# Digital Literacy at The University

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**Abstract**

The revolution of technology in the 21st century has changed radically the climate of opinion concerning second language education. In order to excel in today's world, teachers and learners need to adopt new roles and be equipped with new skills and competencies that go beyond the basic ones of listening, speaking, reading, and writing; skills that cannot be gained if teachers teach mere academic subjects, and students are evaluated on how well they have learnt the minute sub skills in those content areas.

This session will touch upon several skills which may be considered the new basics of the 21st century. Among these skills are: autonomy, active learning, critical thinking, cooperative learning, and digital learning (AACCD). Digital literacy with its opportunities and challenges will be the core of this session due to its novelty which makes it worth studying. It will also explore university teachers' attitudes towards using digital learning. The session will end up with some suggestions for consideration if teachers and educators are truly looking forward to excellence in the ELT profession.

Key words: literacy, digital literacy

## Introduction

Accelerating technological change, rapidly accumulating knowledge, increasing competition and rising workforce capabilities around the world make current education system irrelevant unless educators and teachers bridge the gap between how students live and how they learn. Today's students are growing up in a different world than their parents did. They have very different experiences with media and, consequently, a very different reality. They are the products of a different upbringing. Educational institutions, therefore, have to be concerned about how well students are prepared to survive in an ever-changing, information-driven world. Given the digital information explosion, teachers can't possibly teach students all they need to know, nor can they even predict what that will be. What teachers can do is to equip students with the ability to access, evaluate, and use information to create new understanding. Teaching the basic skills is definitely fundamental in education, but the new tendency is to make learning environments more interactive, to integrate technology into the learning and teaching experience, and to use collaborative learning strategies whenever appropriate, but the question

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is to what extent teachers are prepared to cope with this change. This study attempts to explore this issue and presents some solutions.

**Problem**

In conventional education, students are passive absorbers of knowledge presented to them in textbooks, and lectures, to help them learn the content. This view is consistent with Ausubel's (1968) approach to receptive learning. Unlike this view of content, the constructive view of the 21st century enables learners to go beyond knowing to actually understanding information. The constructive approach compared to a receptive learning encourages students to be active researchers who explore, inquire, analyze, and solve problems as a means of learning and developing understanding with the help of technology.

These new strategies create not only widening opportunities for learning and teaching, but also create a number of challenges concerning instructors, students and institutions. The challenges may include unwillingness on the part of the teacher to take intellectual risks in applying them, an inability to adapt material when planning specific teaching environment, inadequate knowledge of applying technological instruction, limited facilities and training provided to teachers and students by the institutions, and limited resources to obtain technological devices.

**Purpose**

This study aims firstly to shed some light on the 21st century skills in learning and teaching required in order to excel in the 21st century, and to clarify teachers' roles in implementing them and challenges encountered. Secondly, the study aims to investigate instructors' attitudes, and actual use of technology in the classrooms in order to find answers for the following research questions:

- What are Iraqi instructors' opinions and attitude towards integrating technology in educational instruction?
- To what extent are they making use of technology in their instruction?
- To what extent has in-service training contributed to their use of technology in their teaching?
- What factors affect users or non-users of integrating technology in their teaching?
- Do instructors at scientific colleges integrate technology in their instruction more than their colleagues at humanistic colleges?

To achieve the two purposes aforementioned, the study was divided into two parts: the first was theoretical, introducing briefly the main skills in learning and teaching; and the second was practical where a questionnaire of different purposes was distributed among instructors to get their opinions towards technological instruction and actual use of technology, and to pinpoint factors preventing them from integrating technology in their instruction. Eventually, the results were interpreted and some recommendations were presented.

**Hypotheses**

The study hypothesizes that digital literacy which requires in the first hand ample knowledge, training, and positive attitudes to applying technology in teaching is still not implemented efficiently and effectively in higher education in Iraq. Secondly ELT teachers' actual use of technological instruction at humanistic colleges is lower than their colleagues at scientific colleges.

