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## Editorial

# The Adult Learner

Donald G. Perrin

There are two widely used learning models, one for education and one for training.

### **Educational models**

These are based primarily on child learning psychology and methods extant at the beginning in the mid-nineteenth century. Most schools use very traditional methods and have not kept up with societal and technological changes. Methods for control and teaching appropriate for children have spilled over into higher education. Examples include: teacher-centered compared to learner centered methods of teaching; teacher-control of goal setting and learning activities that adult-learners can manage for themselves (or in collaboration with the teacher); and punishment for not following exactly procedures and schedules set up by the teacher. Adult learners must assume greater control for their own learning and flexibility to integrate learning with their daily work and family activities.

Fixed curricula are based on assumptions what students need and their previous knowledge. In traditional societies, change was slow and assumptions about learner needs and previous learning were essentially unchanged from year to year. Social changes have rendered standardized teaching methods and homogenous grouping irrelevant. Today's integrated multi-cultural multi-lingual classroom includes students from greatly different backgrounds and an extreme range of abilities. Lack of homogeneity exaggerates individual differences and requires flexible teaching methods, technology support, and Individualized Educational Programs (IEPs). Concepts of communication, interaction, control and scheduling need to be updated based on societal needs and goals and the characteristics of enrolled students. Also, punishments and rewards considered appropriate for today's children need to be greatly modified for adult learners.

### **Training models**

These are pragmatic, specific and performance based. They achieve predefined objectives by using well established training procedures to achieve criterion results. These include step-by-step, hands on, just-in-time, and on-the-job learning as appropriate. As a result of Mager and others, training methods have spilled over into education in the form of behavioral objectives (now performance objectives) with observable and measurable behaviors. It starts by determining what students already know, and defines criterion performance to be demonstrated to validate that desired learning has been achieved.

### **Transition to meet future needs**

The social environment, students, and learning options continue to change more rapidly than educational curricula and methods are changing. The lecture – presentation – discussion model continues to dominate most classrooms and educational television. Learning is excessively one-way, verbal and abstract compared to rich interactive multimedia environments on television and computer, and real-life experiences available outside the classroom.

As a result of research, the science of learning and teaching is far ahead of what is implemented in the classroom. Limited budgets for retraining teachers, developing curriculum, and equipping schools result in outmoded teacher education programs, slow adoption of computer technologies and interactive multimedia, and leave education far behind the learning opportunities necessary for continued economic growth.

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**Editor's Note:** As information technology and the tools of distance learning gain greater acceptance among administrators and faculty, it is important to test our assumptions about student readiness and student response. In this way we can make optimum use of the tools at our disposal.

## **Information Literacy: Is it necessary for student's learning success in higher education?**

**Zuhrieh Shana**  
**United Arab Emirates**

### **Abstract**

This paper seeks to document today's higher education with focus on students in the United Arab Emirates (UAE) and how they can better assimilate, assess, and apply the influx of information ushered in by the Internet age, with information literacy (IL) skills to enable more effective learning. To assess IL skills necessity and growth, a study was conducted on two groups of participants (the control group and the intervention group) for two consecutive academic years and instructional intervention was planned and implemented after a pre-intervention survey (pre-test), followed by the same survey (post-test) to determine the outcomes of the intervention. Results showed that IL Instruction (ILI) had positively affected students' IL skills and perceptions as measured by the post-test scores, a five-point Likert scale, open-ended interview questions and assigned student research projects designed to measure IL skills growth. Results revealed no statistically significant difference by academic year, gender or medium of instruction. The results of this study are expected to provide a basis for designing and delivering an IL skill development curriculum at Al Ain University of Science and Technology (AAU). Furthermore, this study makes the case for an introductory IL development curriculum in high school and universities.

**Keywords:** information literacy, high school, university, education, information age, United Arab Emirates, information literacy skills, life-long learning, e-learning, interactive learning environment, higher education

### ***Introduction and background***

A considerable amount of research has documented that “undergraduate education should be designed as a continuum that prepares students for continued learning and professional work through developing their talents to formulate questions and seek answers” (Boyer Commission on Educating Undergraduates in the Research University, 2001, p. 18).

The Boyer Commission on Educating Undergraduates in the Research University further called for first-year preparation and instruction to provide stimulation for “intellectual growth and a firm grounding in inquiry-based learning” (2001, p. 12). It was used to help students learn how to process and apply information for improving learning in higher education. Information literacy (IL) is very well aligned with this educational goal as this paper seeks to prove.

Research has documented that IL skills are increasingly important and vital in the information age. However, the reality is that while the information environment has rapidly and radically changed, students might not have kept pace with the IL skills and tools needed to find and adequately manage this information (Eisenberg, 2008).

Although this paper focuses on AAU's incoming students, these students are by no means alone in facing these challenges. The lack of information literacy skills reflects a trend common to universities across the region. Furthermore, many secondary school students are entering colleges with modest knowledge of how to locate and utilize information that is relevant to their studies and school projects. As such, it is becoming increasingly evident that a high level of information proficiency will be necessary for incoming higher education students.

Accordingly, the rationale behind this paper is to introduce the use of IL skills at AAU as a learning tool. This will enable each student, *regardless of his or her traditional background, to transform information into* actual knowledge that contributes to learning success against the current landscape of the digital age and its resulting vast stores of instantly accessible information.

### Goals of the study

This paper presents AAU's preliminary experience with actively seeking to equip students with IL skills to help them access, assess and employ information from different resources. The goals of the study are to:

- Become aware of the IL levels of first-year students (new enrollees) at Al Ain University of Science and Technology.
- Inspect the effectiveness of an IL curriculum to help new students attain basic IL levels that will maximize future learning.
- Explore whether IL skills could facilitate student learning and improve overall performance.

### Research questions

1. Do high school students entering AAU have the IL skills they need to achieve success beyond high school?
2. What is the relationship of selected characteristics (academic year, gender and medium of instruction) of AAU first-year students and their IL backgrounds?
3. How effective is ILI in enhancing first-year students IL skills and perceptions?
4. *What* IL curriculum guidelines are needed at both the secondary and university levels?

### Literature review

#### ***E-learning in higher education institutions***

The revolution and globalization of information technology brought radical changes to society, and introduced increasing information stores for people to access and assess on the Web. If institutions of higher education are to keep pace with how these changes impact the way students assimilate this information, it is time then to reinvent higher education's teaching methods and curriculums. The role of higher education institutions in adapting to the changes around them for student success was emphasized by Marginson & Van der Wende (2007), stating that "Even as they share in the reinvention of the world around them, higher education institutions, and the policies that produce and support them, are also being reinvented" (p. 3).

The U.S. Department of Education (2006) confirmed how higher education institutions should adapt, by stating that, "As higher education evolves in unexpected ways, this new landscape demands innovation and flexibility from the institutions that serve the nation's learners" (p. 8). This also applied to the Gulf Cooperation Council (GCC) countries, which are facing the challenge of creating sustainable modernization plans in the education sector (Robinson & Ally, 2009). As a result, flexible course delivery increased to address the changes in information technology, which led to a growing trend in academia toward Web-based instructional systems, with emphasis on e-learning environments (Parson, 1997).

Consequently, the global e-learning industry is booming. Corporations and academic institutions worldwide, including in the Middle East, have adopted e-learning and implemented learning



management systems (Lasrado, 2009). As such, e-learning-focused institutions spread rapidly throughout the UAE's public and private higher education sector, to include the Al Ain University of Science and Technology.

Tracking the impact of emerging global information and computer technology in developing countries, the UNESCO (2007) reinforced that higher education in the Arab states is presently undergoing rapid reform. It stated that "Arab higher education is undergoing drastic change and transformation due to the forces of globalization and the dynamics of the 21<sup>st</sup> century" (www.unesco.org). To meet this challenge, the education sector must have a larger understanding and usage level of innovative technologies. Hence, e-learning has gained more consideration in the Arab world today than it has at any other time. As a result, Arab universities are under pressure to adopt technology-based instruction in their classrooms.

### ***Information literacy and the e-learner***

IL is a field of growing concern worldwide as today's digital information overload requires people to pick through, validate, and assess increasing amounts of information to verify its reliability.

In the education space, there is an increasing shift from a teacher-centered approach to a resource-based learning approach. This requires students' active involvement and self-control in a dynamic learning environment (Narciss, Proske & Koerndle, 2007). Hence, learners are expected to *take* a more important role in initiating and controlling their learning (Drom, 2007).

This shift also calls for teachers to become mainly coaches and facilitators as opposed to "omniscient wizards" (Heckman and Annabi, 2006). Accordingly, there is an urge for change and innovation in lecture-based pedagogy to be aligned with the emerging view of learning as knowledge creation (Paavola & Hakkarainen, 2005) and mirror the societal shift towards the information age, in which innovation is highly valued.

In spite of all the enthusiasm for the effectiveness of e-learning, online learners remain reluctant and limited in skill. As such, the individuals most likely to benefit from e-learning are: Individuals with high self-control: busy working adult students that are self-directed and able to manage their own learning and time (Grant & Spencer, 2003). This was confirmed by Kearsley (2000) who asserted that e-learning is not possible without self-control.

Individuals with higher information and communication technology (ICT) skills are better off than those with lower levels of ICT skills, and those with lower ICT skills have a correspondingly lower chance of being efficient e-learners. Therefore there is a clear need for preparatory training and ICT skill upgrading to prepare lower-skilled students for the e-learning environment (Kember et al., 2001).

### ***Information literacy and the school's role***

In the last two decades, it has been extensively documented that in order to achieve needed IL adjustments, school systems have to be prepared for such the task. The ALA (1989) has highlighted this issue stating that "Producing such a citizenry will require that schools and colleges appreciate and integrate the concept of information literacy into their learning programs" (p.1).

As resource-based learning becomes more inevitability and its dominance grows, it is obvious that traditional instruction will not be able to compete. Therefore, resource-based learning environments have to balance the information dependency created by traditional educational systems, where students consider their teachers as the main learning source, with learning that is more self-directed and student-led.

The Association of College Research Libraries claim that IL is an imperative element of university-level education (2007), however, a *very* important fact that cannot be ignored is that although many students are well acquainted with computers and the Internet, they lack the necessary skills to use online tools to empower the learning experience itself (Oliver & Goerketh 2007; White, 2007). Consequently, strengthening students' IL skills should be a vital goal of education, as was highlighted by Boyer (1997) who explained the importance of turning student information into knowledge as: Information is, in fact, our most precious resource. In such a world, education should empower everyone, not the few. But for information to become knowledge, and ultimately, one hopes, wisdom, it must be organized. And, in this new climate, the public interest challenge, beyond access and equity is, I believe, sorting and selection. The challenge of educators is to help students make sense of a world described by some as 'informational overload' (p. 140).

Therefore, it is highly recommended to incorporate a "generic skills model" into 'freshman/first-year students' knowledge base to bridge the gap between "existing skills" and "required skills."

The following list of selected studies on IL is intended to explore the point about importance of information literacy further:

Author(s)/ Year	Method	Variables	Result(s)
Pobert, E. (2009)	Comprised of a mixed method design (quantitative and qualitative)	IV: Understanding of IL, classroom practice, and future developments. DV: IL skills	Teachers had a reasonably good understanding of concept of IL but unfortunately most of them didn't use it in teaching and thus didn't provide inquiry learning opportunities, which affected the development of their students' IL skills.
Ukpebor and Emojorho (2012)	Quantitative	IV: The learning of IL skills, and capacity of IL skills. DV: IL skills	The result indicated that the students have some knowledge of IL skills but not enough to help them to use the library and do research independently.
Gross (2009)	Mixed methods, including pre/post-test questionnaires, reflective essay, and experiential final	IV: IL knowledge and IL skills DV: IL instruction	The students came to the university without being fully prepared in terms of IL skills and knowledge.
Fain (2011)	Quantitative	IV: IL concepts and library services and policies. DV: IL skills	Students showed significant change on those items that reflected resources or services that they used over the course of the semester. The study revealed that there was a significant change in IL skills development for students through the provision of resources and services.
Ali, Abu-Hassan, Daud and Jusoff (2010)	Quantitative	IV: IL education, IL Skills Assessment, IL skills test and citation analysis. DV: IL skills.	The students did not have enough knowledge and skills necessary to use university resources. This study revealed that the IL skills of students need improvement.
Stagg and Lane (2010)	Quantitative	IV: Clickers DV: IL skills.	This study found that students do not have enough IL skills and they have a positive attitude toward clickers as they believe it can help facilitate active learning and engagement if used appropriately with clearly aligned learning objectives.

## The Study

### *Research Design*

The academic year at AAU consists of two semesters. During the first semester, AAU students work on meeting general education requirements, including a general psychology course, before declaring a major. The general psychology class is composed of two sections and taught to separate groups of students over a period of 16 weeks. For this study, a total of 160 students were recruited from this class over a period of two years; 2011 and 2012. The first student section from each year's first semester's general psychology course was considered the intervention group (G1: n=80), while the second section was considered the control group (G2: n=80) as shown in Table 1.

The first section of the general psychology course was held Sunday and Tuesday from 3:30 p.m. until 5:00 p.m., and the second part was held Monday and Wednesday from 2:00 p.m. until 3:30 p.m. Each section consisted of an average of 40 students.

**Table 1**  
**Distribution of study participants according to group, year and section**

<b>Group/ Participant Allocation</b>	<b>2011 Participants (85)</b>	<b>2012 Participants (75)</b>	<b>Total Participants (160)</b>
Intervention Group (G1)	1 <sup>st</sup> Section (43)	1 <sup>st</sup> Section (37)	80
Control Group (G2)	2 <sup>nd</sup> Section (42)	2 <sup>nd</sup> Section ( 38)	80

Although students were provided with the opportunity to participate in this research study, they were also informed that participation in this study was not a course requirement and that no extra credit would be received for participating.

The IL skills of the 160 secondary school students entering AAU in the academic years of 2011 and 2012 (G1 and G2) were assessed with a pre-test that measured their IL proficiency levels. During the semester, G1 participants were given an ILI/ intervention designed to upgrade their IL skills, while G2, as considered the control group did not receive any ILI. At the end of the semester, study participants were given a post-test to measure their IL skill levels. Final study outcomes were based on the pre-test and post-test results, open-ended interview questions, Likert scale questions, and student research projects.

### *Population*

Although random sampling is the best for fair and justified sampling, one of the most common methods of sampling is a non-random method called "purposive sampling." Purposive sampling selects participants for a specific reason (Gay & Airasian, 2003) and the researchers select the sample based on who they think is proper for the study. This study used purposive sampling.

The 160 study participants were high school students who were admitted to AAU during the school years of 2011 and 2012. The participants in this study were enrolled in general education requirements courses. Of these 160 participants, 88 (55%) were males, and 72 (45%) were females. The medium of instruction was Arabic for 92 (57%) of the participants, while English was the medium of instruction for 68 (43%) students who had passed their English language proficiency requirements.

## Instrumentation

The evaluation strategy used in this study consisted of four major instruments: a pre/post-intervention survey, five-point Likert scale questions, open-ended interview questions and end-of-semester student research projects.

### Pre-/post-intervention survey

Based on the IL skills recommended by Association of College and Research Libraries (ACRL) for first-year students, the pre-/post- intervention survey were developed by researchers, pilot tested by a group of professionals (AAU faculty members) and revised accordingly. The survey was administered immediately before (pre-test) and after (post-test) the ILI/intervention given to incoming freshmen in the study group at the AAU-Abu Dhabi campus taking the first semester general psychology course during the academic years of, 2011(85) and 2012 (75).

Since the main aim of the survey was to help AAU document the IL skill levels of new students and pinpoint areas for improvement, training intervention sessions were designed based on the findings of the pre-tests. The intervention consisted of group training sessions every week over the 16 weeks of the semester, and each training session lasted approximately 90 minutes. The content of the intervention survey was designed to cover the main IL Competency Standards for Higher Education (ALA, 2000). Based on the above mentioned standards, the survey was divided into five parts, each consisting of five questions (25 questions total), as shown in Appendix A. All participants were asked to take the post-test to compare their IL skill level before and after the intervention. The students were scored on their IL skills and abilities (before and after the intervention) for a range of specific tasks based on the above-mentioned IL standards. Students scored "2" if they had the correct answer, "0" if they did not have the correct answer or "1" if they were uncertain whether they had the skill or not. The measurements are based on learning growth recorded from start to finish of the IL material, and not on the total course "achievement" at the end of a course.

The IL skills recommended by ACRL for first-year students are summarized in Table 2.

**Table 2**  
**Skills for first-year students**

IL Component	Skills for First-Year Students
Framing a clear research question	Identify the <i>gaps in his/her</i> knowledge and take steps <i>to fill</i> those <i>gaps</i> ; begin to understand the value of finding information <i>to support</i> a personal idea or cause.
Accessing sources and retrieving data	Discover differences and similarities among their information sources; can search, retrieve and track information of all kinds.
Evaluating information and its sources	Reviews information retrieved from various sources to ensure protection from liability of each source; determines whether they represent evidence of appropriate quality and sufficient quantity to address the issue and the probable accuracy and reliability of the content.
Using specific-purpose information	Arranges content and ideas into clusters to support the purposes of the student's product; develop ideas in an essay outline to help build an argument more rapidly and efficiently.  Prepares a helpful bibliography and annotations. Uses the chosen editorial style appropriately and communicates clearly.
Accepting the laws, regulations, and policies that affect professional conduct of information	Understands the <i>appropriate</i> usage of Paraphrasing with correct citations vs. plagiarism.  The rules for using documentation styles accurately for both print and non-print resources.

