning style and time availability." But these professors also mentioned that building better online learning environments would rely on "Well-structured courses with clear expectations." On the other hand, others would say "There is less of a sense of community for an online course" because "Interaction is slow. In a face-to-face setting, ten students and I can exchange twenty views in the course of two minutes, with ultimate flexibility to allow interruption for clarification. Online would take literally days, not to mention contribute to my carpal tunnel problems through all that typing." For the twenty-four percent who responded to no difference expressed regret such as "Sorry, I don't have enough experience in teaching online to address this" or "I'm still a novice."

When asked if professors noticed any impact on student achievement via online courseware management systems, out of 49 professors, 61% said no and 39% yes. For those who said yes, 80% believed that these tools enhanced student learning such as "I am getting more questions from my students because I can assign more homework on a regular basis. I can use the courseware to mange receiving student solutions, grading the solutions and providing feedback on the submissions" or "With more personal interaction, more personal investment, some students' grades go up." On the contrary, some professors would say "grades seem to go down, but it's not the fault of the medium" or "less knowledgeable about aural class focus (which is, of course, critical in music classes)."

When asked which factors would limit the success of using an online courseware management system, out of 54 professors, 38% referred to socio-economic, 31% others, 22% culture and 7% gender. For those who cited socio-economic as reasons expressed their concerns as "Those who can't afford the technology will have little experience when they finally do get online," or "If students do not have access to computers or the Internet, it could be a problem." On the other hand, some professors would argue that "Given the available computing resources on campus, as long as I give students a reasonable amount of time to plan for the use of those resources, the lack of computer resources at home or in a dorm room is not a valid excuse for missing an online assignment or activity." Others disagreed with this argument as "Not everyone has unlimited hours for access. This might constrict those who work, for example, and cannot have the Internet access after hours. These people might not own personal computers." Classes and race became an

issue as some professors would say, "People who live in oppression—even economic oppression are dealing with many factors that make their lives complex and confusing. They are less likely to take the risks involved in learning new technologies. My graduate students, many of them single parents, have very busy lives and numerous responsibilities… Technology and learning to use technologies are considered luxury items beyond their reach." Those who mentioned other factors cited age or maturity, reading and writing, time management and technical skills were main factors. Those who believed culture was a factor said: "some cultures are more face-to-face, and reject these innovations" while others disagreed: "I have been to many different countries, and the students there are usually well versed in getting information off the internet, so, to me, that ruled out culture." Those who cited gender as a factor would say: "Men tend to be better, more confident users of computers than women" while others would disagree! "I know a number of tech experts who are female" or "I think a virtual environment reduces gender differences."

Online Education into the 21st Century

When asked what skills professors believed their students should have in preparation for the 21st Century. Forty-six professors who responded to this question suggested:

1. People skills: They were concerned, "About students learning people skills – I feel that these are declining;" therefore, students should be taught more about "e-mail etiquette," "Taking each other's perspective" or "More focused on human teamwork." One professor even suggested "Howard Gardner's 7 intelligences… As human beings our developmental needs are the same. However, in terms of interacting, we should prepare students to be able to communicate in many media." Intra-personal intelligence should also be emphasized as a professor wrote "learn who they are, where they come from, what their goals and aspirations are. Basically, what are our students' needs and how can we help them achieve their goals to the best of our abilities? In addition, what do we think students should be exposed to in order to make them well-rounded, worldly, and complete human beings, capable of independent thought, personal expression, reasoning, and decision-making in our multi-cultural society?"

2. Analytical and critical thinking skills: Students should have the "Ability to analyze information that they are confronted with, to challenge it and see if it makes sense" or "Better understanding of 'them' and the others in the global equation. Promoting something I have called 'The Abers' Five Minute News Hour' at the beginning of a BSC/Regulations and Law course I teach. I am amazed how little our students understand or care about both the facts and the Ethics of current events." Some professors even suggested "They should be adaptable to any work or career situation and not be wedded to a single way of doing anything."

3. Reading and writing skills: These professors believed that, "Our students need these skills to converse online" or "All students should be able to read and analyze written texts. They should be able to write and speak clearly, and in an organized manner."

4. Technology skills: These professors believed that their "Students should be computer literate" or "students should be able to do the basics of word processing, sending emails, finding information on the web, and using programs that are relevant to their field (such as statistical packages in a research field). They should also be able to access the credibility of their sources and be aware of the importance of giving credit for information obtained on the web." One professor wrote "technology is part of every profession, so students should use it at college."