**Definitions of literacy**

Literacy, prior to the 21st century, is defined as the ability to read and write (Merriam-Webster's Dictionary, online). However, with the advent of a new millennium and the rapidity with which technology has changed society, the concept of literacy has assumed new meanings. Dubin and Kuhlman (1992) acknowledge that "the word literacy itself has come to mean competence, knowledge and skills…" (p.vi). They add that "Expressions like 'civic literacy,' 'health literacy,' 'computer literacy,' and many others become common, where literacy stands for know-how and awareness of the first word in the expression." Langer (1991) contrasts "literacy as the act of reading and writing, and literacy as *ways* of thinking,"(P:13) adding that "literacy can be viewed in a broader and educationally more productive way as the ability to think and reason like a literate person," (p. 11). For the contemporary world, literacy now comes to involve, at all levels, the ability to use and communicate in a diverse range of technologies. People now properly speak of literacies, which concern using information skillfully and appropriately, and involve a range of technologies and a complex mix of print, visual and interactive media (http://www.wordiq.com/definition/Literacy) .

**Old Vs new learning strategies**

For many years the traditional teaching method of stand-and-deliver has been the most prominent instructional strategy in college classrooms especially in Iraq. The goal is to provide a large amount of information to many learners, keep their attention and also maximize the instructor's control. The drawbacks of this method involve disengaging students from the learning process which leads to forgetting the information quickly, minimizing feedback from students, and leading students to be passive learners.

The 21st century brought about a variety of learning and teaching strategies that can be implemented to improve students' learning to become fully equipped with new skills that enable them to think for themselves, be self-initiating, self-modifying and self-directing. The researcher has used the acronym (AACCD) to refer to the skills or strategies aforementioned.

- **Autonomy**

Autonomy, a term first coined by Henri Holec (1981), is defined as "the ability to take charge of one's own learning". Little (1991) argues that learner

autonomy is "the capacity for detachment, critical reflection, decision making, and independent action." MaGarry (1995) sums up the essential arguments for autonomy as "encouraging students to take responsibility for their own work, by being given control over what, how and when they learn". MaGarry sees that this strategy will help students to "set realistic goals, plan programmes of work, develop strategies for coping with new situations, evaluate and assess their own work, and generally, learn how to learn from their own successes and failures."

However, the researcher agrees with Hutchinson and Waters (1987) that giving students control over what, how, and when they learn may seem unrealistic (particularly in a situation like Iraq) because most learning takes place within institutionalized systems where the ingredients of the teaching/learning process are centralized, the objectives predetermined, and the content unalterable. Conversely, students in Western countries who are nurtured under different educational systems are more independent, creative and open. They are, therefore, more likely capable of choosing what to study, how, and when.

Nevertheless, to foster learner autonomy, supplementary assignment like project work can occasionally be applied by the teacher to replace lecturing. Students may be asked to work in groups of their own choosing, on topics of interest to them, or on topics chosen from their progamme once every two weeks, for instance. This will allow language students to work independently of the teacher.

Furthermore, with the Internet access, students have a massive body of information ranging from facts to raw data that they can analyze to generate new knowledge. They can have free subscription to network news, or particular newsletters. Students can have no end of authentic materials if they are given explicit training in where to look in the Web, and what to select and implement. The challenge is that teachers are required to supply their students with some useful sites to go to in the Web, provided that they know them. Technology, then, will help to change emphasis from a focus on the content (mastery of a subject) to a focus on the process of learning and thinking, and from teacher-centered instruction to learner-centered instruction.

**Active learning**

Active learning, unlike passive learning, helps students to learn and retain more information if they are encouraged to participate in learning activities that engage their minds. Mental activities that lead to meaningful learning can be referred to as active learning. Two basic benefits can be gained by active learning. First it provides opportunities for learners to adapt their studies to their interests and preferences, and second it reduces the chances of feeling disinterested so learners enjoy their studies and become lifelong learners.