The IL intervention was specifically designed to create long-term changes that will enable participants to achieve the desired IL goals successfully. Thus, the development of a detailed IL training intervention design was based on special strategies (Hunt and Birks 2004, p. 28), which affirm that "To achieve information and digital literacy goals successfully, instructors must first break down skills and concepts into their basic components. These components should then be presented sequentially and in increasing levels of complexity, allowing time for practice and repetition." Recorded pre-/post-test scores of the control and intervention groups are illustrated in tables 6 to 8.

### **Five-point Likert Scale**

To obtain students' perceptions of the ILI intervention, participants were asked to respond to a questionnaire that consisted of six Likert scale items. The options for answering each question were: (5) Strongly Agree, (4) Agree, (3) Not Sure, (2) Disagree and (1) Strongly Disagree. Using the five-point Likert scale, students were asked to respond to statements that measured their perceptions of IL as a learning tool (Table 3).

**Table 3**  
**The five-point Likert Scale**

Question	5	4	3	2	1
<i>IL skills helped with:</i>					
Making the learning process more meaningful.					
Boosting my academic performance.					
Augmenting the efficacy of my learning.					
Making it easier to learn at university.					
Giving greater control over my own learning.					
<i>Being fundamental for lifelong learning.</i>					

The five-point Likert Scale questionnaires were distributed at the end of the semester. Study participants (G1 & G2) were given a post-test to measure their IL skill levels and to detect the real differences between the groups as a consequence of the intervention. For this purpose a total of 160 (G1 and G2) students completed questionnaires and the summary of the results is illustrated in Table 11.

### **Open-ended interview questions**

According to Pratt (1989) curriculum design, cannot be governed by theory alone and the curriculum in most schools must "reflect the areas of expertise and interest of teachers rather than an analysis of the needs of learners" (p. 52). Pratt also recommended that "The curriculum designer... must develop priorities to guide the selection of tasks to be performed, as well as be able to perform them" (p. 10).

In an effort to meet learners' needs, it was important to get feedback on opinions and attitudes with regard to the suggested ILI. Subsequently, all participant comments will be taken into consideration when designing the required IL curriculum that will enable all students to develop the needed IL skills at AAU (Chart 1).

To gather feedback, the researcher developed an interview consisting of the following open-ended questions for the interviews conducted after the post-test and the five-point Likert scale questionnaires:

What positive effect do IL instruction have on your performance, attitude and knowledge acquisition?

What negative effect do IL instruction have on your performance, attitude and knowledge acquisition?

The average length of the interviews was approximately ten minutes. The questions were in English, but to rule out the language "barrier" variable, English questions were translated to Arabic and students had the choice of answering the questions in either language.

The distributions of students' positive and negative comments are as illustrated in Table 12.

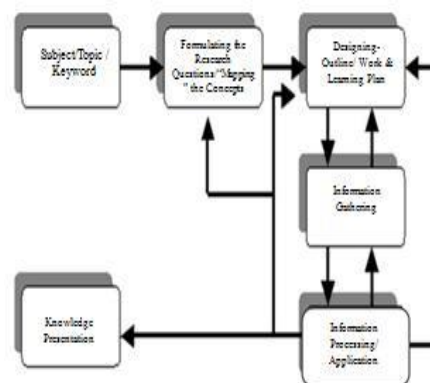
### ***Student research projects***

According to Dewey, "intelligence is developed through the individual's interaction with the social environment, particularly through solving problems." He also commented that, "When education, under the influence of a scholastic conception of knowledge, which ignores everything but scientifically formulated facts and truths, fails to recognize that primary or initial subject matter of an active doing, involving the use of the body and the handling of material, the subject matter of instruction is isolated from the needs and purposes of the learner, and so becomes just something to be memorized and reproduced on demand" (Dewey, as cited in Miller & Seller, 1985, p. 65-66).

Consequently, to provide hands-on experiences using IL skills, the Hunts and Birks model (2004) was used as a guide. Using this guide, the researcher asked study participants to complete a final research project consisting of specific short assignments that required them to use particular IL skills (Appendix A) that allowed them to:

- Choose a research topic
- Formulate the research question
- Verify information requirements
- Pick appropriate research tools
- Evaluate the information
- Ethically use the information
- Present new information

The required student project was further based on Levy's model (1999) as shown in Figure 1.



**Figure 1: Course structure**

To verify the results of the pre- and post-tests, researchers aimed to further increase the study's reliability by analyzing participants' research projects, noting that any differences in learning outcomes might likely be due only to the effects of the training intervention. To assess these projects, a rubric was developed as illustrated in Table 4.

**Table 4**  
**Rubric used to evaluate student projects**

<b>Research Steps</b>	<b><i>Poor</i></b> <b><i>0</i></b>	<b><i>Satisfactory</i></b> <b><i>1</i></b>	<b><i>Good</i></b> <b><i>2</i></b>	<b><i>V. Good</i></b> <b><i>3</i></b>	<b><i>Excellent</i></b> <b><i>4</i></b>	<b><i>Sub-Total</i></b>
Choose a research topic						/4
Create research questions						/4
Identify information needs						/4
Pick research tools						/4
Evaluate the information						/4
Ethically use the information						/4
Present new information						/4
					<i>Total</i>	/28
					<i>Grade</i>	

Based on the IL competency standards for higher education, a five-point rubric, with ratings ranging from "poor" to "excellent" performance was designed to focus on performance that typically addressed main IL competencies. Consequently, seven criteria indicators were identified of learning outcomes. Each item was given a weighted score ranging from 0 to 4 points.

The student's final grade was based on a total summation of the rubric score expressed as percentages of the total possible score. Total rubric points are converted first to a numerical value based on a 0–100 scale with higher scores representing better performance and greater achievements. An equivalent letter grade was assigned to the percentage of the final rubric score, with A being the highest and F denoting failure as illustrated in Table 5.

**Table 5**  
**Al Ain University of Science and Technology grading system**

<b>Grade</b>	<b>Points</b>	<b>Marks</b>	<b>Rank</b>
A	4	From 90 to 100	Excellent
B	3	From 80 to < 90	Very Good
C	2	From 70 to < 80	Good
D	1	From 60 to < 70	Average
F	0	From < 60	Poor/Fail

Based on the above scores, the entire project was assigned one of the following designations:

Excellent (scores of 25-28)

Very Good (score of 22-24)

Good (score of 19-21)

Satisfactory (scores of 16-18)

Poor (scores of below 16)

Student grades on the final IL projects are illustrated in Table 13.

## Data analysis and discussion

After determining the participants' IL pre-test and post-test scores, study data was transferred into an Excel spreadsheet and analyzed by an SPSS statistics program. The correlation between the participants' pre-test/post-test scores, and the correlation of the academic year, medium of instruction and gender on the test scores was examined.

The researchers hypothesized that the mean score for the pre-test scores before ILI/ intervention for any selected group of first-year students in AAU would be equal. To support the hypothesis, it was necessary to repeat the pre-test to two separate sets of AAU first-time, first-year, (freshmen) students in the academic year 2011–2012.

The result showed that the p-value using the two independent samples t-test is large (Sig. =0.446). This indicates that there is no *significant difference* in pre-test scores *between* the participants' performance as shown in Table 6.

**Table 6**  
**The mean differences in performance between participants attending academic years 2011 and 2012**

Participant/ Academic Year	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
2011	80	.5525	.17573	.01965	-.764-	158	.446
2012	80	.5737	.17628	.01971	-.764-	157.998	.446

In order to evaluate the efficacy and effectiveness of the ILI/ intervention, the next step was to compare the achievement improvement in pre-/post-test scores of the intervention group (G1). For this purpose, differences between the G1 pre-/post-test scores were analyzed using the SPSS statistics program.

The results showed that the p-value using the paired samples t-test is very small (Sig. =0.000). Thus, a significant difference is shown in G1 pre- and post-test scores as seen in Table 7.

**Table 7**  
**The mean of pre-/post-test scores for G1**

Pair 1	Mean	N	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
G1_Pre	.5525	80	.17573	.01965			
G1_Post	1.8613	80	.18725	.02093	-45.964-	79	.000

*Further assessment regarding the effectiveness of the ILI/intervention was done by comparing the post-test scores of the intervention and control groups (G1 and G2). The result revealed that the*



p-value using the two independent samples t-test is very small (Sig. =0.000). On the other hand, from the data presented below, it is clearly obvious that the average of the results of the participants in the post-test for G1 is 1.8613 whereas it is only 0.6863 for G2. This indicates that there is a significant difference between the students' results in the two groups: the post-test in G1 and the post-test in G2 as shown in Table 8.

**Table 8**  
**The mean of post-test scores for G1 and G2**

Section	N	Mean	Std. Deviation	Std. Error Mean	T	df	Sig. (2-tailed)
G1 Post-test	80	1.8613	.18725	.02093	40.711	158	.000
G2 Post-test	80	.6863	.17771	.01987	40.711	157.570	.000

Despite the fact that most UAE schools and universities provide segregated schools or campuses for males and females, they provide the same course content, and instructors. Nevertheless, according to Alkhaleej (2007), earlier research concluded that there seems to be differences between male and female students in academic achievement. Thus, it is confusing for school administrators to account for the imbalance in academic achievements between females, who have succeeded much higher academically, and males. However, there is an underlying belief that females are judged to be more comprehensive information searchers than males (Hupfer & Detlor, 2006).

Furthermore, in UAE, almost all public and private schools and universities use either Arabic or English as the medium of instruction. Therefore, the aim of the present study was also to investigate the effect of gender and medium of the instruction on IL skill proficiency.

For these reasons, SPSS was used to investigate the differences between the participants based on their gender and medium of instruction. The two independent samples t-test produced p-values greater than 0.05 in both of the above two cases (Sig. 0.726 for the gender and Sig. 0.163 for the medium of instruction). That is to say, there were no significant differences in IL skills due to gender and medium of instruction variances as shown in Tables 9 and 10.

**Table 9**  
**Differences in the participants' mean scores based on gender**

Gender	N	Mean	Std. Deviation	Std. Error Mean	t	Df	Sig. (2-tailed)
Male	88	.5693	.16908	.01802	-.352	158	.726
Female	72	.5792	.18457	.02175	-.349	145.854	.728

**Table 10**  
**Differences in the participants' mean scores based on medium of instruction**

Language	N	Mean	Std. Deviation	Std. Error Mean	t	Df	Sig. (2-tailed)
English	68	.5750	.17986	.02181	1.401	158	.163
Arabic	92	.5359	.17070	.01780	1.390	140.166	.167

To shed further light on the incoming first-year university study participants' pre-/post-test

intervention *perceptions* of their ILI experience, participants were asked to complete a five-point Likert scale questionnaire. Findings revealed that the percentage of the participants who agreed with the scale's statements increased from 50% to 85% after the pre-test and as indicated in the post-test, while the disagree option decreased from 35% to 5% after the pre-test and as indicated in the post-test as shown in Table 11.

**Table 11**  
**Results of five-point Likert scale questionnaire**

Participants' Perceptions of the Importance of Information Literacy						
	Agree		Undecided		Disagree	
	No.	%	No.	%	No.	%
Pre- intervention	40	50	12	15	28	35
Post-intervention	68	85	8	10	4	5

To assess the impact of ILI, the intervention study group was asked to elaborate on their responses to the six items on the 5-point Likert scale. As such, the below data was derived from collecting and analyzing qualitative data through interviews. Participants' comments and reflections on their IL skills were analyzed and results showed that ILI was perceived to have a more positive impact on participants. Positive participant comments measured 87%, while only 13% returned negative comments as illustrated in Table 12.

**Table 12**  
**Scoring distribution of participant interviews**

Group	Positive Comments	Negative Comments
Intervention	87%	13%

For more indication of the effect of ILI on participants, the participants' grades on their IL final project were examined more thoroughly, analyzed and assessed. IL project results showed that 35% of the participants received an A, 55% received a B, while the rest (10%) received a C as illustrated in Table 13.

**Table 13**  
**Project evaluations**

Participant scores in each category										
	Poor		Satisfactory		Good		Very Good		Excellent	
Participants	No.	%	No.	%	No.	%	No.	%	No.	%
	0	0	0	0	8	10	44	55	28	35

## Study results and discussion

This section presents the results of the analysis performed on the collected data to answer the research questions. Results of the study will address the following questions:

*Do high school students entering AAU have the IL skills they need to achieve success beyond high school?*

Findings suggest that high school students lack the IL skills required to succeed in the post-secondary educational environment. A more precise examination of the results of pre-test and post-test scores revealed that:

IL skills of new students do not adequately meet the requirements of IL skills needed for the AAU e-learning environment.

Results indicate a gap between expectations of high school students and their IL skills.

*What is the relationship of selected characteristics (academic year, gender and medium of instruction) of AAU first-year students and their IL backgrounds?*

The collected data indicates that there were no significant differences in IL skills background between the participants of AAU first-year students based on their academic year, gender and medium of instruction. This means that all students that take the same IL proficiency test (pre-test) under the same conditions will receive similar results.

A more precise examination of the results of pre-test and post-test scores revealed that:

There was no significant difference in IL skills levels between students who participated in the academic years of 2011 and 2012.

There was no significant difference in participants' IL skills levels by gender.

There was no significant difference in participants' IL skills levels by language of instruction.

*How effective is ILI in enhancing first-year students IL skills and perceptions?*

The results of the interview suggested that the majority of students found ILI beneficial and useful. 87% of students felt that IL benefitted their learning skills and improved their learning quality as represented by the interview feedback below:

I feel more like a college student now.

I'm getting better grades.

I am better prepared for college and the future global workplace.

I became a critical thinker and lifelong learner.

I'm able to pursue information related to personal interests.

I believe that ILI reduced effort and saved time in finding information.

I believe I will become well-adjusted to college life.

I have more appreciation for the library and online resources.

I have more enthusiasm to share my IL skills with others.

On the other hand, 13% of student comments identified some negative aspects/weaknesses of the current IL training sessions such as:

Resistance towards change: "I am satisfied with what I know."

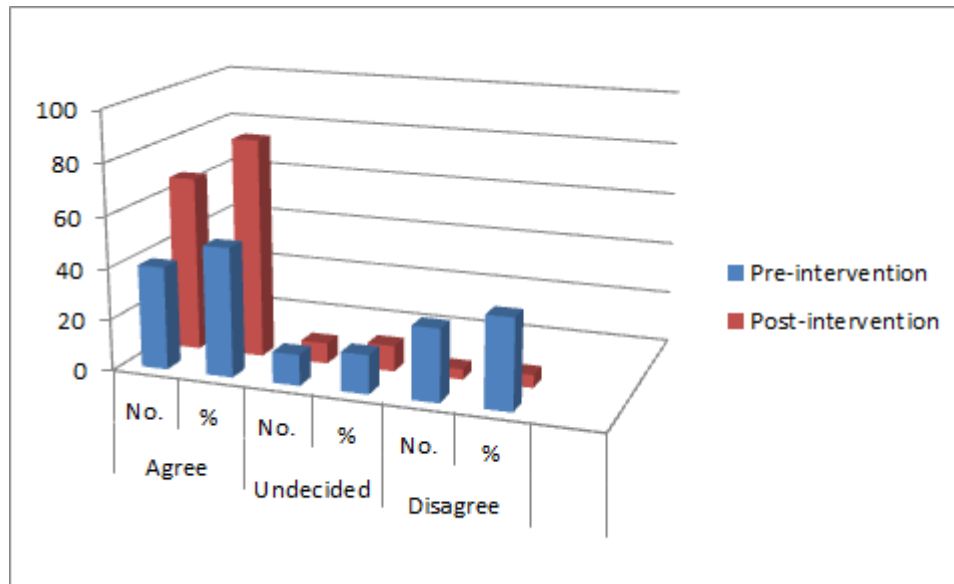
Different vocabulary leads to obstacles in searching and communication.

"Time-consumption is an additional burden and I don't want to do anything extra."

On the other hand, the results of the Likert scale, open-ended interview questions, and assigned student research projects revealed that:

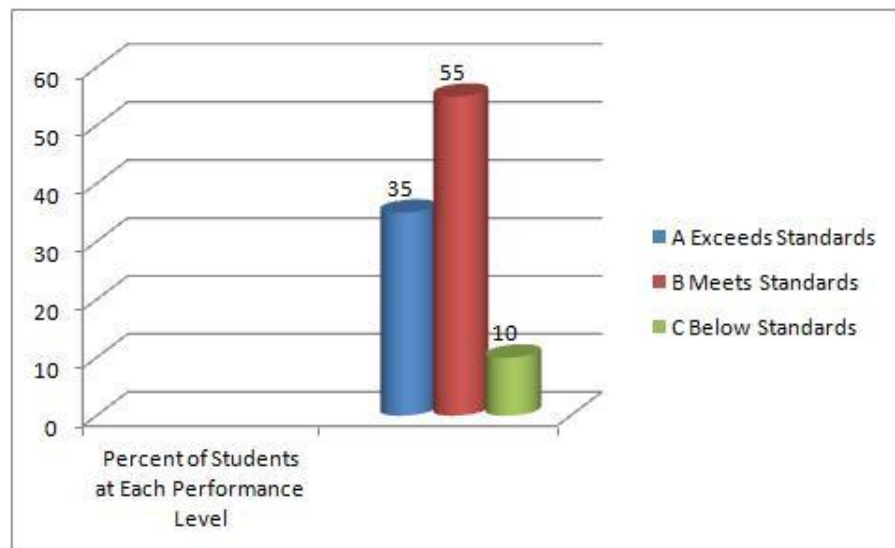
Information literacy (IL) skills prepare high school students for academic work in an e-learning environment.