When asked what professors should do in preparation for teaching their students into the 21st Century, most professors would say that "Educators need to keep up to date with changes (as relevant to our respective fields) so that we can convey the best education possible to our

students" or "Just as in any other period, keep abreast of advancements." Others would say "In preparation, educators need to rethink what learning is, and adjust teaching to meet it" or "Educators need to work with students with any eye on exploration and imagination. They need to be computer literate and critical thinkers, able to use their imaginations to see the significance of 'reaching beyond time and space." One professor, however, warned that "we should, and in fact, must familiarize ourselves with technological resources, but be certain that we recognized them as just that: resources to be exploited, and not a replacement for good teaching."

E-Learning Into the 21st Century

As Allen, E. & Seaman, J. (2009) confirmed, the growth of online education far exceeds the 1.2 percent growth of the overall higher education student population, and online education will continue to grow at a rate of close to 17% annually. Obviously, we are standing at a crossroads just like when the first airplane was introduced at the time that people traveled on wagons and trains. We have to decide to go one way or another, but we cannot turn the clock back to the Industrial Age when information was contained by experts or authorities, jobs required a fixed set of skills and were dominated by large corporations. Teaching and learning in the Information Age requires different skill sets and thinking models because everyone can get access to vast information and can make more informed decisions. Since information is power, corporations need knowledge workers who are also life-long students. As Rosenberg (2001, p. 311) concluded, E-Learning will soon become commonplace like e-business. There will no longer be a need to differentiate 'e' from 'non-e'".

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About the Author

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Glossary:

Assistant Professor: The entry-level rank for full-time tenure-track faculty members who have a Ph.D. in the USA and Canadian universities.

Associate Professor: The second-level rank for full-time tenure-track faculty members who have been granted tenure and promotion.

Full Professor: The highest rank that a professor can achieve.

Digital Natives: A person who was born and grown up with digital technology such as computers, the Internet, mobile phones, MP3s, etc.

Information Age: The period of widespread of information available electronically to people through the cable networks, computer and mobile technology.

Online education: Instructional medium in which professors and students connect via computers, modems and the Internet.

Online curriculum: Course is designed for online classroom, and must be different from the course designed for a traditional face-to-face classroom.

Online discussion: Discussions via chat room, discussion board, webcam, or email.

Traditional classroom: The professor teaches or lectures to the students present, face-to-face, in a traditional live classroom.

Non-verbal cues: A way to communicate through facial expression, eye contact, gesture, body language or posture, paralanguage, humor, etc.

Learning community: Participants are actively engaged in learning together and from each other. Even if they do not always share common values and beliefs, they still can share and discuss their beliefs in a safe environment and learn among themselves.

URL: Abbreviation of Uniform Resource Locator that locates the web address of and retrieves documents and other resources on the World Wide Web.

Heard and Seen:
Instructor-led Video and its Effect on Learning
David E. Holder and Jon Young
USA

Abstract

This study examined three ways in which instructional designers may create a more efficient learning environment through a better understanding of multimedia learning. First, by using the theories of multimedia learning, we examined a more efficient use of sensory memory. Second, multimedia effect, defined as using visual helps and guides with spoken and written text, was shown to assist working memory in processing new information into existing schema. Third, by using the personalization principle set forth by Clark and Mayer (2008), we will use both the video feed and multimedia together to foster a more social or conversational presentation to the learner.

Keywords: Educational Technology, Multimedia Learning, Multimedia Effect, Personalization Effect, Distance Learning, Cognitive Load Theory, Working Memory, Dual Channel.

Purpose and Objective

This study examined three ways in which instructional designers may create a more efficient learning environment through a better understanding of multimedia learning. First, by using the theories of multimedia learning, we examined a more efficient use of sensory memory. Secondly, the multimedia effect, defined as using visual helps and guides with spoken and written text, was shown to assist working memory in processing new information into existing schema. Last, by using the personalization principle set forth by Clark and Mayer (2008), we will use both the video feed and multimedia together to foster a more social or conversational presentation to the learner.