Since different people gain knowledge in different ways, active learning challenges students to find what works best for them within each activity. These

ways are referred to as **learning styles,** i.e., the ways in which individuals characteristically acquire, retain and retrieve information. Gardner (1985) identifies three types of learning styles by saying that some students are visual learners, some are auditory learners, and others are kinesthetic Learners. Teachers methods may also vary. Some instructors lecture, others demonstrate or discuss; some focus on rules and others on examples; some emphasize memory and others understanding. Unfortunately, serious conflicts may occur between the learning styles of students and the teaching style of the instructor causing undesirable consequences. Students, then, lose interest in class, and become inattentive, do poorly on tests, get discouraged about the course, and may fail and be repeaters. Instructors, confronted by low test scores, unresponsive classes, poor attendance, students' continuous complaints, may become hostile towards their students, dissatisfied with their work and themselves. Then, many teachers feel that students are lazy and not motivated for learning, (Felder & Silverman 1988).

These unwelcome consequences are typically existing in many classrooms; yet, they can simply be overcome if the instructor attempts to vary his teaching style from lecturing to encouraging discussion, to asking for examples or giving a problem to solve so as to engage students and meet their different learning styles. As a result, students' quality of learning and attitudes towards the instructor and the subject will definitely improve as they get involved, become active, enthusiastic and enjoy the lecture. Matching students' learning styles with the appropriate teaching styles always leads to successful interaction between teachers and students, and resulted in improving learning outcomes. This match is a challenge, but a challenge worth striving for. Teachers need to remember the Chinese saying "Tell me and I'll forget, show me and I may remember, involve me and I'll understand", and Plato's words twenty–five hundred years ago, "the life that is unexamined is not worth living."

Active learning also helps to create a lifelong learner. Lifelong learning is inevitable because the knowledge and skills acquired at school are usually not sufficient for a professional career spanning 3 or 4 decades of one's life. Equally, improvement of new skills and competences is consistently required due to the huge acceleration of scientific and technological progress which requires keeping pace with in order to keep one's job. Consequently, students need to realize that learning goes on with life and ceases only with death. Teachers, too, need to change their roles from the great leader, imparter of knowledge and the centre of all activity to a designer, facilitator, and manager of the classroom, (Morrison & Lowther, in Costa, 2001).

- **Critical thinking**

Critical thinking can be defined as "the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing and evaluating information gathered by observation, experience, reflection, reasoning or

communication as a guide to belief or action" (Scriven and Paul, 2004). Critical thinking occurs when students question what they are told, (Marshall and Rawland, 1998) or have read or seen rather than accepting it because it comes from the teacher. Students need critical thinking especially these days to distinguish between facts and opinions, judgments and inferences, and objective and subjective impressions so as to uncover bias, prejudice and misinformation. The internet, for instance, LeRoy Hay explains 'brings easy access to information in quantities that can boggle the mind'(p.9) ; yet, not all the information is accurate or relevant (cited in Costa, 2001). The television, too, with its thousands of channels shows information and events that are probably biased.

This being the case, research-based academic curricula could boost students and equip them with the ability to access, evaluate, and use information to create new understanding. The ability of evaluating and interpreting information found on the internet requires critical thinking. Questions with 'why?' rather than 'what?' encourage students to think and analyze their teacher's or colleagues' questions. Similarly, giving a chance to students to ask rather than to answer the teacher's questions encourages thinking. As a result, teachers are advised not to let questions and answers become only one–way activity, i.e., questions from teachers and answers from students. Moreover, questions that go beneath the surface of the topic and reveal its complexity and subtlety require students to think deeply when responding as opposed to questions that can simply be answered with yes or no. Exercising sound reasoning and making complex choices promote students' ability to analyze and solve problems whether given by the teacher in the classroom or outside. Critical thinking also involves creativity and intellectual curiosity which in turn enhance students to develop new ideas and communicate them to their colleagues or group, and to accept diverse perspectives. Eventually students will cease being recipients or viewing teachers as the embodiment of knowledge, and teachers stop exercising authority and control which hinder free communication and effective participation.

- **Cooperative learning**

Cooperative learning, also referred to as collective learning, learning communities, team learning, study circles or study groups (Johnson &Johnson, 2005), is an educational strategy to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product. Cooperative learning is based on the concept that learning is a naturally social act in which the participants communicate among themselves and it is through this communication learning occurs. Researchers report that regardless of the subject matter, students working in small groups tend to learn more of what is taught and retain it longer than when the same content is presented in other instructional format. Besides, when tasks are carried out by small groups they give better results than when individuals work separately, improve critical thinking ability, and give

the opportunity to practice both the productive and receptive skills in a natural context. The benefits extend beyond increased language learning to include increased self–esteem and tolerance of diverse points of view. The basic elements of cooperative learning are positive interdependence, individual accountability, equal participation, and simultaneous interaction (Kagan, 1994).