ILI was associated with positive effects on students' perceptions and academic achievements (Chart 1).



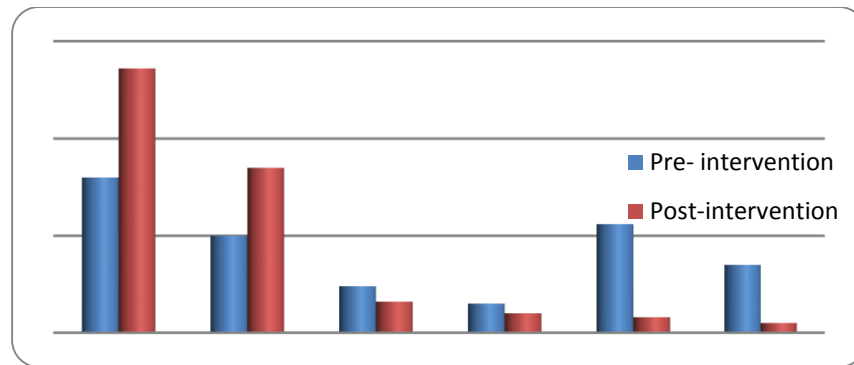
**Chart 1: Participants' perceptions of the importance of information literacy**

This result is strongly supported by Chart 2. Participants' levels of achievement on their research projects illustrate that 90% achieved a grade of "B" or higher, which correlates to "meets/exceeds standards." This also confirms that ILI intervention curriculum or activity did achieve the intended results.



**Chart 2: Student's research project grades**

Then again, the results obtained from the Likert scale and open-ended questions confirmed that IL training had a profound effect on participants' learning behaviors and perceptions of the benefits of IL skills. The majority of participants demonstrated how IL improved their learning performance as shown in Chart 3.



**Chart 3: Student positive perceptions of IL skills' benefits**

In view of the above, students in IL training sessions had no serious negative attitudes toward information literacy instruction. Their post-intervention results and open-ended interview answers indicated they sense the need for mastering IL basic skills regardless of the limitations and obstacles that some of them mentioned in the second open-ended question of the interview such as “time consuming,” “resistance to change.”

What IL curriculum do we need in both secondary and higher education?

Since study results indicate that students do find ILI sessions useful in helping them to achieve the level of expertise needed to succeed after high school, and thus supports the importance of ILI in high schools and higher education institutions.

Consequently, the best practices for integrating IL into the curriculum along with the strategies to reinforce it were explored. For that reason, guidelines for a suggested transition IL curriculum that meets the unique needs of students in UAE at both the high school and university levels was proposed (Appendix B).

### Research conclusions

Results revealed that students who enter AAU lacked the IL competency necessary to pursue their studies effectively. However, students who participated in the ILI study intervention showed overall IL improvement and scored higher on their post-tests than the group who did not receive ILI intervention. These results indicate an improvement in student IL skills with no significant variation with respect to academic year, gender, or medium of instruction.

Moreover, data and feedback collected from this study using the Likert scale, interviews and IL final projects supported the fact that high school students' IL skills have to be enhanced through assignments that are more inquiry-based and employ higher order thinking skills. This in turn leads students to discover how the use of IL enhances their learning through skills that help students better organize, interpret, assess, and present information. Most importantly, it is clear that reasoning is at the center of information literacy skillsets and should be encouraged through the use of appropriate information technology resources that help develop critical thinking skills.

This research is expected to generate educators' new appreciation of the IL competencies that high school students bring to their post-secondary learning experiences. It also illustrates the valid relationship between high school IL preparation and the successful transition to university, leading to the duty of educators to assess “What might be done to make this transition easier

## Research Recommendations

Based on the fact that IL alone cannot be the subject of a particular course (Bundy, 2004), it is suggested that the progress in students' IL learning be achieved through additional formal learning activities in other courses. These activities need to be integrated into the content, structure, and sequence of a discipline-specific curriculum.

Therefore, at the institutional level, policies need to support IL education so that students engaged in an academic program are expected to attain the skills needed to access, process and assess information – especially in digital formats and apply it to learning.

To achieve such goals, education policy-makers and teachers must embrace information literacy activities/instruction. This can be achieved by working in several key focus areas such as:

Further research studies should examine why high schools students still do not have the required IL skills. Also, further research studies should be carried out with other students in different schools/countries in order to better understand the nature of IL instruction in other educational contexts.

The development of training introductory course materials based on the factors affecting students' IL skills needs to be accomplished to help students gain experience and develop important IL skills to meet the needs of the new information era.

Educators need to examine the best course design practices that could encourage students to engage with the information environment. More investigations on the barriers that prevent lecturers from deploying IL in their classrooms should be conducted.

Computer-related skills are often considered as an important prerequisite for information literacy, and therefore institutions should meet their obligations to provide the various means available to help students acquire and strengthen competencies in the use of computers and information technology resources.

Eventually, it is hoped that prospective high school teachers will graduate with the proficiency needed to support the ILI expected of them (Julien & Barker, 2009), including using information and communication technology tools specifically and innovatively for the problem or issue at hand.

### ***Limitations of the study***

This study is limited to the undergraduate students at the Al Ain University of Science and Technology in the UAE. Therefore, generalizations need to be carefully made to avoid interpolation. The full capacity of promoting and utilization of information literacy would need more time and effort from both students and lecturers to be fully implemented within their courses.

### **Further implications**

The results of this study support the development of an IL curriculum that will address specifically the challenge of helping UAE high school students navigate an information-rich environment with the vital skills necessary to create new knowledge, develop critical thinking skills, and formulate decisions that will facilitate the transition to a sustainable future.

Accordingly, the results of this study support adding an IL curriculum/course to the undergraduate general education courses at the AAU freshmen level. The purpose of this course is to bridge the IL gap between the high school and college/university environments.

### **The IL Curriculum goal:**

The transition from high school to college can be a difficult one. For that reason, the study's results will support evidence-based design and delivery of ILI appropriate for the learning needs of students in the 21st century.

### **Actions recommended for achieving goals:**

Information literacy skills are achieved by students through student-centered IL curriculums and resource-based teaching/learning methods that direct the learner toward meaningful and lifelong learning. This goal can best be achieved through developing student-centered IL curriculums based on the recommended guidelines (Appendix A).

The recommended IL curriculum aims to bridge the gap between high school and college. It helps make the transition from high school to college less of a challenge and leads to more positive learning experiences.

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## Appendix A

## IL Student Survey (pre-/post- test)

ACRL Standards	Survey/Questions	True	False	Not Sure
<b>One: Define the Information Need and Research Topic.</b>	General encyclopedias cover all subject areas, and might give you some good ideas on your topic.			
	If you want to find books on a topic, a keyword search is often the best way to start.			
	A history textbook is an example of a primary source.			
	Primary sources provide first-hand testimony or direct evidence concerning a topic under investigation.			
	A journal article reporting new research or findings is an example of a secondary source.			
<b>Two: Develop a Search Strategy; Locate and Retrieve Information.</b>	Reference is the area of the library where you would go to get help with a strategy for a research project.			
	Library classification systems arrange books on library shelves by title.			
	Broadening your question is the best strategy when you find too much information.			
	Use quotation marks ("") to view consecutive words of a phrase, such as "high schools."			
	In a research database, use the Boolean operators "AND" to increase the number of items that can be retrieved.			
<b>Three: Evaluate and incorporate Information into a Knowledge Base and Value System.</b>	Internet technology doesn't permit anyone to publish anything at anytime - it's a complicated process.			
	A reliable source is the source that has been published/peer reviewed.			
	A fact is something that is true and which can be proven, and an opinion is a belief and can't be proven.			
	An article that only presents one point of view or omits facts is biased.			
	Better looking web sites are more likely to have information that is correct.			
<b>Four: Use Information to Accomplish a Purpose.</b>	The best reason to use direct quotes and paraphrases is to explain complicated ideas to your instructor.			
	As long as you cite the original source, you can copy a unique phrase and use it in your paper.			
	Acceptable paraphrasing can be best described by synthesizing the original passage and writing it in your own words.			
	Use the table of contents of your recommended textbook to find additional sources on the subject.			
	This is a journal: Cowan, C.M. (1992). Frog mortality on the M62. Oxford, Oxford University Press.			
<b>Five: Use Information Ethically and Legally</b>	It is still plagiarism when using an outline of a paper found on the Web even if you have the permission of the creator.			
	If you did not cite a work in your paper (in-text citation), it cannot appear on your Works Cited page.			
	ONLY sources directly referenced in your paper can be included.			
	In APA, the reference list is generally arranged alphabetically by author's first name.			
	When you access information online, your citation must always include the date you accessed the information.			

**Appendix B**  
**Guidelines for *suggested transition* IL curriculum.**

IL Curriculum	High School	University
<i>Questions to Address</i>	<p>The suggested IL curriculum will address equipping high school students with vital skills to create new knowledge, to develop critical thinking skills, and to formulate decisions that will facilitate the transition to a sustainable future.</p> <p>The <i>IL curriculum</i> activities are <i>designed to tackle</i> the following questions:</p> <p>What are the key IL skills that UAE high school students/college freshmen need to develop in the Information Age?</p> <p>What are the best methods to help develop and deliver these IL skills? Who? Where? How?</p> <p>What effect does the IL curriculum have on performance and on the attitudes of participants?</p>	<p>The curriculum includes an innovative IL course that will address helping AAU students navigate through today's information-loaded environment.</p> <p>The course is <i>designed to address</i> the following questions:</p> <p>What are the key skills of information literacy that university students need to develop in the Information Age?</p> <p>What are the best methods to help them develop and deliver these IL skills? Who? Where? How?</p> <p>What effect does the IL curriculum have on the performance and attitudes of the participants?</p>
<i>Thoughts On Implementation</i>	<p>Ideally, IL curriculum builds information literacy skills in a sequential and rational way. Consequently, the proposed IL curriculum needs to be addressed through a holistic plan that consists of the following major elements:</p> <p>Exploring IL concepts designed to improve learning outcomes for local high school students.</p> <p>Assessing the IL needs of public high school students.</p> <p>Producing and using relevant, validated and replicable instructional resources that facilitate student learning and addresses their needs.</p> <p>Developing strategies, skills, and activities that improve the quality of teaching IL skills, including creating hands-on activities, lesson plans, and assignments.</p> <p>Creating a Web-based collection of professional development and learning resources and incorporating appropriate technology into IL instruction, including tutorials, forums and ePortfolios for sharing and dissemination of resources.</p>	<p>The information <i>problem-solving</i> and <i>help-seeking</i> models are recommended to be used in planning <i>curriculum</i> units. The course units enable students to develop IL skills through course content and activities that include:</p> <p>Developing IL skills assignments that are more inquiry-based, employing higher order thinking skills and leading students to discover how the use of IL enhances their learning by organizing, interpreting, concluding and presenting information.</p> <p>Using AAU's learning resources centers as an inquiry hub and collaborating with other teachers and librarians (within the grade level, discipline and between disciplines).</p> <p>Using the learning management system (Moodle) to give online assignments, lessons, quizzes and surveys thus creating a learning experience that is relevant, engaging and productive.</p> <p>Incorporating essential Web 2.0 tools like blogs (online journals), and wikis to promote teamwork among students and build up a collaborative classroom environment.</p>

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**Editor's Note:** Moore's transactional distance theory, published 40 years ago, provides a conceptual framework to help educators understand distance education. It also opens up opportunities for further research and development.

## **Transactional distance theory in the World Wide Web environment**

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Saudi Arabia

### **Introduction**

This paper investigates transactional distance theory (TDT) which was first published in 1972 by Michael G. Moore as the first pedagogical theory in distance education. Moore hypothesized that distance is a pedagogical, rather than geographic phenomenon. TDT consists of three sets of "macro-factors": dialogue, structure, and learner autonomy. Moore frequently called on scholars to further investigate his theory to define the variables of structure, dialogue, and learner autonomy among these variables. However, empirical research examining these issues is scarce. In general, the most recent research that investigated instructional distance theory has been conducted through internet learning environments. Most previous studies confirmed Moore's perspective of transactional distance, and several researchers attempted to expand the theory to add more factors.

**Keywords:** transactional distance theory; interaction; learner autonomy; online learning; dialogue; independent learning.

### **Introduction**

Distance education grew very fast during the last decade of the 20th century. Many factors contributed to this development, such as the emergence of lifelong learning and exceptional technological developments in communications. However, this quick development of the field poses a vital challenge for distance educators. The challenge is to provide theory that will explain and anticipate distance education practices for a broad range of emerging educational purposes and experiences (Garrison, 2000). Several distance educators have realized this challenge. For example, Garrison (2000) reviewed the major theories of the field and concluded that the most urgent challenge for distance educators is to present a theoretical view that describes the opportunities and the limitations of using different methods and technologies for teaching and distant learning. Moore and Kearsley (2005) also observed the importance of theory in the field's development. They linked theories to maps that summarize everything in the literature of the field. Thus, instead of reviewing all the literature, a researcher can use this summary to explore what is already known and find indications of the areas where new investigations are needed. Moore and Kearsley have made it very clear: "if you want to do research in distance education, you must first know the theory" (p. 219).

The focus on studying distance education changed during the last decade of the 20th century. Distance educators primarily focused on distance restrictions. What was important to these educators was finding efficient and effective ways for bridging geographic restrictions using organizational strategies such as learning packages. However, the focus has changed recently to more educational issues "associated with the teaching-learning transaction" (Garrison, 2000, p.2). In other words, distance educators focus on transactional issues associated with teaching-learning systems at distance rather than geographic restrictions. Moore's theory of transactional distance (TDT) is the most important theory in distance education that expresses this approach. This study focuses on this theory and discusses its elements, concepts, and implications. Investigations that used this theory as a theoretical framework for research are also included.

## The theory of transactional distance

Moore's theory of transactional distance was published in his two well-known articles, "Learner Autonomy: The Second Dimension of Independent Learning" and "Towards a Theory of Independent Learning and Teaching." These articles were published in 1972 and 1973, respectively. Moore's theory sought to constitute an identity for previously undefined research studies that focused on learning activities that happen outside the classroom (Moore, 2007). Thus, transactional distance theory (TDT) was the first that defined and described teaching and learning activities that took place in locations other than classrooms. These activities were defined by this theory as "distance education" for the first time in English (Moore, 1990). Furthermore, TDT was "the first American theory to define the field in pedagogical terms" (Moore, 2007, p. 89).

As Moore (1990, 2007) illustrated, the pedagogical approach to distance learning was initially identified by Charles Wedemeyer, who attempted to define the independent learner as "a person not only independent in space and time but also potentially independent in controlling and directing learning" (Moore, & Kearsley, 2005, p. 222). Moore embraced the idea of independent learning and believed that distance education could be a positive factor that might help distance learners, especially adult learners, gain more control of their learning and more autonomy from the control of educational institutions. He was also influenced by the writings of humanistic psychologists such as Carl Roger and Abraham Maslow (Moore, & Kearsley, 2005).

Transactional distance theory, initially called "the independent learning and teaching theory," (Moore, 1972) consists of three sets of "macro-factors." The first set is the structure of the teaching-learning program that describes certain characteristics of the course or the program design. This element was identified based on Moore's analysis of curricula. The second set is the dialogue in the program that describes the level of interaction between learners and instructors. The third set describes the degree of independence or "autonomy" that the learner exercises to determine "what to learn, how to learn, and how much to learn" (Moore, 2007, p.90).

Transaction was initially derived from John Dewey and developed by adult education professors Robert Boyd and Jerold Apps in 1980 (Moore, 2007). As Boyd and Apps illustrated, transaction "connotes the interplay among the environment, the individual and the patterns of behavior in a situation" (as cited in Moore, & Kearsley, 2005, p.223). Based on this definition, Moore proposed "distance education is the interplay of teachers and learners in environments that have the special characteristics of their being spatially separate from one another" (Moore, 2007, p.91). Moore insisted that distance is not measured in miles or minutes; rather, it is a pedagogical phenomenon. He illustrated that this distance may lead to a communication gap between learners and teachers; thus, it should be bridged through unique procedures in instructional design and the promotion of interaction (Moore, & Kearsley, 2005). Accordingly, Moore explained that transactional distance is "relative rather than absolute," which means that educational programs can be classified from more to less distant rather than distant or not (Moore, 1972, 2007).