Theoretical Framework

Multimedia Learning

Research in cognitive load theory has produced several instructional strategies which have aided instructional designers in developing more effective instructional methods. This study used multimedia learning (Mayer, 2001) because it closely related to the purposes of this study. The goal of multimedia learning is to foster meaningful learning through a better understanding of how we process information. Multimedia learning takes three findings/strategies from cognitive load theory. The multimedia designer uses these three principles of cognitive load theory when creating effective multimedia elements (Mayer, 2001). First, dual coding and dual channel research (Baddeley, 1992; Paivio, 1986) have shown that learners process media information differently whether written, spoken, or graphic. Multimedia learning states the course must be engineered to better utilize these media elements to take advantage of the dual coding/channel nature of working memory. Second, multimedia learning combines the factors that contribute to load such as intrinsic and extraneous load (Sweller, 1999; Sweller & Chandler, 1994) and the limits of sensory and working memory (Mayer, 2001; Miller, 1956; Sweller, 1999). Third, multimedia learning engages active processes such as paying attention to relevant information, organizing, and, then, integrating it with other knowledge (Mayer, 2001).

Personalization Principle

An emerging area of study in e-learning is the personalization principle (Clark & Mayer, 2008). Simply stated, the personalization principle examines the use of a conversational style rather than a formal writing style when presenting learning material to the distance learner (Moreno & Mayer, 2000, 2004). Evidence has emerged that suggests that the voice of the speaker plays an important role and that conversational text may be more effective when presented audibly rather than in written form (Clark & Mayer, 2008). Clark and Mayer also describe pedagogical agents, also known as coaches, which can be cartoon-like characters, talking head video or even virtual reality avatars. Recent research in this new area has shown that these pedagogical agents using the personalization principle generated more learning than without them (Atkinson, 2002; Moreno, et al., 2001). Some of this research has also shown that there does not appear to be a difference whether the agent is a computer animation or a talking head video (Moreno et al., 2001). The voice of the agent also seems to be important to learning. A recent study where some students were learning word problems from an agent with computer generated voice and some from a human voice found that they learned better from the human voice (Atkinson, 2002; Atkinson, et al., 2005).

Research Methods

Subjects

The participants of this study were randomly selected university undergraduate students, ages, 18-22, enrolled in either "Introduction to computers" or "Using computers in a classroom."

Procedures

Each participant used an internet browser on a computer connected to the internet to participate in the study. The study was delivered using the web programming language PHP attached to a MySQL database, and consisted of a demographic section, treatment and measurement. The participants first filled out a short demographic survey, which contained the following: name, age, academic progress (grade), gender, and general contact information. Once a participant submitted the demographic survey, the treatment program selected one of four treatments of the same instructional content.

The database used a random reduction rule that randomly assigned the learner to one of the four groups. The next learner was then assigned to one of the three remaining groups. The third learner was assigned to one of the two remaining groups and the fourth was assigned to the remaining group. The fifth learner was assigned to one of four groups and so on until all participants were assigned to a group. This assured randomness in the distribution of the task. After participants viewed the approximately twenty-five minutes of instructional material, they were then given the learning assessment. Once submitted to the treatment program, the database recorded the demographic information, version of the treatment, and assessment score to a serial number in the system for later retrieval and analysis. This was a custom developed web engine for creating and managing data.

Task

The task was a 25 minute lesson on the history of the internet ranging from Sputnik and the foundation of ARPA (Advanced Research Project Association) to the commercialization of the internet in the early 1990s. It consisted of a review of the major themes and concepts to set the stage for the learning material followed by a quick summative review to assist in schema construction. Then, the core lesson was delivered to the learners followed by a review of the major themes and concepts to assist working memory in correlating the new information with previously held schema.

This information was chosen to give the research a more universal audience without being too specialized in any one field or curricula. Also, it had the ability to appear relevant to the student but had no actual impact on their course outcome unless the instructor wished it. Therefore the instructor could apply the lesson to a standard e-learning course without the study causing perceived interference with course outcomes.

This study tested three hypotheses.

1. There will be no statistically significant difference between instruction delivered with instructor-led video and instruction delivered without instructor-led video.

2. There will be no statistically significant difference between instruction delivered with multimedia elements and instruction delivered without multimedia elements.

3. There will be no significant interaction effect between instructor-led video and multimedia elements in instruction.

Independent Variables

Two independent variables were used in this study: (1) instructor-led video and (2) supportive multimedia elements. Each independent variable had two conditions; it was present or not present. Instructor-led video is the actual video image of the instructor teaching. It has been commonly referred to in the industry as talking head video. Instructor-led video is processed by working memory as video in the video channel of sensory memory.