This strategy seems satisfactory and applicable in Iraqi classrooms providing that the teacher believes in it and is ready to implement it. Unfortunately, many university instructors tend to lecture instead, although several studies conducted in Iraq showed the successful effect of cooperative learning as a teaching method to promote active learning (Al-Rubaiy, 2005).

**Digital Learning**

Digital learning refers to the ability to use digital technology, communication tools or networks to locate, use and create information. It also involves the ability to understand and use information in multiple formats from a wide range of sources when presented via computers (http://www.library.illinois.edu/). The aforementioned strategies can be managed with the help of applying digital technology since it has changed the way people gather information, conduct research and communicate with others worldwide.

Currently, new terms have emerged, among which are *digital literacy,* and *digitally literate*. 'Digital literacy' as Glister (1997) defines is "a set of skills to access the Internet; find, manage and edit digital information; join in communications (p.290); and otherwise engage with an online information and communication network." Glister, however, agrees with Hay (cited in Costa 2001) and argues that "the most essential aspect of digital literacy is the ability to make informed judgments about what is found online, for unlike conventional media, much digital information is unfiltered by editors and open to the contribution of all." On the other hand 'Digitally literate people' is a term that refers to people who are able to access the needed digital information effectively and efficiently; evaluate sources and services critically; incorporate information and use it effectively to accomplish a specific purpose.

Marc Prensky (2001) in his work Digital Natives, Digital Immigrant coins the term 'digital natives' to refer to the generation of young people, who have grown up in an environment that has always included computers, the Internet, cellular phones, digital cameras, ipads, MP4 players, DVD players; whereas, the teachers of these digital natives are what Prensky calls 'digital immigrants'. He states that teachers speak digital as a second language because they grew up in a drastically different text-based environment, and even if they have tried to keep up with current technology, they speak this language with an accent. Accordingly, Prensky contends that education becomes the single largest problem facing the digital world because digital immigrant instructors of the pre-digital world are struggling to teach a population how to understand an environment which is native to them ( to

the students) but foreign to the immigrants (teachers). This will definitely create a conflict between the two generations as Dr. Zur and Zur state, in an article issued in 2011 that conflicts occur even at home where "parents clash with their children over gaming, texting, YouTube, Facebook and other Internet technology issues". The authors assert that "what many Immigrants miss is that digital natives grew up with technology which connect them with their friends and the world and feel at home."

Obviously, today educators realize that computer literacy is an important part of students' education. Integrating technology into a course curriculum when appropriate is proving to be valuable for enhancing and extending the learning experience for students. Many educational institutions all over the world have found, for instance, electronic mail to be a useful way to promote student/student or instructor/student communication between class meetings. Others use listservs or on-line notes to extend topic discussions and explore critical issues with students and colleagues, or specific software to increase student understanding of difficult concepts.

The advantages of technology for instruction are numerous and include mobility, size, collaboration, autonomy, active learning, and ease of use. On the other hand, the disadvantages may involve distraction, time consuming, cost, access, ownership, professional knowledge, cheating, security, and technology support. However, availability of electricity, ownership and easy access seem to be the most challenges facing Iraqi students and instructors many of whom are digitally illiterate, and consequently, educational system in Iraq is still traditional and kept behind.

**Methodology**

A questionnaire was employed in this study to gather data and was given to 100 instructors, chosen randomly from five colleges at the University of Baghdad: two scientific colleges and three colleges of education. The first two were College of Medicine, and College of Science, The second three were: College of Education, Women College of Education, and College of Basic Education/ Departments of English language. 71 instructors responded to the questionnaire, which was conducted in June, 2011. The participants were put in two groups: (31) from the scientific colleges and (40) from the humanistic ones.