According to Moore (1990), two sets of variables determine the transactional distance of a program: dialogue and structure. Dialogue can be defined as "the extent to which, in any educational program, learners and educators are able to respond to each other" (p.10). Even though interaction is necessary for establishing dialogue, the variables are not the same. According to Moore (2007), dialogue consists of different sets of positive interactions between the learner and the teacher. During these interactions, each party (learner/instructor) respects the other party, listens to him or her, and builds on his or her contributions. The ultimate goal of educational dialogue is to improve the learner's understanding. Several factors determine the extent of dialogue in a course or program such as the subject of the course, the instructor's educational philosophy, the instructor's personality, the learner's abilities to manage his or her learning, and the learner's tendency to adequately participate in the dialogue (Moore, 1990,

2007). In addition, environmental factors can affect dialogue. One factor is the existence of learning groups and the size of each group. Moore explained that dialogue between a learner and an instructor is more than just an instructor and a certain learner within a group of learners. However, the most important variable is the medium that a teacher and a learner use to communicate. For example, online courses are likely to have more dialogue between learners and an instructor because of the speed and frequency of dialogue that the Internet as a medium offers, however, in other media such as radio, there is no dialogue unless it is supplemented by telephone communication (Moore, & Kearsley, 2005).

The second set of variables that determine the transactional distance of a course is the design elements or the course structure. As Moore illustrated, the quality of a course is determined based on how carefully its elements (e.g., language behaviors, content topics, information presentations, exercises, and tests) are arranged and structured (Moore, & Kearsley, 2005). The structure of a course is “a measure of an education program’s responsiveness to teachers’ individual needs” (Moore, 1990, p.10). In other words, the structure of the course indicates the extent to which the course learning objectives, teaching strategies, and evaluation methods can be adjusted to the learners’ objectives, strategies, and evaluation methods. Accordingly, in highly structured courses, the learning objectives, teaching, and evaluation methods are predetermined for the learner and are inflexible. In contrast, in less structured educational programs, the learner is provided with a wide range of alternatives that accommodate each learner’s individual needs (Moore, & Kearsley, 2005).

Using the extent of dialogue and the degree of structure, one can determine the transactional distance of a distance course or program. These variables vary from one course to another. Accordingly, in a course or a program with little transactional distance, learners are given directions or guidance through continuous dialogue with the instructor. Furthermore, the instructional materials can be adapted to the learners’ individual needs, learning style, and pace. The best example of these types of courses or programs are either live audio or video conferences in which there is more dialogue and little specified structure. In contrast, in more distant courses, there is no or little dialogue and more structure, and learners have to be entirely independent or autonomous and manage their own learning (e.g., choose learning strategies, decide when, what, where, and how to study) (Moore, & Kearsley, 2005).

## **Learner autonomy**

The idea of “learner autonomy” was originally established by humanistic psychologists such as Carl Rogers. Moore defined learner autonomy as “the will and the ability to exercise powers of learning, to overcome obstacles for oneself, to try to do difficult learning tasks and to resist coercion” (Moore, 1972, p. 667). Moore illustrated that “powers of learning” that he described in the previous definition are revealed in three sets of events: establishment (preparation) events, executive events, and evaluation events (Moore, 1972, 1990). In the establishment events, the learner defines the long-term goals of his or her learning in terms of a problem to be solved, a skill to be achieved, or information to be gained. The learner also defines his or her learning objectives as well as the criteria that he or she will use to evaluate his or her achievement. In executive events, the learner works to achieve his or her goals or objectives through gathering the necessary information and acquiring the desired skills or solving the intended problem. These events include reading books, asking specialists or experts, attending lectures, etc. In the third set of learning events (evaluation events), the learner uses the criteria he or she defined early to evaluate the quality of the information or the skills he or she gained in the executive phase based on the criteria he or she defined in the preparation or the establishment phase (Moore, 1972).

Moore (1972) provided an extensive description of the autonomous learners’ characteristics and traits. First, autonomous learners are the ones who plan ahead of time (a day, a week, or a month)

for their learning. They plan when to learn, where to learn, why to learn, and how. However, these plans are not fixed; instead, they can be modified. In addition, independent or autonomous learners arrange their lives efficiently to use their time effectively. They enjoy reading, listening, writing, discussing, questioning, testing, and analyzing. They are willing to learn new things and are able to work collaboratively with others; however, autonomous learners like to work individually. Moreover, they focus on learning principles and the major constitutional ideas of any subject. Autonomous learners also employ learning strategies and develop skills such as recalling and relating skills. However, the most important characteristic of autonomous learners would be their ability to be self-directed and to proceed through each learning event.

The teacher's role in teaching an independent (autonomous) learner is notably different from teaching a non-autonomous learner. For the non-autonomous, the teacher tells the learner what is to be learned, how it should be learned, and when it should be learned. In contrast, the autonomous learner does not need such directions. Accordingly, the teacher is perceived as a source that provides the learner with information about the wide range of possibilities available and leaves him or her to make the learning decisions on his or her own.

### **Transactional distance learning in the Internet Environment**

Moore has frequently called on scholars to further investigate his theory to define the variables of structure, dialogue, and learner autonomy among these variables (Moore, 1990, Moore & Kearsley, 2005). However, empirical research examining these issues is scarce (Chen, 2001a). In general, most recent research that investigated instructional distance theory has been conducted in internet learning environments.

Jung (2001) analyzed pedagogical features of web-based environments in 58 articles written in English. She observed that few articles investigated the structural features of web-based learning environments compared to those in dialogue or interaction. Jung found that the "structural flexibility" of a web-based learning environment is influenced by "the expandable feature of its contents" and "its ability to generate and adapt contents to match individual student according to his or her goals, previous knowledge, or other characteristics" (p.530). After examining the communication features of the web-based environment, Jung identified three important aspects of dialogue: academic interaction between learners and instructors, collaborative interaction among learners, and interpersonal interaction among learners and between instructors and learners.

Murphy and Rodriguez-Manzanares (2008) examined TDT in a more current technology context of web-based distance education in a high school environment. The researchers collected data from 20 individuals using semi-structured interviews. The results indicated that most of the interaction between learners and teachers or among the learners themselves took place during the synchronous sessions. In addition, many courses, especially those that include final exams, did not allow for open dialogue or flexibility. Teachers referred to this lack of flexibility in the courses to the curriculum since it required them to cover much content within a short period and to the use of the learning management system. The results also emphasized the importance of motivating high school learners to help them to be "self-directed" and work independently.

Chen (2001b) investigated the postulate of Moore's theory and attempted to define the dimensions or the factors that compose the transactional distance in internet learning environments. Chen proposed a model that suggests that "transactional distance perceived by learners is a combination of four essential dimensions: learner-instructor, learner-learner, learner-content, and learner-inference transactional distance" (p.462). He collected data from 82 graduate students taking a web course offered by National Chung Cheng University (NCCU), Taiwan. Chen concluded that transactional distance is a complex idea in the web-based learning environment defined by these four factors: learner-instructor, learner-learner, learner-content, and



learner-interface transactional distance. Chen also supported Moore's perspective that distance is a psychological rather than geographic phenomenon. Chen asserted that to fully understand transactional distance, additional items that lie within the factors must be identified.

Stein, Wanstreet, Calvin, Overtoom, & Wheaton (2005) used Moore's TDT as a theoretical framework. The purpose of the study was "to explore changes in satisfaction with perceived knowledge gained as a function of learner satisfaction with course structure, learner satisfaction with interaction, and technical expertise in a variety of distance learning environments" (p. 105). They gathered data from 34 undergraduate and graduate learners at three universities in the Midwestern United States. The learners were asked to rate their satisfaction with the learning gained from the course content and the group discussions. The study also included three independent variables: satisfaction with structure, interaction, and technical expertise. The study results showed that the course delivery format had no effect on the learners' satisfaction with perceived knowledge gained. Based on this finding, the authors argued that how the course is structured is more important than how it is delivered. The authors also argued that increases in structure and learner-instructor interaction do not lead to increasing the TDT perceived if they concentrate on the learners' needs.

To gain better understanding of Moore's theory in web-based learning environments, Chen (2001a) expanded Moore's theory by integrating additional factors such as the learner's skill level in using the Internet, the learner's previous experiences with distance education, the extent of the interaction, and types of learner support. He collected data from 71 learners enrolled in distance courses at four national Taiwanese universities using a five-point Likert scale preliminary questionnaire. The results showed that learners who possessed a higher skill level using the Internet presented lower transactional distance. Similarly, Chen stated that learners who participated frequently in the online discussions perceived less transactional distance. However, the results showed no relationship between the learners' previous experience with distance education courses and the learners' perceptions of transactional distance.

Gorsky and Caspi (2005) reviewed six quantitative studies that used the TDT framework and concluded that each of these studies supported the theory. However, the validity was poorly established. They argued that TDT is not a theory, but rather a tautology.

Benson and Samarawickrema (2009) also reviewed cases that had been previously judged as successful examples of e-learning design to explain how basic knowledge about the learning context has been used to manage TDT by balancing dialogue, structure, and learner autonomy. Based on this analysis, Benson and Samarawickrema suggested some of practical strategies that can be used during the planning process of e-learning to ensure that opportunities are provided for dialogue and structure in a given distance learning environment. For high transactional distance environments, they asserted the importance of teachers' ongoing involvement and sensitivity to learners' needs to ensure that they are provided with the appropriate level of dialogue. However, for highly structured distance learning environments, considerable time and planning is required.

McBrien and Jones (2009) used TDT as their theoretical framework to explore the role of a virtual classroom in distance education and analyze the ways in which a synchronous learning environment affects students' learning experiences. Data were collected using paper surveys. Participants came from three graduate and three undergraduate courses in the College of Education of a regional campus of the University of South Florida. Their study's results indicated that the virtual classroom provided learners with different modes of communication. They asserted that most of the students included in this study linked dialogue to important pedagogical considerations such as increased participation and increased time to reflect before responding. However, they highlighted the strong impact of technical difficulties on their participation and accordingly on their capacity for emotional independence and self-direction.

Al-Harathi (2010) used TDT to investigate the differences among the distance preferences of Arab and American individuals using two of the factors described by Moore's theory (structure and interaction), as well as examining their relation to the participants' self-efficiency and help seeking. The participants in this study came from two distance education institutions, Arab Open University and Pennsylvania World Campus in the United States. The study revealed that Arab students preferred significantly more rigid structure and more interaction with their instructors than their American counterparts did.

Fallon (2011) also measured students' perceptions of the virtual classroom and any possible impact they felt it had on their sense of TDT. The study focused on three main areas: relationship formation, knowledge development, and communication of information. Fallon explained that these three areas were chosen because they were compatible with Moore's (1973) dimensions of quality dialogue and could possibly affect the participants' sense of learner autonomy. Using multiple methods, data were collected from 30 graduate online students. The results indicated the implementation of an external structuring technology such as virtual classrooms can have both a positive impact through creating dialogue between the students and their instructor and among themselves, but it can also have a negative impact in that it can diminish learners' sense of autonomy.

Given the amount of work in this area, Belair (2012) conducted a meta-analysis to investigate the effects of different forms of communication and other virtual school methods that are used in online virtual high schools and colleges in the United States, Canada, and other countries. The literature review asserted that the relationship among instructors and students in those schools was an influential factor in online education. Additionally, it indicated that students' expectations for the level of interaction with their instructors might vary by grade level, students' ability, and the course's level of difficulty. The study concluded that an improved relationship led to increased self-assessment and self-efficiency among students.

In order to develop a reliable and valid scale to measure TD, Horzum (2011) conducted a study investigating whether perceived TDT differed based on gender, utilization of components, and number of logins to systems. Data from 197 blended learning students at the Faculty of Economics and Administrative Sciences in Sakarya University showed that perceived TDT did not differ based on gender, utilization component, or number of logins to systems. The study also failed to support the assumptions of Moore's TDT.

Based on Moore's TDT, Park (2011) proposed a conceptual and pedagogical framework that defines four types of mobile learning in distance education environments. These four types vary based on high versus low TDT and individualized versus socialized activity. Subsequently, Hauser, Paul, and Bradley (2012) used Moore's TDT and previous research to explore whether changes to computer self-efficiency (CSE) and computer anxiety affected learners' performance on computer-related tasks in online and face-to-face classes. Data from students in a business class revealed the importance of structure and innovation in the online class and that dialogue was more important in the face-to-face class.

Aluko, Fraser, and Hendrikz (2011) also used Moore's TDT to explore the extent to which the theory accounts for excellence in both face-to-face and distance programs. Data from 127 DE students using a mixed method of a questionnaire and in-depth interviews confirmed the importance of the relationship among dialogue, structure, and autonomy learning materials. Accordingly, the researchers asserted that instructors could lessen TDT by developing dialogue and structure that matches their students' needs and preferences.

## Conclusion

Transactional distance theory was the first step in building a pedagogical framework for distance education. Even though the theory was published 40 years ago, only a few empirical studies have investigated the relationship between the theory's elements, especially in web-based learning environments. Most previous studies confirmed Moore's perspective of transactional distance, and several researchers attempted to expand the theory to add more factors. In sum, transactional distance theory provides a useful conceptual framework that helps educators understand distance education and provides hypotheses for future studies.

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**Editor's Note:** This study provides a challenge to instructional designers to teach more than cognitive content. Every learning experience is an opportunity to stimulate thinking and learn how-to-learn. Technology has logistical advantages, but no magic of its own. It is a tool that embodies the philosophy, teaching style and creativity of teachers, instructional designers and curriculum experts.

## **Acquisition degree of students' meta-cognitive skills from IT university courses in Jordan**

**Hala Alshawwa**  
Jordan

### **Abstract**

The aim of this study is to investigate the acquisition degree of students' meta-cognition thinking skills from IT courses at the University of Jordan. The research questions are: what is the acquisition degree of students' meta-cognition thinking skills from IT courses at the University of Jordan? Are there any significant differences in the acquisition degree of students' meta-cognition thinking skills from IT courses at the University of Jordan with respect to the area of specialization (pre-service generalist teachers and pre-service early childhood teachers) and with respect to students' GPA (Low, middle, and high)?

A questionnaire consisted of 30 items was collected from 108 pre-service teachers from the Educational Science College in the University of Jordan, who were enrolled in the practicum course during their last semester in the university.

The sample was distributed as follows: 52 pre-service early childhood teachers and 56 pre-service classroom teachers. The questionnaire consisted of two dimensions with three sub dimension for each. The first dimension is self-appraisal of cognition and consisted of three sub dimensions: declaration knowledge, procedural knowledge, and conditional knowledge. The second dimension is self-management of cognition and consisted of three sub-dimensions: planning, assessment, and arrangement.

The findings indicated the acquisition degree of students' meta-cognition thinking skills from IT courses were overall low. There was no significant difference in the acquisition degree of students' meta-cognition thinking skills with respect to the area of specialization, but, there were significant differences in the acquisition degree of students' meta-cognition thinking skills with respect to students' GPA, students with higher GPA showed higher acquisition level of meta-cognition thinking skills.

**Keywords:** meta-cognitive skills, IT courses, pre-service teachers, Jordan, early childhood teachers, classroom teachers.

### **Introduction:**

Modern curricula added new tasks to the teacher. The center of teaching-learning operation had shifted from the teacher to the learner. The new mission is to prepare learners to become effective participants and problem solvers. We need teachers to become supervisors and facilitators. To achieve our needs we should consider the needs of the learners and the community as well. Also it is important to develop different thinking abilities such as: creative, critical, problem solving, and meta-cognition thinking skills.

Meta cognition focuses on learners' automatic awareness of their own knowledge and their ability to understand, control, manipulate, and assess their own cognitive processes. Meta cognitive skills are essential not only in school, but everywhere. Beyer (2003) mentioned that it is very important that a successful individual be a person who has learned to learn. He goes further and

describes this person as one who knows the phrases in the process of learning and understands his or her own preferred approaches and strategies to learn effectively - a person who can identify and solve learning difficulties and can bring learning from off-the-job learning to on-the-job situations.

Knowledge of factual information and basic skills provides a foundation for developing meta-cognitive skills; and meta-cognitive skills enable students to master information and solve problems more easily. If teachers hope to help low-performing students break out of their intellectual imprisonment, they must find a way to help them develop both an automatic grasp of basic skills and effective meta-cognitive skills to enable self-directed learning (Jarwan, 1999).

Furthermore, meta-cognitive concentrates on knowing how to control the recant factors for examining some phenomenon (Flavell, 1979), performing a certain task or completing an activity. Meta-cognitive also means knowing the method of manipulating a specific condition or the technique for implementing a task. This may include the procedures we use to do a science experiment, write an essay or solve a mathematical equation. Meta-cognitive is often thought about as certain skills we possess, tasks we can complete or processes we are able to follow (Garner, 1987).

According to many researchers teaching meta-cognitive thinking skills provides educators with solutions for many of the disadvantages of traditional educational styles and approaches. Furthermore, the results of various researches and studies confirmed that connecting education with our lives through teaching for meta cognitive is one of the greatest and fruitful education (Murray,(2009), McKay,(2006) Facione,(2000)).

## **The Study Questions**

What is the acquisition degree of students' meta-cognition thinking skills from IT courses at the University of Jordan?