Multimedia presentation was the second independent variable used in this study. Multimedia was utilized in the forms of graphics, charts, outline of program content, etc.; thus, augmenting the presentation of the core learning material presented in the study. Similar to instructor-led video, multimedia also utilizes the video channel of sensory memory in working memory.

Dependent Variables

The dependent variable was a score obtained on a posttest taken immediately following the 25 minute presentation. The posttest consisted of 15 questions about the material in the lesson. The test reviewed the major concepts, dates, people, and places of the lesson. The questions addressed several sections of Bloom's Taxonomy from knowledge and understanding through application and analysis. Each of the four groups received the same posttest.

Experimental Design

An experimental posttest only 2X2 factorial design was used to examine the effects of instructor-led video and multimedia learning on the learning task. The design consisted of four equal groups: three treatment groups and one control group.

Groups

Group 1 - video was present but not multimedia elements.

Group 2 - both video and multimedia were present.

Group 3 - neither video nor multimedia elements were present.

Group 4 – multimedia was present but not video.

The groups were chosen at random using the distance learning engine developed for the study. A Two -Way Analysis of Variance (ANOVA) was used to analyze the data from each of the four groups. An alpha of .05 was chosen as the minimal alpha for this study.

Results

Dependent variables in the form of quiz scores were obtained at the end of each lesson. Test scores were derived as percentage correct on a 100 point scale. To determine the difference attributed to treatments, the mean of the quiz scores from each group were examined using Two-Way Analysis of Variance (ANOVA) along with Cohen's D for effect size (Cohen, 1988).

We can see that the video only and audio only groups (groups 1 and 3) had virtually identical means (M=71.55, N=29 and M=70.28, N=32). However, group 4, multimedia only, scored slightly higher (M=75.78, N=32) than groups 1 and 3. The best performing group was group 2 (both video and multimedia present), with a mean of 81.25 (N=31).

The research questions asked: "What impact does the video feed of the instructor delivering information via lecture have on learning?" and "How will multimedia impact the learning process?" An online learning delivery system was developed to present learners with an environment that tested the three hypotheses. This system had four variants of the same instructional content which resulted in four different treatments.

Fisher's Two-Way Analysis of Variance was used to examine the data further.

The analysis of variance shows that the data is statistically significant at the .05 level, the main effect for multimedia, F =11.042 (p=.001) with an effect size of d=.083. This main effect indicates that there is a significant difference when multimedia is present. Group 2 and group 4 combined for an average mean of 78.47 and were significantly different from the average mean of 70.89 from group 1 and group 3. Video by itself had almost no effect. When video was present the mean was 71.55 and when video was absent the mean was 70.29. This demonstrated an insignificant main effect for video, F=2.168 (p =.144) with an effect size of .017. These results suggest that it is the combination of media that significantly impact learning process and not merely the addition of one media such as video.

This study indicates that course designers need to examine the role in which each element plays in communication. When listening to the individual instruments play in an orchestra, the music does not deliver the message intended by the composer. However, when the instruments all play together and in harmony, the audience hears and experiences the music as intended. It is the harmony we must seek as course designers. This study was unique in that it allowed the presentation of the same learning content in four different ways. No other study was found that could offer comparative research. More research using this type of engine needs to be done to further explore the relationship between the different media types. This will assist course designers in developing quality learning material that maximizes the way in which our brain processes information. This understanding contributes to designer identifying practices for quality online teaching and learning and provides higher education educators and administrators with conceptually grounded research to guide decisions about technology adoption.

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David Holder has a Ph.D. in Educational Computers from the University of North Texas where he also received his M.Ed. in Secondary Education. Dr. Holder also a graduated from Liberty University in 1994 with a B.S. in History. He has served as an Instructor in the College of Education at the University of North Texas teaching in the Department of Learning Technologies. He is currently at Liberty University in the School of Education Teacher Education program as the Secondary Education Coordinator.

After graduating from Liberty University Dr. Holder began teaching Middle School and High School Social Studies, and even the odd English course while working toward his Master's Degree in Education. After a four year stint as an Instructor at the University of North Texas David took a job as the Director of Technology for Aubrey ISD, a public school district in North Texas.

While at Liberty Dr. Holder is researching the importance of virtual communities in the learning experience. His research interest include online learning environments, the relation of visual media on schema construction and working memory, and the role of electronic agents in learning.

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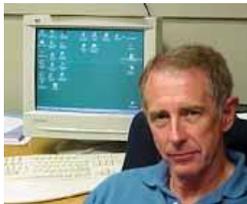
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