The questionnaire was composed of six sections which serve different purposes. The first section aimed at gathering background information about the subjects: their age, sex, certificates, years of teaching experience. The second section aimed to find out the purposes for normal use of computers and frequency. The third section was composed of 12 items and aimed at illustrating teachers' attitudes towards using computers in their teaching. The fourth was intended to show their abilities of using technology and the fifth what technologies they used in their teaching; whereas the sixth one was for non-users and asked about behind their

non use of technology in teaching. The participants were asked to circle one option that best reflects their answer in all these sections .

**Table 1**
**Instructors' Background Information**

| College | Medicine | | Science | | Total | percentage | Education | percentage |
|---|---|---|---|---|---|---|---|---|
| No. of subjects | 10 | | 21 | | 31 | | 40 | |
| Age | | | | | | | | |
| 26-35 | 6 | | 0 | | 6 | 19.35% | 20 | 50% |
| 36-45 | 3 | | 6 | | 9 | 29.03% | 6 | 15% |
| 46-55 | 1 | | 13 | | 14 | 45.16% | 11 | 27.5% |
| 56- + | 0 | | 2 | | 2 | 6.45% | 3 | 7.5% |
| Sex | | | | | | | | |
| Male | 6 | | 11 | | 17 | 54.83% | 9 | 22.5% |
| Female | 4 | | 10 | | 14 | 45.16% | 31 | 77.5% |
| Certificate | | | | | | | | |
| Master | 3 | | 2 | | 5 | 16.1% | 28 | 70% |
| Doctorate | 7 | | 19 | | 26 | 83.8% | 12 | 30% |
| Years of experience | | | | | | | | |
| 1-10 | 9 | | 4 | | 13 | 41.8 | 25 | 62.5% |
| 11-20 | 1 | | 9 | | 10 | 32.2 | 2 | 5% |
| 21-30 | 0 | | 6 | | 6 | 19.3 | 8 | 20% |
| 31- + | 0 | | 2 | | 2 | 6.4% | 5 | 12.5% |
| Student level | | | | | | | | |
| Undergraduate | 9 | | 3 | | 12 | 38.7% | 30 | 75% |
| Postgraduate | 1 | | 4 | | 5 | 16.1% | 0 | 0% |
| Under-+post- | | | 14 | | 14 | 45.1% | 10 | 25% |
| On-line courses | | | | | | | | |
| Yes | 6 | 60% | 0 | 0% | | | 22 | 55% |
| No | 4 | 40% | 21 | 100 | | | 18 | 45% |
| Average of courses taken | 2 | | 0 | | | | 3.5 | |

Table 1 shows that instructors participating in the study ranged from 26 to more than 61 years old. 54.8% of the 31 instructors from the scientific colleges were male and 45.16% were female. Regarding colleges of education, 22.5% were male compared to 77.5 female. The percentage of instructors with a doctorate degree in the scientific colleges was 83.8% to 16.1% with master degree. Conversely, the percentage of holders of doctorate degree in the colleges of education was 30% to 70% of master degree.

Instructors with teaching experience of less than ten years were 41.8% at scientific colleges compared to 62.5% at colleges of education. This showed that

almost half of the instructors at the colleges did not have long experience in teaching. Instructors with long experience, i.e., above 26 years were only 19.3% at scientific colleges and 20% at colleges of education. 60% of the instructors at the College of Medicine had the average of two in-service training courses compared to none at the college of Science, and 55% at the colleges of education with the average of 3.5 in-service training online courses which were carried out in cooperation with the University of Oregon in USA during 2008-2010.

The second section asked instructors to report their use of computers for different purposes and the frequency of using them by ticking the appropriate options.. The response options were 'never', 'rarely', 'sometimes', and 'often'. For each item, frequencies (F) and percentages (p) were computed. The results were presented in two tables: Table (2 a) for the scientific group, and table (2 b)for the humanistic group.