1. Are there any significant differences in the acquisition degree of students' meta-cognition thinking skills from IT courses at the University of Jordan with respect to the area of specialization (pre-service classroom teachers and pre-service early childhood teachers)?
2. Are there any significant differences in the acquisition degree of students' meta-cognition thinking skills from IT courses at the University of Jordan with respect to students' GPA (Low, middle, and high)?

## **Statement of the problem**

Based on the researcher knowledge, there is a lack of research studying the acquisition degree of students' meta-cognition thinking skills from IT courses at university levels, especially in Arab countries. After reviewing related studies, the researcher found few Arabic studies conducted on the effectiveness of computerized curricula on learning life skills. While the researcher couldn't find any study investigating the acquisition degree of students' meta-cognition thinking skills from IT courses at universities in Jordan. In other words, studying the relation between the universities Instructional Technology courses offered for pre-service elementary teachers and pre-service early childhood teachers in one side and their acquisition degree of meta-cognition thinking skills. Furthermore, the researcher discussed those educational issues with different in-service teachers. Many of them mentioned that they don't even know what it means while others were not able to explain what is meant by meta-cognition thinking skills or to express its importance in teaching and learning as well.

## Purpose of the study

The purpose of this study is to identify the acquisition degree of students' meta-cognition thinking skills from IT courses at the University of Jordan with respect to the area of specialization (pre-service generalist teachers and pre-service early childhood teachers) and with respect to students' GPA (Low, middle, and high).

### **Definitions of Terms:**

**Meta-cognition thinking skills:** learners' automatic awareness of their own knowledge and their ability to understand, control, manipulate, and assess their own cognitive processes. It has two dimensions with three sub dimensions for each. One dimension is self-appraisal of cognition and it consisted of three sub dimensions. They are: declaration knowledge, procedural knowledge, and conditional knowledge. The other dimension is self-management of cognition and it consisted of three sub dimensions. They are: planning, arrangement, and assessment

**Pre-service early childhood teachers:** undergraduate students from Faculty of Educational Sciences at the University of Jordan who are expected to be kindergartner teachers after graduation.

**Pre-service generalist teachers:** undergraduate students from Faculty of Educational Sciences at the University of Jordan who are expected to be teachers for the first three grades after graduation.

**Students' GPA:** Students Grade Point Average has been classified into three groups as follows:

**Low group:** Students who have GPA less than 2.00

**Medium group:** Students who have GPA greater than or equal to 2 and less than 2.99

**High group:** Students who have GPA greater than or equal to 3.00 and less than or equal to 4.00

**Instructional Technology courses:** the courses that is offered by the University of Jordan for pre-service early childhood teachers and pre-service generalist teachers. They are five courses were the students are exposed to essential knowledge of technology and literacy; the role of technology in the learning and teaching process; computer literacy; computer-aided instruction; computer-managed instruction; computer applications in education; operating systems; word processing; spreadsheet; and databases; using computer programs such as Microsoft publisher, Excel, Word and PowerPoint in classroom practices.

In addition to that, those courses introduce the concepts of instructional materials; definitions; relationship to instructional technology; classification; sources; role of such materials in the instructional process; the impact of perception and communication on designing different kinds of instructional materials such as transparencies, slides, audio cassettes, video tapes, and computer disks; principles of designing, producing and using instructional materials according to the system approach; practical application in designing, producing and using instructional materials in different subject matters.

Furthermore the students discuss child computerized programs (software) for the purposes of instruction, fun, and literacy. Also, they learn the importance of the computerized programs in assessing child creative thinking skills. In addition to that students learn basic skills in designing, producing, analyzing, and evaluating computerized programs and its applications.

## Limitations of the study:

This research was conducted within the following limitations:

- The courses used: the instructional technology courses which are provided by the University of Jordan.
- The sample: the sample is the undergraduate students at the faculty of Educational Sciences in the University of Jordan, who passed the Information Technology courses provided by the University of Jordan.
- Characteristics of the measure used: the results of the study are affected by the validity and reliability of the instrument.

## Related literature review

Alzbaidy (2010) conducted a study to investigate the effect of using constructive learning and creative problem-solving on meta-cognitive abilities in learning social studies. The sample consisted of 67 8th graders. The participants were divided into two groups: experimental group which consisted of 35 students and a control group which consisted of 32 students. The findings indicated existence of statistically significant difference in the experimental group students' mean score in the Meta cognitive survey in favor of the experimental group.

Hollenesky (2010) explored the meta-cognitive skills students develop through participating in music course and its effect on their academic achievement. The sample consisted of 48 high school students. The researcher used a meta-cognitive survey. The findings indicated 71% of the meta-cognitive skills were identified as being obtained by a majority of the students. In addition to that, it showed meta-cognitive skills had the potential to increase high school students' academic achievement.

Mendara (2010) studies the relationship between meta-cognitive learning strategies and academic success of university students. The data was collected from 230 undergraduate university students from different departments with difference specialization areas. The researcher developed a meta-cognitive awareness inventory. The instrument had four components: planning, controlling, organization, and evaluation. The results showed there was no statistically significant difference between the meta-cognitive strategies used by students and their grade level, but there was a statistically significant difference between the meta-cognitive strategies used by students and their department. Students in classroom teacher training department had higher meta-cognition knowledge than students in marketing and electricity departments. Furthermore, there was a statistically significant difference between the meta-cognitive strategies used by students and their accumulative academic grades. The difference is in favor of the students who had higher cumulative grades.

Khaleel (2009) examined the impact of using technology in teaching 7th graders in Qatar on developing their meta-cognition knowledge. The sample was 62 participants. The researcher applied a meta-cognition knowledge survey. The findings showed statistically significant difference in developing meta-cognition knowledge due to the intervention represented in using technology in teaching.

Yen (2009) conducted a study aimed at investigating learners' characteristics such as their cognitive styles and meta-cognitive knowledge. The researcher developed a web based chemistry unit in a chemistry course. The participants were 10 female students from 9th grade. Data was collected through structured individual interviews with students and project reports of students, observations of students studying their web based course, and parents' documents. The findings indicated the level of students' meta-cognitive skills were high.



Sighnal (2009) studied the effect of teaching an introductory physics course on problem solving, reasoning, and meta-cognitive skills of university students. The sample consisted of 53 students. The researcher developed and applied an instrument to measure students' level of understanding and abilities in problem solving, reasoning, and meta-cognitive skills. It measures what the students had learned by solving problems, how they can extend, organize, and assess their meta-cognitive skills. The findings indicated that: there were significant improvements in meta-cognitive skills and they were statistically different with respect to students' academic achievement in favor of students with higher grade point averages.

## Population and sample of the study

The population consisted of all undergraduate students in the College of Educational Sciences who passed the Instructional Technology courses provided by the University of Jordan. While the sample consisted of (108) undergraduate students they were selected randomly as follows: (52) early childhood pre-service teachers and (56) generalist pre-service teachers.

### *The instrument of the study:*

The researcher developed the instrument-based on related research and literature such as Alzbaidy (2010), Hollenesky (2010), Mendara (2010), Yen (2009), Sighnal (2009), and Khaleel (2009). The instrument consisted of 30 positive items, using a 5-point Likert-type scale. Following is the ranking for the scale:

1. Strongly disagree,
2. Disagree,
3. Mildly agree,
4. Agree,
5. Strongly agree.

The items of the questionnaire are distributed into the following two dimensions with three sub dimensions for each dimension. The descriptions of the sub dimension are as follows:

Dimension of self-appraisal of cognition: this dimension has three sub dimensions, they are:

- Declaration knowledge, items (1-5)
- Procedural knowledge, items (6-10)
- Conditional Knowledge, items (11-15)

Dimension of self-appraisal of cognition: this dimension has three sub dimensions, they are:

- Planning, items (16-20)
- Assessment, items (21-25)
- Arrangement, items (26-30)

The questionnaire is attached in the Appendix.

## Validity and reliability of the instrument

Content validity was established before conducting the study by distributing the instrument to some experts from the faculty of Educational Sciences at the University of Jordan, Alhashmite University, and Alyarmouk University. The primary version of the instrument consisted of 38 positive items. The instrument judges examined the measure and agreed that it did assess what it was supposed to assess, they modified and rephrased few words to be understood by the participants and they deleted 8 items. Additionally, the researcher assessed the reliability of the instrument by using Cronbach's Alpha, as a measure of consistency coefficient. The instrument was distributed to (34) students from the population and not included in the sample. The reliability coefficient for the measure was (0.87), which means the instrument was reliable.

### **Variables of the study**

The independent variable is the instrument. The dependent variable is the acquisition degree of students' meta-cognition thinking skills. The classified variables are the specialization area and students' GPA.

### **Data analysis**

Means, standard deviation, t-test, and One-Way ANOVA were used as the appropriate statistical tools to test the research questions. Based on the research questions, data was analyzed using the Statistical Packages for Social Sciences (SPSS) version 17.0. The (0.05) level of significance was selected to determine if any differences between the groups were statistically significant.

### **Discussion of the finding:**

The findings of data analysis for the first question indicated that the means were low for each sub dimension and for the overall dimensions. Table 1 displays the means, the standard deviation, and the percentage of importance for the sub dimensions and of the overall measure.

**Table 1**  
**Means, standard deviation, and percentage of importance for sub dimensions**

Sub Dimension	Mean (m)	SD	Percentage of importance
Declaration Knowledge	12.16	2.01	49%
Procedural Knowledge	12.04	2.13	48%
Conditional Knowledge	11.80	3.01	47%
Planning	12.11	2.21	48%
Arrangement	11.75	2.45	47%
Assessment	11.64	2.03	47%
Overall measure	71.50	2.45	48%

Table 1 showed the average responses of the students at the University of Jordan ranged from 11.64 to 12.16 and the percentage of importance ranged from 47% to 49%. The percentage of importance was calculated by dividing the mean for each sub dimension by the maximum point of the items which is  $5 \times 5 = 25$ , so the mean was divided by 25 to get the percentage of importance for each sub dimension.

In addition to the previous analysis, the researcher described the acquisition degree of students' meta-cognition thinking skills whether it is high, medium, or low. Table 2 provides categories that describe the acquisition degree of students' meta-cognition thinking skills.

**Table 2**  
**Categories of acquisition degree of undergraduate students' meta-cognition thinking skills**

Mean range	Category
$1.0 \leq \text{Average mean} < 2.5$	Low
$2.5 \leq \text{Average mean} \leq 3.5$	Medium
$3.5 < \text{Average mean} \leq 5$	High

The categories in Table 2 were considered based on the opinions of the referee panel and related research and literature, such as: Alzbaidy (2010), Mendara (2010), and Khaleel (2009). Tables 1 and 2 show that the acquisition degree of undergraduate students' meta-cognition thinking skills of the six sub-dimensions and for the overall dimensions were low since the Average means are higher than 1.0 and less than 2.5, the Average mean was calculated by dividing the mean displayed in table (1) by the number of items in every dimension.

The results of this question differ from the results of the study of Hollensky (2010), Khaleel (2009), Alzbaidy (2009), and Yen (2009). The explanation could be because the gap is large between what and how the educational faculties' members in the university teach and what the school and society need. Furthermore, this result could be explained with a number of reasons such as: some faculties still use the traditional methods that focus on memorization rather than developing meta-cognition knowledge. Another reason could be due to the fact that many faculty members don't teach using meta-cognition styles.

The findings of data analysis for the second question are displayed in Table 3. Table 3 shows the means, standards deviation, and t values for the responses of all the participants on the meta-cognitive skills questionnaire with respect to their specialization area.

**Table 3**  
**Scores analysis of the six meta-cognitive thinking skills dimensions**  
**for participants with respect to specialization area**

Dimension	Early childhood pre-service teachers		Classroom pre-service teachers		T Value	Sig. Level
	M	SD	M	SD		
Declaration Knowledge	12.11	1.33	12.03	2.51	.804	.351
Procedural knowledge	11.21	2.24	12.44	2.13	1.55	.103
Conditional Knowledge	12.09	1.69	11.66	1.78	.864	.567
Planning	13.16	2.46	12.42	3.64	.834	.367
Arrangement	11.57	2.27	12.12	3.57	1.66	.136
Assessment	13.45	2.38	12.98	2.56	.958	.263
Overall	73.59	4.48	73.65	4.11	.968	.487

Based on Table 3, it is clear that there are differences between the acquisition degree of students' meta-cognition thinking skills with respect to the area of specialization. The means for the responses of the classroom pre-service teachers ranged from 11.66 to 12.98 and the means for the responses of the early childhood pre-service teachers ranged from 11.21 to 13.45 in order to decide if those differences are statistically significant, the researcher applied t-test. It is apparent that those differences are not statistically significant because t-values ranged from 0.804 to 1.66.

The results of this question agree with the results of the studies of Mendara (2010). From the researcher experience, the explanation could be due the fact that the Instructional Technology courses that early childhood pre-service teachers and classroom pre-service teachers took are supported by the same faculties and normally taught by the same instructors. Furthermore, another reason could be because the content and the teaching strategies for instructing pre-service early childhood teachers and pre-service classroom teachers are very similar and focus on conceptual and procedural facts which may lead to non-significant differences between the responses of pre-service early childhood teachers and pre-service classroom teachers.

To answer the third questions, the researcher calculated the means, the standards deviation, and One Way ANOVA for every dimension. Table 4 shows the statistical results.

**Table 4**  
**ANOVA for the Responses of the Students with respect to their GPA**

Dimension	Resource(A)	Sum of Squares	Degree of Freedom	F-value	Sig
Declaration Knowledge	Between groups	14.19	2	14.65	.000
	Within groups	223.01	105		
	Total		107		
Procedural Knowledge	Between groups	13.11	2	16.05	.001
	Within groups	213.21	105		
	Total		107		
Conditional Knowledge	Between groups	15.12	2	14.32	.000
	Within groups	224.78	105		
	Total		107		
Planning	Between groups	11.99	2	17.21	.002
	Within groups	243.05	105		
	Total		107		
Arrangement		14.46	2	15.35	.001
		257.56	105		
			107		
Assessment		13.58	2	14.76	.002
		267.34	105		
			107		
Overall instrument	Between groups	15.13	2	16.87	.003
	Within groups	244.56	105		
	Total		107		

Table 4 shows significant differences between the responses of students with respect to their GPA. The researcher applied the Tukey test to identify which groups ha the difference in its degree of meta-cognition thinking skills.

It can be seen from Table 5 there are statistically significant differences between the acquisition degree of students' meta-cognition thinking skills respect to students' GPA in favor of students' with higher GPA's, students with higher GPA's showed higher acquisition level of meta-cognition thinking skills. This result agrees with the results of the study of Mendara (2010). It can be explained by saying that normally students with higher GPA's don't depend on one method of studying or thinking, but they try different strategies and they reflect on what they study.

**Table 5**  
**Tukey test for the responses of the students with respect to their GPA**

Dimension	Group	Mean Difference	STD errors	Sig
Declaration Knowledge	High x Medium	.24	.09	Sig.
	High x Low	.67	.08	Sig.
	Medium x Low	.07	.02	Sig.
Procedural Knowledge	High x Medium	.18	.06	Sig.
	High x Low	-.29	.01	Sig.
	Medium x Low	-.28	.03	Sig.
Conditional Knowledge	High x Medium	-.02	.06	Sig.
	High x Low	.56	.07	Sig.
	Medium x Low	.45	.02	Sig.
Planning	High x Medium	-.60	.07	Sig.
	High x Low	-.62	.01	Sig.
	Medium x Low	.24	.03	Sig.
Arrangement	High x Medium	.64	.06	Sig.
	High x Low	.64	.03	Sig.
	Medium x Low	.34	.03	Sig.
Assessment	High x Medium	.44	.04	Sig.
	High x Low	.45	.01	Sig.
	Medium x Low	.56	.05	Sig.
Overall	High x Medium	-.50	.06	Sig.
	High x Low	-.06	.02	Sig.
	Medium x Low	-.54	.02	Sig.

### Recommendation:

Considering the findings of the study, the researcher recommended the following:

1. Identifying meta-cognitive awareness and learning strategies implemented and used by university students.
2. Reviewing universities courses and study plans frequently to make it more applicable and sustainable.
3. Providing guidance by arranging different activities to enhance students' meta-cognitive skills such as meetings, workshops, and conferences.
4. Building the educational study plans and courses plans for pre-service teachers in a way preparing them to be thinkers.
5. Maintaining a high frequent use of students' meta-cognitive learning strategies by inserting those strategies and skills in university courses and actives.
6. Conducting similar studies with different universities courses and variables.

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**Editor's Note:** Major changes in educational policy require systematic change in pedagogy and all aspects of the education process. Effective implementation requires evaluation and feedback to monitor the process and the outcomes. This article tells how major changes were implemented to transform introductory college programs for mobile learning.

## **An engaged and engaging mobile learning ecosystem: early findings from a large-scale college iPad program**

**Cathy Cavanaugh and Jace Hargis**

**United Arab Emirates**

### **Abstract**

This synthesis interprets findings from research efforts conducted during the first six months of a college mobile education program to provide insights into key program features and outcomes. In so doing, it classifies the findings in five themes: *Engaging Technology*, specifically iPads as cognitive tool-boxes for learning; *Engaged Pedagogy* consisting of student-centered teaching practice; *Engaged Faculty* interpreted through their perceptions and uses of the tools and ecosystem; *Engaged Community of Learners* who are creating teaching and learning media with the tools; and *Engaging Learning Ecosystem* where courses are transformed.