**Table 2 a**
**Purposes and frequencies of computer use by instructors at Colleges of Medicine and Science respectively**

| Computer use | Never | | Rarely | | Sometimes | | Often | |
|---|---|---|---|---|---|---|---|---|
| | F | P | F | P | F | P | F | P |
| Material design | 1+8 | 29.03% | 1+5 | 19.3 % | 1+2 | 9.67 % | 7+6 | 41.9% |
| Checking homework | 5+5 | 32.2% | 3+9 | 35.4% | 2+2 | 12.9 % | 0+5 | 16.1% |
| Office work | 4+0 | 12.9% | 2+5 | 22.5 % | 2+3 | 16.1 % | 2+13 | 48.3% |
| Surfing internet | 0+1 | 3.2% | 1+5 | 19.3 % | 1+2 | 9.6 % | 8+13 | 67.7% |
| Emailing | 1+0 | 3.2% | 1+2 | 9.6 % | 1+6 | 22.5 % | 7+13 | 64.5% |
| Chatting | 4+10 | 45.1% | 3+4 | 22.5 % | 3+5 | 25.8 % | 0+2 | 6.4% |
| Entertainment | 8+17 | 80.6% | 1+4 | 16.1 % | 0+0 | 0 % | 1+0 | 3.2% |
| Average | | | | | | | | 35.4% |

**Table 2 b**
**Purposes and frequencies of computer use by instructors at Colleges of Medicine and Science respectively**

| Computer use | Never | | Rarely | | Sometimes | | Often | |
|---|---|---|---|---|---|---|---|---|
| | F | P | F | P | F | P | F | P |
| Material design | 18 | 45% | 14 | 35% | 6 | 15% | 2 | 5% |
| Checking homework | 19 | 47.5 | 16 | 40% | 4 | 10% | 1 | 2.5% |
| Office work | 4 | 10% | 10 | 25% | 14 | 35% | 12 | 30% |
| Surfing internet | 4 | 10% | 4 | 10% | 11 | 27.5% | 21 | 52.5% |
| Emailing | 4 | 10% | 4 | 10% | 10 | 25% | 22 | 55% |
| Chatting | 10 | 25% | 12 | 30% | 8 | 20% | 10 | 25% |
| Entertainment | 13 | 32.5% | 15 | 37.5% | 4 | 10% | 8 | 20% |
| Average | | | | | | | | 27.1% |

The results in Table (2a) showed that instructors commonly used computers for surfing the internet and emailing and to lesser extent for office work. Instructors also reported use of computers for material design and checking homework. Interestingly, The results revealed that entertainment was not common among instructors, at scientific colleges, so was chatting as revealed by their low percentages. This could also be due to their short leisure time. What is more important is that the frequent use of computers did not exceed the percentage of 35.4% in scientific colleges compared to 27.1% in the educational colleges.

Table (3b) revealed that 55% of the instructors' main purpose of using computers was e-mailing followed by 52.5% for surfing the Internet, a result similar to that of the instructors at the scientific colleges though to less degrees (55%, 52.5% - 64.5%, 67.7%) respectively. However, chatting and entertainment showed higher percentages compared to those in table (2a), i.e., ( 20% , 25 % )to (3.2%, 6.4%). The other question asked participants about how often they used computers on weekly basis. The results are given in Table 3.

**Table 3**

**Frequency of using computers a week**

| Weekly computer use | Frequency | Percentage |
|---|---|---|
| Less than once a week | 3 | 3.5% |
| 1-2 times a week | 9 | 10.7% |
| 3-4 times a week | 19 | 22.6% |
| 5 or more a week | 53 | 63% |

The results presented in Table 3 indicated that 63% used computers more than 5 times a week; whereas only 3.5% used them less than once a week. Combining these results with the ones in Table 2 shows that the highest proportions of weekly use of computers is surfing the Internet.

Section three of the questionnaire was comprised of 12 Likert-scale items. They concerned teachers' attitudes towards computers and integrating technology in teaching. The participants were required to tick one option out of five that reflected their opinions. The options were: strongly disagree (1) disagree (2), undecided (3), agree (4), and strongly agree (5). The responses of all participants (71) together with the mean and percentage are shown in Table 4.

**Table 4**

**instructors attitudes towards using computer**

| Item No. | Strongly disagree (1) | Disagree (2) | Undecided (3) | Agree (4) | Strongly agree (5) | Mean | Percentage |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 0 | 24 | 42 | 4.4 | 88.4% |
| 2 | 0 | 5 | 5 | 25 | 36 | 4.29 | 85.9% |
| 3 | 0 | 2 | 1 | 30 | 38 | 4.46 | 89.3% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | 0 | 3 | 0 | 16 | 52 | 4.64 | 92.9% |
| 5 | 0 | 3 | 5 | 23 | 40 | 4.4 | 88.1% |
| 6 | 0 | 3 | 3 | 23 | 42 | 4.4 | 89.2% |
| 7 | 0 | 0 | 3 | 21 | 47 | 4.61 | 92.3% |
| 8 | 3 | 8 | 10 | 24 | 26 | 3.87 | 77.4% |
| 9 | 0 | 5 | 13 | 26 | 27 | 4.05 | 81.1% |
| 10 | 3 | 3 | 10 | 30 | 25 | 4 | 80% |
| 11 | 1 | 1 | 16 | 25 | 28 | 4.09 | 81% |
| 12 | 6 | 9 | 17 | 11 | 28 | 3.64 | 72.9% |
| Average | | | | | | 4.23 | 84.9% |

Table 4 reveals the positive attitudes of the 71 participants in the five colleges towards computers and using technology in teaching as supported by the percentage of answers (84.9%) to the items in general. Nevertheless, responses to item 8 show that only 77.4% of the participants were ready to take risks in integrating technology in their instruction; 10 participants stated they were not sure whether they can take risks or not. This unwillingness might be due internal factors, i.e., lack of self-confidence and lack of familiarity with computer technology and/or external factors like lack of technological devices in classrooms and lack of software.

In response to the last item, regarding online courses taken by some of the participants, the results showed that 72% of them agreed that courses helped them to some extent but the courses seemed not enough to serve the purpose. The responses, however, suggested that instructors who had training seemed more willing to try out computer technology resources in their instruction if they were provided with access to resources or teach in classes supplied with technology. Interestingly, teachers from the College of Science who did not have any chance of getting training online were managing their work in integrating technology in teaching. Instructors at the colleges of medicine showed the highest interest in integrating technology in their instruction perhaps because part of their work depends on visual teaching. On the other hand instructors at the colleges of education who were lucky enough to have online courses with the University of Oregon (during 2008-2010)seemed ready to integrate computer technology in their instruction. The results obtained from table 4 were further arranged in three domains: cognitive, emotional and behavioral and given in Table 6 to find out which is the highest and which is the lowest.

**Table 5**

**Participants attitudes towards using computers arranged in three domains**

| Item No. | Cognitive domain | | Item No. | Emotional domain | | Item No. | Behavioral domain | |
|---|---|---|---|---|---|---|---|---|
| | M | P | | M | P | | M | P |
| 3 | 4.46 | 89% | 1 | 4.42 | 88% | 9 | 4.05 | 81% |
| 4 | 4.64 | 92% | 2 | 4.29 | 85% | 10 | 4.00 | 80% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | 4.61 | 92% | 5 | 4.40 | 88% | 11 | 4.09 | 81% |
| 8 | 3.87 | 77% | 6 | 4.46 | 89% | 12 | 3.64 | 72% |
| Average | 4.39 | 88% | | 4.39 | 87.9% | | 3.94 | 78% |

The cognitive domain, served by items(3,4,7,and8)showed the highest percentage which indicates that instructors perceived the importance of computers in carrying out tasks easily and efficiently and considered it a good supplement. Items (1,2,5,and 6) served the emotional domain and also showed a positive attitude towards integrating technology use in their teaching instruction. The third domain served by items (9, 10, 11, and 12) had the lowest mean and percentage. This could mean that although instructors had positive attitudes towards technological instruction but time, access to resources together with adequate training are required first. The higher percentages in the cognitive domain and the emotional one to the behavioral domain could be mean that knowing something and liking it does not mean being ready to use it.