**Keywords:** Faculty development, higher education, mobile learning, tablet computing, learning environments, blended learning

### **Context**

In April 2012, national higher education leaders in the United Arab Emirates (UAE) charged the three federal higher education institutions to create functional, meaningful mobile learning programs in and outside of the classrooms. The initiative emphasized that pedagogy would guide the implementation rather than technology, and that in September 2012, 20 colleges and universities would fully transform their learning environments to a mobile learning ecosystem in all in-coming classes. In the initial four months prior to the 2012-2013 academic year, a team of professionals from all institutions met regularly, identifying key contributors who would facilitate project steps. The key contributors were identified as faculty members, who were provided development tools to efficiently integrate mobile learning tactics into their classrooms, and who would champion the development of other faculty members on their campuses. These iChampions became primary drivers in the success of the iP pedagogy project. The timeline for the adoption and implementation of iPads in UAE higher education was ambitious and was undertaken in partnership between the federal higher education system and Apple Inc. leaders. The adoption and planning stage comprised the nine-week period before the summer break in the education calendar when the staff, curriculum, and campuses geared up for the program's launch on September 9th. For faculty, this nine-week period focused on preparing to meet the pedagogical goals of the UAE's iPad program: engaged, student-centered, progressive teaching. This article summarizes findings from research efforts conducted at one UAE campus during the first six months of the national mobile higher education program to provide insights into key program features and outcomes. The campus was an urban women's college with an enrollment number being just over 2000 full time students and where all faculty participated in faculty development activities.

Detailed in this article are the five forms of engagement at the core of the Year 1 program. The mobile learning ecosystem (MLE) operationalized in the college was comprised of:

1. Engaging Technology: iPads as cognitive tool-boxes for learning
2. Engaged Pedagogy: Student-centered teaching practice
3. Engaged Faculty: Perceptions and uses of the tools and ecosystem
4. Engaged Community of Learners: Media creation with the tools
5. Engaging Learning Ecosystems: Mobile learning in redesigned courses

## **Research in the college mobile learning ecosystem**

### ***Engaging technology***

The new mobile learning ecosystem facilitates authentic and meaningfully engaged learning all the time, and in most places. It is uniquely suited to support the essential learning actions of monologue, dialogue, and triologue: reflection, conversation, interaction with tools and media (Cavanaugh and Hargis 2013). This ecosystem has formed around the personal networked iPad, which supports learning as a cognitive toolbox (Jonassen 2008). The blended learning ecosystem that is built purposely around students with mobile technology has increased the roles and importance of the instructor who iteratively designs the learning experience from a very wide and continually shifting array of possibilities. Thus, in the college's iPad-ified new learning ecosystem, the learner and instructor are central, supported by the technology, learning with evolving content and materials. Success in this ecosystem results from effective use of the technology as a customized cognitive toolbox. The six components of cognitive tools align with affordances of the iPad program as it is currently operationalized in the college. In its initial planning and implementation stages, the iPad program achieved the six components to varying extents.

The college has made rapid progress in the initial four of the components of the cognitive tools benefits path:

- Defined beliefs about teaching and learning in the organization,
- Embedded beliefs throughout the organization,
- Active engagement in the embedded design,
- Feedback used to inform practice,
- Further development needed in the final two components,
- Shared dynamic framework for practice,
- Ubiquitous use of technology as cognitive tools reflecting the beliefs.

The key levers in the initial program adoption and implementation were the people and the relationships built within and among the colleges. It is likely that diffusion of the iPad program from entry level courses throughout academic departments and levels in the college will further this development, as will adoption of iPads among all faculty members. In addition, feedback from the early days of the iPad program will guide the ubiquitous use of mobile technology as the cognitive tools students need for professional success. Development of specific feedback and data systems that look closely at what instructors and students do will propel the effectiveness of the iPad program.

### ***Engaged pedagogy***

Access to the new ecosystem and cognitive tools resulted in changes in teaching practice to expand active, engaged learning (Cavanaugh, Hargis, Munns, and Kamali 2013). As faculty planned the transformation of their courses and teaching prior to the start of classes, they worked



collaboratively in a national community of practice. The initial development of iPad pedagogy was shared among faculty at a national professional development event. To understand the entry stage of faculty participating in this event as a step into the new MLE, the following question was asked:

“To what extent do the faculty members’ shared practices display technological pedagogical content knowledge (TPCK) (Mishra and Koehler 2006) prior to implementation in classrooms?”

The answers to this question were used to inform subsequent professional development activities during the academic year and to form a baseline for understanding the path of faculty development in adopting, designing, and applying mobile education practices in a large-scale mobile learning initiative. TPCK was considered to be foundational to effective teaching in a mobile learning environment. The dataset were abstracts for pedagogical practices that 56 faculty members teaching entering undergraduate students across the UAE presented at a June, 2012 sharing event called iCelebrate Teaching and Learning. Outcomes of the study of faculty TPCK levels indicate that the initial level of integration of the mobile education innovations into the curriculum was limited, and may require more time and practice to move from an emphasis on tools to an emphasis on content. The Technological Knowledge reflected in the abstracts was similarly emerging in that it emphasized “turnkey” apps and media, rather than more complex collaborative and production tools. Pedagogical Knowledge as represented by attributes of meaningful learning was strong in active learning, but included fewer of the more complex and interactive attributes, indicating that faculty members had begun their adoption of this innovation with familiar and simple strategies. Regarding their Technological Pedagogical Knowledge, faculty members had progressed beyond entry level and also had room to grow toward infusion and transformation.

As faculty began teaching, an examination was conducted of the “difficult to measure” concept of instructional practices when integrating new mobile ‘technology’ devices (Hargis, Cavanaugh, Kamali, and Soto 2013b). A mobile data collection instrument was specifically developed to observe teaching in the MLE to determine the effectiveness of mobile learning devices in higher education. The triangulation of data about teaching practices included interviews of faculty members about their levels of mobile learning knowledge, classroom observations, and a self-report survey of faculty understanding and implementation of the national four pillars of mobile learning. The pillars of the UAE mobile learning ecosystem are shown in Table 1.

**Table 1**

**The four pillars of the UAE higher education mobile learning ecosystem**

<b>Pillar</b>	<b>1. Aspirations</b>	<b>2. Content</b>	<b>3. Competencies</b>	<b>4. Practices</b>
Supporting model	Substitution, Augmentation, Modification, and Redefinition (SAMR) model (Puentedura 2009)	21 <sup>st</sup> Century Skills	Social, Mobility, Visualization, Storytelling, and Gaming framework (Puentedura 2009)	Technological Pedagogical and Content Knowledge (TPACK) model (Mishra and Koehler 2006)
Level of implementation	Institution	Curriculum	Learning Environment	Educator
Aspect of iPad integration	Why	What	Where	How

The triangulation study focused on six faculty members who represented the range of courses, levels of experience, and demographic backgrounds of faculty in the college. Data showed that the iPad program in its first semester appeared to leverage student-centered teaching and engage learners in meaningful use of mobile technology to enhance learning. Interview and survey revealed a wide array of tools and roles integrated in classrooms, indicating that effective faculty should be comfortable with, if not embracing of, substantial activity, flexibility, student autonomy, and fluidity in the physical learning environment. In keeping with these findings, the survey showed a preference for social and visual teaching and learning approaches. More intensive methods like storytelling and gaming were not seen. This preference may be just a starting point of a shift as faculty and students continue to explore the tools they now have in their hands. Results indicate that the mobile education ecosystem was supporting social, collaborative learning, which is essential in the college-entry classrooms where the study occurred.

### ***Engaged faculty***

As the new ecosystem evolved, faculty perspectives evolved. An analysis of the strengths, weaknesses, opportunities, and threats (SWOT) of the initial stage of iPad deployment and a case study representing a large-scale integration of mobile learning devices in a higher education ecosystem provided insight into faculty perspectives in the first semester of the program (Hargis, Cavanaugh, Kamali, and Soto 2013a). The data for the SWOT were collected using three strategies: case study interviews with four faculty, dispositional survey of 225 iPad faculty members from all colleges (69% of the total population on UAE iPad faculty), and iChampion reflections on Week One iPad deployment at each campus. Specific SWOTs identified by faculty and iChampions included the strengths of student and faculty engagement in reflective teaching and learning, effective technical support, and an extensive repository of digital resources; weaknesses of changing student perceptions of the nature of school, cloud storage for course products, and systems for disseminating purchased apps and eBooks; opportunities for collaborative faculty development, increased pedagogical support, and expanding performance assessment in courses; and threats of lagging assessment paradigms, digital content, and iPads as true cognitive tools. The national survey showed that most faculty members identified themselves in the middle in the stages of technology adoption and integration. They indicated that they were beginning to understand the teaching with technology and can think of specific tasks in which it might be applied. Further, responses indicated that faculty members on the whole had the skills to comfortably use more than one application in the creation of a single product, and could use a variety of mobile technology in preparation, instruction, and evaluation.

Predominant pedagogical practices adopted in the first six months of the UAE MLE implementation program were examined based on faculty shift from substituting their teaching methods with mobile technology to augmentation of teaching methods with new affordances of mobile technology (Cavanaugh, Hargis, Soto, and Kamali 2013). A Chi Squared analysis of descriptions of teaching practices at the base-line sharing event among teachers (called iCelebrate) and the second event (iCelebrate 2) was used to compare the abstracts for the events. The abstracts were coded using indicators from the TPACK model (Technological Pedagogical and Content Knowledge) including the SAMR levels (Substitution, Augmentation, Modification and Redefinition). The results indicated there was no significant difference ( $p=0.287$ ) between the technology focus of the abstracts over the six month period, although there was a significant ( $p = .049$ ) difference in the pedagogical focus of the abstracts. As well, there was a significant difference ( $p = 0.0009$ ) for the content focus of the abstracts. In the SAMR indicators, there was no significant difference ( $p=0.35$ ) in the presence of Substitution versus other levels (Augmentation, Modification or Redefinition), although there was a practical increase from Substitution to another level. For the TPACK level of technology adoption, there was a significant difference ( $p=0.014$ ) from adoption of the technology to a higher level of integration.

The data indicate that faculty-driven practice-embedded development and intentional integration of the two models change corresponded with were helpful in changes in teaching practice in a short period of time. The TPACK model (Technological Pedagogical and Content Knowledge) including the SAMR levels (Substitution, Augmentation, Modification and Redefinition) of technology integration were used to delineate change in the use of iPads in and outside of the classroom to create dynamic learning environments. Change was observed in specific TPACK indicators among the volunteer faculty who shared their mobile teaching practices in June and December 2012, showing that adoption and implementation of new tools, resources, and practices can happen quickly and at large scale.

### ***Engaged community of learners***

Students in many higher education settings have taken on a more active, productive role in learning through projects, challenges, and portfolios. Likewise, faculty members have widely engaged in creating new mobile content. In one college campus, a demonstration project used innovations in course design to push the boundaries of a college skills course to explore the nature of experiential learning in the mobile environment (Marin, Hargis, and Cavanaugh 2013). Specifically, an English Language course was developed to integrate Challenge Based Learning (CBL) and iPad mobile learning technology. The intent of the course was to maximize students' language learning, learning product development affordance, 21st Century skills (Mishra, Koehler, and Henriksen 2011), and most importantly student engagement with real world meaningful challenges that will make a difference in their learning community. In a CBL course, students integrate their knowledge of technology commonly used in daily life with the social, emotional, intellectual, and time management skills required by the demands of the 21st century for work, life, and school (Apple Inc. 2010; Johnson and Adams 2011). The course designers, aiming for delivery using iPads and cloud-based content, developed the following materials, which are in review with students:

- An e-book created on the iPad Creative Book Builder application;
- A challenge storyboard podcast; and
- A challenge storyboard iMovie and a Rapid Fire talk.

Past educational technology research has shown that teaching practices change with the infusion of technology resources, professional development, and support (Dawson, Cavanaugh, and Ritzhaupt 2008). To expand the types of experiential learning that students need in college, UAE faculty members have engaged in course redesign to amplify experiential mobile learning. A college created a faculty development program centered on sharing experiential teaching approaches and course designs. The approaches that were shared and adopted during the year were reviewed using Newmann's rubrics for authentic instruction as a baseline indicator of the levels of higher order thinking, connection to the world beyond the classroom, and depth of knowledge present in the newly adopted activities (Newmann 1996). Results of analysis indicate that the sharing event was effective in expanding faculty knowledge and adoption of experiential mobile approaches in their courses as evidenced by growth in specific approaches used by faculty in the semester following the sharing event. The ideas shared by faculty at the outset of the national mobile learning initiative were rated high in indicators of higher order thinking, moderate in indicators of depth of thinking, and low in indicators of connection to the world beyond the classroom. While there is room for growth in all three indicators of authentic instruction, this outcome implies that students are likely to encounter opportunities in their degree programs to practice substantial higher order thinking and some depth of thinking, but limited connections between their coursework and the world. Because the mission of the higher education increasingly is to develop career-ready graduates, this finding could be taken as reason to examine the direct linkages and relevance of class experiences to the contexts for application.

### ***Engaged learning ecosystem***

The mobile learning iCommunity includes students, faculty, staff, leaders, and partners working for the shared goals of the college. The overarching pedagogical approach is flexible, personalized, student-centered learning with students driving their learning as discoverers. The iPad can be their vehicle as they explore and propose responses to real-world course-contextualized challenges posed in their domain of learning. Learning environments that support engaged learning must be smart, flexible, and allow fluid movement of learners in physical and virtual space. Spaces should be designed to foster reflection, innovation, and collaboration. Interior and exterior spaces must support groups of all sizes and sharing of all types. Campus spaces will ideally be sustainable, healthy, and engaging. Sharing in classrooms is afforded through mobile furniture, display capability, and connection to the world beyond the classroom. Sharing in common spaces is afforded through inviting designs, impromptu digital, white/blackboards, and other surfaces that accommodate ideas and creations. Even iCafes can be iPad-friendly, enabling anytime anyplace continuity of learning.

Student Services, Academic Services, Information Commons, Technical Services, and other co-curricular programs and activities are fully integrated into the learning experience, the learning environment, and the learning community. The iPad supports them all and connects them with all students. iPads can increase staff interaction with students by increasing efficiency of regular tasks and systems.

Early indicators of the success of this ecosystem are described above and also include results from the learning management system used in the program. Data was collected to assess the impact of student participation in the online components of their blended courses on their course grades. The influence of student participation in the online course environment was measured by the number of times students logged into the learning management system (LMS) and average session length. These measures were correlated with final course grades to increase understanding of the participation patterns of successful students. Students with an intermediate number of logins and average session length tended to exhibit the optimal level of course performance with students who logged in near the low or high amount of times tending to receive lower grades (Cavanaugh, Mayberry, and Hargis, manuscript submitted).

### **Conclusion**

The United Arab Emirates moved with fast pace and broad scope during the 2012-2013 academic year into its new Mobile Learning Ecosystem (MLE). Literature on change creation as an alternative to change management (Watkins and Kaufman 2007) indicates that adaptability, internal planning for a shared future, an external focus, and synergy are among the attributes of a learning organization that succeeds in changing proactively (Kaufman and Lick 2000). The positive outcomes and areas for growth from the early stages of the UAE's creation of a new MLE gives concrete guidance for other learning organizations where change creation is a goal in response to forces that include a changing economic climate, increased globalization, and a digitally-oriented learner population.

This synthesis highlighted a multi-pronged strategy for envisioning, designing, and implementing an engaging large-scale mobile learning device program, which included multiple central stakeholder groups and subsequent research questions. We see mobile technology as cognitive toolboxes for learning, in which we have shown early progress toward ubiquity with the tools. Student-centered teaching practice forms the core of the UAE MLE's success, due to fluid and practice-embedded faculty development efforts centered on active, engaged, learning by doing. Faculty perceptions and uses of the tools and ecosystem validated these efforts by showing that faculty have quickly transcended basic substitution of analog for digital materials and are on the way to transformation of the learning environment. The community of learners who are

creating rich media using the iPad mobile learning tools will ensure this transformation as their learning objects are shared and adopted widely.

It is important to connect this initiative with families who have begun engaging with the mobile learning beyond the campus in the homes to guide the next steps in expanding the MLE as a lifelong learning ecosystem for the college and the region. Students are able to learn in the new ecosystem anywhere that they use their iPads, including campuses and home. Family members of college students who reside at home form a range of perceptions and experience a range of effects when a new program is introduced in the college. These perceptions and impacts result from the college's outreach efforts and from the student's interactions with the family about the program. In the case of large-scale innovations centered on learning materials and environments like those in a mobile learning program, the changes may not be well understood from the family perspective. Yet the family perceptions influence students and form an important part of the community sense of the college. Therefore it is in the interests of the students and the college to understand the perceptions and impacts of such a change. Future study will provide insight into family perceptions of a college mobile learning program that was introduced on a national scale.

### **Specific implications for MLE adoption and implementation:**

1. Articulate and reiterate the vision for the MLE and align resources, activities, and evaluation around it, with clear expectations
2. Embrace student-centered pedagogy and create a community in which physical and virtual classrooms are spaces for professional sharing
3. Create many opportunities and forums for campus-level and broader sharing
4. Arrange physical spaces as fluid and flexible mobile learning spaces for quiet independent work, small group work, and large group work, including sharing of display technology
5. Design instructional materials with modularity so small "beads" of content and learning experiences can be used by learners with any device in short timespans, and so the beads can string together in well-designed sequences for longer timespans
6. Adopt a technical workflow for sharing material among students and instructors, using LMS, cloud, etc.
7. Expect a variety of activities and groupings during class-time, and prepare students and instructors to shift position and attention often during a session
8. Seek ways to include all staff and other stakeholders in the program
9. Believe that the benefits in engagement and ownership of teaching and learning will be worth the bumps that come with technical updates and other unforeseen issues, and cultivate a culture of resilience and cooperation
10. Use data to understand the effects of the program, including learning, technology use, teaching practices, perceptions, and other sources

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**Editor's Note:** Once in a while it is good to stand back and look at another person's perspective of distance learning. Beverly Icard is experiencing the transition as a high school teacher and graduate student. She is very much aware of the needs of different students and faculty as technology plays an increasing role in the educational process.

## **Advantages and Disadvantages of Distance Education**

**Beverly Icard**

**USA**

### **Abstract**

This paper discusses the major themes of several articles that focus on determining the advantages and disadvantages of distance learning. The face of education has changed from the traditional classroom to a more traditional presentation of learning for students over the past twenty years. Learners have had to learn not only how to retain content knowledge but how to communicate with teachers and peers using a variety of communication tools. Some students find this learning environment challenging, hard, and not the learning experience for them to be successful as students. However, some have excelled in distance education bringing their learning experience to a maximized high. This paper will look at the advantages and disadvantages of this experience called distance education.

*Keywords:* distance education, learning styles, technology, telecommunication,

### **Introduction**

“Instruct the wise and they will be wiser still; teach the righteous, and they will add to their learning” Proverbs 9:9 (King James Version). Education is a gift from God. He allows us to develop, grow, and learn, during our lives. Other gifts people are blessed with are individuality in the things we say, emotions and desires that drive our life goals. With individuality in mind, education is a field that is constantly developing and adapting to better help bring the gift of learning people of all ages. The changing world of technology has contributed to new ways of distributing a learning environment to a large number of learners in various places at one time. The learning environment known as distance education has grown by leaps and bounds on a national and global level over the past decade. With so many learning opportunities for students available online, many advantages and disadvantages of distance education can have an impact on the field of education. This paper will explain the characteristics of distance education and the advantages and disadvantages distance education learners may encounter while completing a course or degree plan online.

First, several writers believe it is important to define the characteristics of distance education (Albright, Simonson, Smaldino, and Zvacek, 2012) write “distance education is an institutional-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors.”(p.9). Built on the foundation of formal education, it is important for a distance education institution to be an accredited facility with highly qualified teachers. Accredited facilities will ensure students education will be planned, organized and delivered by an accredited faculty and teachers. Simons.net al., (2012) believes that distance education classes should be at an equivalence of quality to traditional on campus classes. The equivalency of instructional practices, learning experiences, and quality of learning for students should not waver between distance and on site degrees. The degrees earned online will be given the same merit as a degree earned in a traditional on campus setting. Therefore, students should experience a rich academic curriculum, laced with rigor whether working on an online or campus based degree. Distance learning offers several advantages to students to help excel as learners.

## Advantages of distance learning

Several factors can be identified as advantages for distance learning. First, online learning offers students in secondary education programs a choice to take classes that may not be available or offered in the traditional classroom. The lack of courses offered and budget cuts have eliminated classes at the Advance Placement level, foreign language, and other content areas which students would like to take while completing their secondary education. When there are not enough students to sign up for these classes, the classes are removed from the available course list for students. Online learning has provided availability of classes to the students and a wealth of classes that would not normally be offered in school due to lack of teachers available to teach the subject areas. Students can pick from a variety of academic fields which are rich in interest based classes such as digital photography, religion, business management and variety of foreign languages. The advanced classes with a weighed grade point available to the high school students can increase their GPA's and provide opportunity to increase their culture knowledge by studying diverse topics. Students at higher education facilities have these choices as learners also which allow flexibility in the schedules for college students and working adults which have returned to school (Al-Asfour, 2012).

Flexibility is identified as one of the major advantages for distance learning. The convenience of time and space is a big promise made by distance learning. Students do not have to physically be with the instructor in space, and depending on the method used, they do not have to be together in time either (Falowo, 2007 p.321).

Flexibility offers secondary high school students a chance to add a fifth period into their schedule to gain an extra grade which will help boost GPA's and course completions noted on transcripts. This writer can identify with the importance of the flexible schedule which distance education can provide. As a teacher, coach and mother, distance learning has provided a schedule of classes that can be completed around other daily activities. As a student, this writer cannot return to a traditional evening classroom so distance education provides classes and programs for earning a higher education degree. College students take advantage of courses offered online to fit more credit hours into their schedules which may allow them to work a part time job to help subsidize college tuition cost. Community colleges and universities have experienced a huge increase in enrollment over the past ten years. Enrollment increase is due to the economical strain on business closings which forced people to return to college to obtain educational skills in different fields. Rashid, 2011, writes that education is the key factor in economic development and social change. Distance education proves that different approaches to education will relieve the population demands on the students overload in classes. One of the biggest benefits of distance learning would be that students are able to attend a university in another state or from other great distances from home. This writer lives 330 miles from the university she attends. These programs open doors for students of all ethnicity, working parents, and men and women in the military stationed in other countries, to complete degrees while serving our country. Young students, not socially ready to leave home to experience the college dorm life can live at home and grow and mature socially. Nielsen, 2013, reports by the year 2015 over 19 million students are expected to be enrolled in degree-granting U.S. institutions of higher education.

Online programs offer convenience to students with disabilities allowing these students to earn degrees from several different universities. Some disabled students would never be able to live on campus due to issues with caregivers, accessibility to transportation, and personal assistants needed on a daily bases. Distance education provides a way for these learners to attend college, which is a tremendous advantage for disabled learners. Other learners that would benefit from online learning would be the quite shy individual. The shy student is less likely to answer questions and interact in a face to face learning environment. The development of technology and its ability to communicate synchronous learning has provided communication tools for

students to communicate with teachers and peers in less intimidating environment. Programs such as Adobe Connect, Google Hangout, Capture and discussion boards allow a class to communicate together despite being in different physical locations. Wang, Jaeger, Liu, Guo, and Xie (2013), observed that using synchronous technology used in distance learning can create closeness and friendships in the learning environment that would not exist if the these communication tools were not being utilized during instruction.

The use of technology has helped learning become active for students with exceptionalities. A student with ADHD or ADD may have a hard time sitting in a structured classroom. Online learning can provide a different type of stimulus for some students with exceptionalities. With the use of remote keyboards with mouse enhancements, students with limited motor skills are able to type their assignments on the computer which is ideal for online module assignments. Other advances in technology such as magnification software aid visually impaired students to experience more ease for reading from using the program. The use of a speech synthesizer allows the student to read aloud what is displayed on the screen. New technologies and global access to podcasts are providing new opportunities for students with exceptionalities to learn and grow (Keengwe, Pearson, & Smart, 2009). Technology is certainly a developing field, that when utilized properly, can enhance the learning experience for exceptional learners. An online degree can offer a higher education degree to any student willing to complete the course work and degree plan.

Nielsen, 2000, states designing online Internet-based courses that are accessible to students with disabilities, results in courses that are easier to use and understand for everyone (as cited in Edmonds 2004, p. 51).

The learning experiences students gain from participating in a distance learning course can result in skills which can enhance future learning situations. As a non-traditional student, this author has learned how to use new technology, which she would have never learned to use if not enrolled in online classes. Blackboard, Word Press, and Google Hangout are tools used during online learning. The advantage of learning how to use these tools as a student will allow for sharing these tools during professional development days for other educators and use them within learning experiences for other students in a traditional class.

Institutions integrate some of the best facets of online learning into traditional courses to build a hybrid learning environment, or at least using newer technologies to enhance on-site courses. There are many roads to learning, and good practice respects diverse talents and ways of learning. (Puzziferro, 2005 p. 1)

Although the roads to learning are long at times; the arrival to the learned outcome will be worth the trip.

Earning an online degree can limit costs for students which can be an advantage for students and parents. The cost of commuting, wear and tear on a car, living on campus, and costs of food, additional clothes, and parking fees are only a few items distance learners will not have to encounter with online learning (Nielsen, 2013). Distance learning has many advantages but it can present disadvantages also.

## **Disadvantages of distance learning**

The disadvantage of meeting technology requirements for students can play a role in students being able to enroll in distance learning courses. Students must rely on having constant reliable access to the internet, and technology such as a computer or laptop to be able to enroll in an online class. The technology a student must personally have access to for some classes could pose a problem for some students. Internet connections must run at high speeds to accommodate

streaming lectures and other programs used like Google Hangout. Most online distance learning programs work on a technology called synchronous technology which allows all participants and users to work actively and interact at the same time with peers and instructors. Asynchronous technology that includes forum discussions and emails require responsive online connectivity. Programs used by online instructors usually call for very high-speed internet connectivity and could be prerequisite for the successful completion of a distance learning program (Falowo, 2007). Students may have to deal with power outages, equipment failure, and technical glitches when dealing with an online learning environment. Students unfamiliar with technology can become stressed and even frustrated enough to drop out of the classes. (Jones, 2006) as cited by (Nielsen, 2013) states that 50% of students who begin online courses are unlikely to complete those courses.

Distance learning can cause students to feel isolated and alone. Although virtual classrooms are full of students, the communication and interaction changes with online education. Students may feel detached or lonely, feeling unmotivated while pursuing a distance learning program. The dynamic of the class is important and instructors should allow students to interact in live discussion forums so a name from text written discussion boards and emails can be identified to a person's face. Some learners find the lack of face to face interaction with an instructor difficult. Most undergraduate students are coming out of the brick and mortar learning environments where a teacher has been present to answer every question within minutes; they contribute to the dialog and encourage students when they are struggling with an assignment. The adjustment for some to wait on an email response from instructors can be stressful for students' custom to having immediate feedback from teachers. (Waters, 2011) explains that students may need the accountability of a face-to-face learning environment to hold them accountable to the assigned material in a course.

An observation this educator made about students in the online learning lab, is that students tend to procrastinate while working on assignments thinking they have a week to work on an assignment. When they start working on the modules they find the work is a little more demanding than first realized. Often they get behind on assignments, hurry through discussion boards, and leave parts incomplete to meet due dates. Some people need a person to question their due dates or someone who will say, "Do you have homework or assignments to complete?" While working on the computer, students can be distracted or tempted by computer games, Facebook, Twitter and other social media still prolonging completion of assignments. Distance learners must have good time management skills. One must be able to organize calendars with due dates of assignments and check email, message boards throughout the day. Online learners must take some of the responsibility for their own education. Simonson et al., (2012) speaks about learners and the need for them to take control of their own learning experiences in order to be successful in an online course. The future of education will have a strong demand for knowledgeable technology users. A student that does not have these technology skills to become a better learner will certainly be at a disadvantage in an online course.

While discussing online learning, people think about secondary higher education and college students. However, current online learning courses are offered to elementary education students as well. Toch, (2010) discusses concerns about risks students sitting at a computer working on online classes. Students may miss the emotional and social developmental skills which are vital to learn at the elementary school age while participating in an online class. Building relationships with adults is important when students at risk need to make connections with adults. Teachers facilitate a strong sense of community within their school and students can learn their place in the learning community (Toch, 2010). A good balance of technology skills are important to teach at a young age along with many other skills.

Another disadvantage of distance education would be that some online degree plans require students to attend a campus meeting or seminar throughout the semester. For a student, who lives several hundred miles away from the university this could be an expensive trip to complete in order to meet required expectations of a degree plan. The additional expense of plane tickets, gasoline, lodging and food add financial stress on students and their families. Students may not be able to attend extra required travel and therefore be unable to obtain a degree with that extra expectation. As a learner, this writer could not complete a degree with travel requirements to the university she was attending.

Continuing one's education can be a very fulfilling experience; whether it is earning a high school diploma, bachelors, masters or a doctoral degree. Each of these certificates of education can be earned by students while attending a campus class or at a distance education facility. Regardless of the setting, students are entitled to the best possible learning experience offered by academia. It is up to the learner to decide which educational setting would best facilitate learning for the individual. Distance education may be the educational alternative which offers flexibly and convenience for learners, however the online programs must provide a learning experience equivalent to a traditional degree so students will be job ready to compete in a twenty first century work environment.

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## Biography



**Beverly S. Icard** is a graduate student enrolled at Liberty University in Lynchburg, Virginia. She completed her undergraduate studies at Appalachian State University in Boone, North Carolina. Upon graduation, Ms. Icard retained employment as an educator with Burke County Public School, in Morganton, North Carolina. While teaching at high school, she was named department chair of the freshman academy. Ms. Icard organized and developed a program to help freshmen adapt to the high school setting. After serving as department chair for four years, she moved to a new high school to develop a similar program. Ms. Icard teaches Advance Placement Biology and serves as one of the high school's athletic coaches.

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## Appendix

### The Instrument of Meta-Cognitive Skills

The questionnaire for identifying the acquisition degree of students' meta-cognition thinking skills from Instructional Technology courses at the University of Jordan

Demographic information:

Specialization area: Please check one of the following:

☐ pre-service generalist teachers

☐ pre-service early childhood teachers

Students' GPA: Please check only one of the following

1. If your GPA is less than 2.00
2. If your GPA is greater than or equal to 2 and less than 2.99
3. If your GPA is greater than or equal to 3.00 and less than or equal to 4.00

Following is the ranking for the scale:

1. Strongly disagree,
2. Disagree;
3. Mildly agree,
4. Agree,
5. Strongly agree.

No	The Items	5	4	3	2	1
	After passing the Instructional Technology courses I think that it helped me to:					
1	Remember the important information needed to solve a specific problem.					
2	Identify what I know and what I don't know.					
3	Identify the needed learning resources.					
4	Connect new knowledge with previous knowledge.					
5	Know what others expect from me.					
6	Ask myself what strategy to follow.					
7	Ask myself if there is an alternative strategy.					
8	Identify the difficulties that face me.					
9	Solve the difficulties successfully.					
10	Ask myself how to reach my goals.					
11	Ask myself when to apply a specific strategy.					
12	Ask myself under what conditions I use a specific strategy.					

13	Explain to others why I choose a specific strategy.					
14	Justify why a situation is difficult.					
15	Justify why a situation is easy.					
16	Think of a problem deeply.					
17	Approximate the time needed to solve a problem.					
18	List the strategy that I can use.					
19	Identify the tools needed to solve a problem.					
20	Identify my goals.					
21	Correct my mistakes.					
22	Assess my thinking skills.					
23	Compare positively what I did with what others did.					
24	Apologize to others when I make a mistake.					
25	Predict others reactions.					
26	Ask myself if the strategy matches the situation which I try to solve.					
27	Keep track with the effectiveness of the strategy used.					
28	Control the time when dealing with problems.					
29	Ask myself: is this really what I want to do?					
30	Ask myself: do I understand the problem correctly?					

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**Editor's Note:** This paper examines communication apprehension for learners at different levels of the program and relates them to proficiency and communication preferences for each level of learning.

## **The interplay of proficiency level and communication apprehension among EFL learners with a look at their preferences of communicative tasks**

**Kamal Heidari Soureshjani**

**Iran**

### **Abstract**

The current paper was, in fact, an attempt to study the frequently-studied issue of communication apprehension (CA) from a different angle. It tried to shed light on the point that: first, if there is any correlation between the EFL learners' proficiency level and their CA; and second, given the differences between the three groups of learners, what communicative tasks are more favored for each of the groups. To fulfill the intended objectives, 120 Iranian EFL learners, based on their availability, were selected and then they were given a test (for placing them into three groups of beginning, intermediate, and advanced) and two questionnaires (one about CA and one about communicative tasks). Having analyzed the gathered data through correlation and descriptive statistics, the study revealed that there is a strong negative interrelationship between the proficiency level of learners and their level of CA. The study also showed that the CA level is the highest among beginning learners and the lowest among advanced language learners. Finally, it was also understood from the study that different communicative tasks are preferred for learners with different levels of proficiency. The detailed findings are mentioned in the body of the paper.

**Keywords:** Communication apprehension, Proficiency level Communicative tasks, EFL learners

### **Introduction**

Many learners at different levels of study experience some level of stress and anxiety when they are required to communicate, this is especially the case with it is publically. This feeling of anxiety and stress, when communicating is referred to as communication apprehension (CA). It is a fear or anxiety about actual or anticipated communication with other individuals, and is a feature or better to say, a trait pertaining to the psychological constructs of shyness and reticence (McCroskey, 1984). Communication apprehensive persons usually choose avoidance and withdrawal behavior and are therefore less likely to be involved in oral communication (Scott & Rockwell, 1997). Communication apprehension is related to both cognitive processes (Ayres, 1990) and psychological perceptions (Ayres, 1986).

Some researchers like Opt and Loffredo (2000) have reported that there may be a hereditary contribution to CA. To clarify the point, McCroskey (1984) explains that research into twins has provided evidence that something other than environmentally based learning impacts human behavior tendencies and those important social traits, like sociability, can be measured in children after birth and that there are significant differences on these traits. The interaction between heredity and environment is seen as a precursor of adult predispositions and tendencies such as CA.

Furthermore, CA takes place in a range of contexts and often leads to negative outcomes not only for speakers but for listeners. These statements can well indicate the significant role of communication apprehension. Therefore, it is a must for language teachers to address it especially in EFL settings. This is because those who have already had some degree of CA in their native language will encounter more anxiety when communicating in a foreign or language, such as English (Schlenker& Leary, 1982).

The last point in this section is that, communication apprehension (CA) has been researched in a variety of different communication research contexts: instructional communication (McCroskey & Sheahan, 1978), pharmacy student education (Baldwin, McCroskey, & Knutson, 1979), organizational communication (Richmond & McCroskey, 1985), interpersonal communication (McCroskey, Daly, & Sorensen, 1976), and several others. However, it seems that it can also be studied in terms of many other conditions and in relation to many other topics especially in EFL contexts in which, unlike ESL contexts, a lack adequate studies on CA is strongly felt. One of these areas is the issue for the present study; that is, existence or lack of existence of any CA among EFL learners and also it's relationship with their proficiency level.

All in all, the following research questions are to be addressed in this study:

1. Is there any significant relationship between EFL learners' CA and their proficiency level?
2. What is the degree of CA among EFL learners?
3. What are the most preferred communicative tasks among EFL learners?

## Background

It is axiomatic that language is mainly used to communicate and also to get something done. One may want to carry out some important tasks in classrooms such as having a good rapport with one another, or conveying their meaning by different ways like having a lecture, or having a small conversation or even having an oral presentation. In addition, the most obvious manifestation of learning a foreign or second language is the ability of learners to speak the language accurately and fluently in different contexts and also to be able to communicate their ideas clearly to other individuals who speak the same language. Therefore, in many settings knowing a language is equated with speaking that language impeccably.

Communication Apprehension (CA) is one of the most often-studied issues in the field of communication studies. McCroskey (1970) recounts that communication apprehension originally focused on communication-bound anxiety. However, recently the scope of CA has greatly expanded during the last decades. McCroskey (1977) later on defines CA as “an individual’s level of fear or anxiety associated with either real or anticipated communication with another person or persons” (p. 78).

Furthermore, communication apprehension can be measured by McCroskey’s (1982) Personal Report of Communication Apprehension-24 (PRCA-24) scale. This scale takes into account four different contexts in which CA can occur: interpersonal, meeting, group, and public. Interpersonal CA is the level of fear or anxiety pertaining to real or expected communication with another person in a one-on-one conversation. In fact, if someone experiences stress while thinking about interacting with another person or during an actual interaction with another person, he or she has interpersonal CA. The second and third types of CA, meeting and Group CA, investigate the level of fear or anxiety related to either real or anticipated communication with another individual or individuals in a small group like a class. Each of these kinds of CA is contextual-dependent. It means that depending on the specific conditions of a situation, a specific kind of CA may occur. Finally, public CA is the level of fear or anxiety associated with either real or anticipated communication with another person or persons in a formal speaking context. The last point with regard to the four levels of CA is that, as Beatty, McCroskey, and Heisel (1998) rightly state, each of these four contexts are highly related with one another and may not be considered as separate from each other.

In addition, studies like McCroskey (1984) revealed that exposing persons to contexts designed to increase their communication abilities only works if they have pre-existing low levels of CA.

Students with high levels of CA might not only fail to develop such skills, but exposing them to such a situation increases their anxiety, and consequently decreases their learning.

In contrast to what CA communication ability maybe understood to be, that is, there are some distinctions between communication apprehension and communication ability. A set of studies have concluded negative relationships between apprehension and communication ability, and cognitive ability (McCroskey & Andersen, 1976; Richmond & McCroskey, 1985). These studies have reported that lower grade-point averages and lower college entrance exam results are from the individuals suffering from higher levels of CA. There are, of course, some studies which, unlike the above-cited studies, do not prove the existence of such an opposite relationship between CA and communication abilities. Carrell & Willmington (1998), for example, observed no relationship between self-reports of communication competence and ratings of communication competence, and between self-reports of communication apprehension and observer ratings of communication competence.

Furthermore, tasks, especially communicative tasks, encourage learners to communicate with each other in real time. Due to the immediate pressures of spontaneous communication in tasks, learners have to simultaneously focus on both form and meaning. Since humans' processing capacity is limited (Anderson, 1995) and meaning is prioritized over form (Van Patten, 1990), manipulating learners' attention to focus on linguistic forms has become a key priority in research. Repetition is a task performance condition that can manipulate learners' attention through freeing up processing resource capacities. Bygate's work in the last decade has shown that in monologic tasks, repetition involves a special type of rehearsal where the learners can relate the repeated performance 'to information kept in the long term memory store' (Bygate, 2001). When they have the chance to repeat a task, learners can shift their attention to produce more complex grammar, more appropriate vocabulary, and they can generally organize and optimize their language resources more effectively (Gass, Mackey, Alvarez-Torres., and Fernandez-Garcia, 1999; Bygate, and Samuda. 2005). When learners are exposed to interactive tasks, they can rely on their previous performances of the same task to a limited extent only since their interlocutor's contributions will always bring some novelty to the joint interaction. Interactive task solutions are co-constructed and speakers need to satisfy their interlocutors' needs in addition to monitoring their own performance.

One important aspect of interactions in tasks is the need to collaborate effectively with a partner and this requires an appreciation of the partner's needs. Children's overall ability to take their partner's needs in peer-peer interactions grows with age (Azmitia, 1988). Research in L1 development indicates that different age groups learn to cope with demands needed for peer-peer interactions gradually as they mature (Nelson, 1996; Anderson, and Lynch, 1988). Young children often rely on adults to manage conversations for them (Scarcella, and Higa, 1981). In the absence of the adult partner, when they are communicating with other children, they show weaknesses both as speakers and as listeners. As speakers they have difficulty in constructing unambiguous messages and as listeners they can't judge the adequacy of incoming messages (Lloyd, Baker, and Dunn, 1984; Robinson, E. J. and Robinson, 1983). The ability to take full responsibility for ones' own utterances as well as understanding partners' utterances are skills gradually increasing with age. All these developmental findings influence interaction in second or foreign languages and research in child second language learning clearly reflect these developmental influences. Studies involving child subjects working in pairs with other children or with adults have been carried out in different contexts (Oliver, 1998; Ellis, 1985) and these studies have investigated various interactional processes, such as giving and utilizing feedback, question formation and meaning negotiation. The results indicate that children benefit from interacting with both peers and adults and with both native speakers and non-native speakers interlocutors but both learner age and interlocutor type are important variables. Mackey and

Silver (2005) claim that second language acquisition research finding should not be generalized to children without adequate empirical evidence. However, little is known about peer-peer interactions of different age groups especially in EFL contexts, that is, what children can cope with and benefit from.

## **Method**

### ***Participants***

Altogether, 120 Iranian EFL learners took part in the study. They were both male and female, ranged from 16 to 23 in age, and sampled using availability sampling procedure. The participants were divided into three beginning, intermediate, and advanced level groups based on their scores on the placement test given to them. After giving the test, it turned out that 42 of the participants were placed in the low, 48 in the intermediate, and finally, 30 of them in the high level of ability groups.

### ***Instruments***

To achieve the intended data for the study, three questionnaires were utilized. The first instrument was a placement test administered to divide the learners into three groups of beginning, intermediate, and advanced. It was a reduced, modified form of TOEFL test which contains vocabulary and reading sections. Regarding the reliability of the test, KR21 was used and it turned out to be .87. And for the validity, they were examined and confirmed by three related professors of Shahrekord University.

The second instrument was a questionnaire developed to get knowledge regarding what type of communicative tasks the learners of the study prefer to be involved in. The questionnaire consisted of 30 items on different types of communicative tasks. The last point is that the questionnaire was in the Likert-scale format ranging from one to five (1= always, 2= often, 3= sometimes, 4= rarely, and 5= never).

In addition, the reliability of the instrument was checked using Cronbach alpha which turned out to be 0.84. For its validity, the face and content validity of the questionnaire was examined by seasoned professors at Shahrekord University and they confirmed the questionnaire to be valid for the study purpose.

Regarding the second instrument, it was a questionnaires adapted from McCroskey (1982), known as PRCA-24 which was employed to determine the level of CA among learners. The PRCA-24 is a widely-used instrument for the measurement of CA. It composed of 24 items about feelings concerning communicating with others. To be more exact on the items, 13 items are related to the student's uncomfortable feelings about communication in English, and other 11 items focus on the student's enjoyment when communicating in English. The questionnaire is in a five-scale Likert format whose choices range from 1 (SA=strongly agree) to 5 (SD= strongly disagree). Having computed the learners' responses using the scoring guideline of the questionnaire, scores between 83 and 120 indicate a high level of communication apprehension. Scores between 55 and 83 indicate a moderate level of communication apprehension. Scores between 24 and 55 indicate a low level of communication apprehension.

Like the previous instrument, Cronbach alpha was used to calculate the reliability of the questionnaire which finally turned out to be almost .89. Furthermore, its content and face validity was also affirmed by the above-cited professors at Shahrekord University.

### ***Data collection***

To gather the required data, first of all the author of the study distributed the questionnaire including items about different types of communicative tasks. They were asked to read the items carefully and then select the choice that best matches their preferences. No time limitation was set

for their responding to the items; so that, they would read the items with more care and therefore the reliability of their responses would, in turn, increase.

Then in the second stage of the study, the other questionnaire (PRCA-24) was distributed among the EFL learners and they were asked to respond them (without any time limitation again).

### **Data analysis**

After collecting the data, in order to analyze the, the author ran SPSS version 16 in general and a correlation, descriptive statistics and frequency programs in particular. The purpose of running them was employed to compute the means and standard deviations for each item.

## **Results and discussion**

This section of the study deals with the results obtained from the analysis of gathered data. This section consists of three sub-sections, each relating to one of the research questions mentioned earlier in the study.

### **Relationship between CA and proficiency level**

Table 1 reflects the results of correlation to answer the first research question which dealt with the existence or lack of existence of correlation between CA and proficiency level of learners.

**Table 1**  
**Correlation between CA and Proficiency**

		CA	Proficiency
CA	Pearson Correlation	1	-.788**
	Sig. (2-tailed)		.000
	N	120	120
Proficiency	Pearson Correlation	.788**	1
	Sig. (2-tailed)	.000	
	N	120	120

\*\* . Correlation is significant at the 0.01 level (2-tailed).

As the table reveals, firstly, there is a strong negative relationship between the two mentioned variables ( $r = .78$ ). Secondly, a significant difference is observed between the learners' CA and their Proficiency level ( $p = .00 < .5$ ). It indicates that language learners with high proficiency abilities enjoy less degree of CA, while the learners with lower proficiency capabilities suffer remarkably from CA and vice versa.

### **4.2 Degree of CA among EFL learners**

To ascertain the relative degree of CA among learners, Table 2, representing the mean and SD of three groups of learners, is brought.

**Table 2**  
**Descriptive Statistics of EFL Learners**

	N	Mean	SD
Beginning	42	14.42	2.11
Intermediate	48	9.46	1.02
Advanced	30	5.13	.78

As the table reveals, the level of CA among the beginning-level Persian EFL learners is very high ( $M=14.42$ ). For the intermediate learners the same index is lower than for beginnings ( $M=9.46$ ). It means that intermediate learners are less engaged with CA than beginning-level learners. Finally the CA level for advanced-level learners is the least among the three groups of learners ( $M=5.13$ ).

Some justifications maybe made for such findings. For example, beginning learners and also intermediate learners suffer from higher levels of CA due to the fact that many of them hated participating in public speaking. They may suffer from negative feelings of tense and nervous when engaging with new people in group discussions. Besides, these feelings of anxiety and stress may be related to their low level of proficiency and consequently, their inability to make themselves completely and exactly understood. In contrast, advanced-level learners have lower levels of CA because of factors such as comfort (which may be because of their acceptable level of proficiency in target language) when using English during class discussion (Daly & Friedrich, 1981). These learners, in fact, are not afraid to express themselves in discussions, even when conversing in English with new acquaintances.

### ***EFL learners' communicative task preferences***

Lastly, with regard to the third research question of the study which is to find the most preferred types of communicative tasks among EFL learners, Table 3 clearly reveals the response of this question.

**Table 3**  
**Preferred Communicative Tasks among EFL Learners**

	<b>Group discussion</b>	<b>Meetings</b>	<b>Dialogue</b>	<b>Speech</b>	<b>Role playing</b>	<b>Story telling</b>
<b>Beginning-level</b>	3%	9%	16%	2%	34%	36%
<b>Intermediate-level</b>	36%	20%	19%	18%	3%	4%
<b>Advanced-level</b>	33%	9%	44%	9%	4%	1%

As with the beginning level learners, they are more likely to take part in story-telling, role playing, and dialogue activities respectively. In contrast they are not much willing to deliver a speech, to discuss about a topic in a group, or take part in meetings. Peck (1995) rightly states that beginning and young learners are more likely to play with language in comparison with adults and advanced-level learners. Besides, they use their senses like touching sense, hearing, and sight more often than other individuals. Therefore, tasks like story-telling and role playing which require much energy, enthusiasm, and involvement on the part of learners are likely to be favored by children than adults.

In addition, as far as intermediate learners are concerned, tasks like group discussion, meetings, dialogue, and speech have been selected by them to be the most preferred types of communicative tasks. It may be due to the fact that intermediate language learners are more willing to focus and think on the language, to use their cognition and cognitive capabilities rather than playing with it. They like to be first sensible and then emotional. Furthermore, another reason, the author of the paper thinks that maybe due to their English learning experiences in Iranian schools and institutions. In other words, because the education system is examination-oriented most learners, especially in intermediate and higher levels learn English through intensive courses and sample examination papers. Therefore, they need to think more deeply on the lessons and be more deliberate with different aspects of language. The responsibility of learning in this kind of

educational system is also more on themselves than on class and teachers. The last reason for their preference of group discussion task as the most preferred activity could be simply the fact that group discussion is usually done by similar group persons who motivate other participants to express their opinions. As with meeting task, because as Richmond (1976) asserted, learners often prepare what to say before taking part in the meeting they feel less nervous and anxious. In addition, meeting's agenda is often distributed before it begins.

Finally, with regard to advanced-level learners, dialogue, and group discussion are the most preferred communicative tasks. Meeting and speech have been selected equally for them and storytelling and role playing have been noticeably ignored by them. One justification which may be made with regard to this finding can be due to the point that that in advanced-level learners' perspective not being able to use language like a native speaker (after so many years of study) is annoying and they may feel uncomfortable about their not fluent, accurate, and complete. Thus, they try to use language authentically and in activities which are similar to target situations. Furthermore, regarding dialogue task, because in this kind of task the given topics are interesting and often selected with the consultation of learners themselves, they are more likely to take part in the talks.

## Conclusion

The present paper tried to consider the frequently-studied issue of communication apprehension (CA) from a different angle. It tried to see first what differences are between beginning, intermediate, and advanced-level language learners in terms of CA; and second, given the differences between the three groups of learners, what communicative tasks are more favored for each of the groups. Having collected and analyzed the gathered data, some findings resulted. Firstly, the study revealed that there is a strong negative correlation between the proficiency level of learners and their level of CA. Secondly, it was also understood from the study that the CA level is the highest among beginning learners and then among intermediate and finally the CA is the lowest among advanced language learners. And thirdly, the study showed that different communicative tasks are preferred for learners with different levels of proficiency. In other words, beginning learners who are often dynamic and energetic prefer tasks in which they are required to be active and dynamic (tasks like storytelling, role playing). Intermediate learners, in contrast, prefer tasks in which they are pushed to think and use their cognition (Tasks such as group discussion, meeting, and dialogue). Finally, for advanced language learners, tasks which resemble authentic situations are favored (dialogue and group discussion tasks for example).

The study also enjoys a set of pedagogical implications. The first implication which might be drawn is that almost all learners suffer from negative feelings including stress, anxiety, and inhibition in the classroom. Besides, these kinds of feelings mostly stem from their tasks in which they should do a task in front of the class or in a group. Given the fact that these negative feelings may severely affect learners' learning process, teachers need to take the affective factors of the students into consideration in order to ensure effective communication. They can improve learning environments by providing calm and stress-less atmospheres for learners, which can make them feel safe to speak or express their views. Besides, they should eschew giving negative evaluations and should instead focus on learners' behaviors with more encouragement.

Finally, there are naturally limitations to the tentative claims made in this paper. Limitations include the choice of a set of specific tasks and a specific teaching/learning and cultural context. Research with different tasks, more learners in different contexts would be essential to make much more comprehensive, accurate, and reliable findings on the issue.

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