The questions of this section were:

1. I like using computers
2. I have positive attitudes towards computers
3. I believe that using computers makes me more efficient in my work.
4. Computers help completing tasks easier
5. I would like to use computers as a pedagogical tool.
6. I like searching the Internet for teaching resources
7. Computers can be a good supplement to support teaching and learning
8. I think I can take risks in teaching with computer technology.
9. If I have time, I would like to try out instructional computer technology innovations in my teaching
10. If I have access to resources, I would like to try out instructional computer technology innovations..
11. If I have adequate training, I would like to integrate technology in my teaching
12. The online courses I took have been useful for integrating computer technology in my instruction.

**Section 4**

The five items in this section aimed at revealing the participants' actual abilities to use technology. The responses are given in two tables: one for participants in the scientific colleges and the other for educational colleges so as to make comparison between them. The items are:.

1. I apply technology to increase comprehension and productivity.
2. I apply current research on teaching and learning when planning learning environment and experiences

3. I am able to plan strategies to manage student learning in a technology-enhanced environment.
4. I identify and locate and evaluate resources for accuracy and suitability for my research work.
5. I use technology resources to engage in ongoing professional development and lifelong learning

**Table 6a**
**Actual use of technological instruction in scientific colleges**

| Item No. | Disagree | | Undecided | | Agree | |
|---|---|---|---|---|---|---|
| | F | P | F | P | F | P |
| 1 | 2 | 6.45% | 6 | 19.35% | 23 | 74.19% |
| 2 | 2 | 6.45% | 7 | 22.5% | 22 | 70.96% |
| 3 | 4 | 12.9% | 8 | 25.80% | 19 | 61.29% |
| 4 | 3 | 6.67% | 8 | 25.8% | 20 | 64.51% |
| 5 | 4 | 12.9% | 5 | 16.12% | 22 | 70.96% |
| Average | | | | | | 68.38% |

Table (6a) shows that the average of 68.38% of the participants in scientific colleges compared to 43% in educational colleges actually applied technology in class. 74.19% of the instructors agreed that technology increases comprehension and productivity and they applied current research in teaching and learning; yet, the percentage lowers to 61.29% when asked about their ability to plan strategies to manage teaching in a technology enhanced environment. On the other hand 64.51% of the participants had the ability to identify, locate and use technology resources for their research work, and 70.96% for professional development.

**Table 6 b**
**Actual use of technological instruction in colleges of education**

| Item No. | Disagree | | Undecided | | Agree | |
|---|---|---|---|---|---|---|
| | F | P | F | P | F | P |
| 1 | 10 | 25% | 16 | 40% | 14 | 35% |
| 2 | 9 | 22.5% | 13 | 32.5% | 18 | 45% |
| 3 | 10 | 25% | 20 | 50% | 10 | 25% |
| 4 | 8 | 20% | 12 | 30% | 20 | 50% |
| 5 | 3 | 7.5% | 13 | 32.5% | 24 | 60% |
| Average | | | | | | 43% |

Table (6b) shows that instructors at colleges of education were largely underutilizing technology in their instruction, revealed by the average ( 43%). The percentage dropped to 25% when planning strategies to integrate technology in teaching. But the percentages got higher for evaluating resources and using them for professional development. Nevertheless, these results were below their colleagues' results at the scientific colleges. This verifies the second hypothesis

which stated that instructors at scientific colleges were more prepared to integrate instructional technology in their teachings than those at educational colleges. One explanation for that could be that students at scientific colleges require visual learning to facilitate comprehension rather than auditory explanation.

**Section 5**

This section asked about the technologies instructors used in teaching. The rating scale used for interpretations was : (1) for 'never', (2) for 'rarely' (i.e., 2-3 times per year), (3) for 'occasionally' (i.e., 2-3 times per month), (4) for 'frequently' (once a week), 5= always. the results were also given in two tables each for a group. The items are:

1. Portable technologies (e.g. laptops)
2. Data projector
3. Standalone or networked desktop computers
4. Interactive whiteboards
5. video tools
6. Satellite TV
7. TV
8. Audio cassettes (CD player)
9. Mobile players(mp3; handheld multimedia player)
10. Sound/video recorder

**Table 7 a**
**Technologies used in teaching in scientific colleges**

| Item No. | Never (1) | | Occasionally(2) | | Always (3) | |
|---|---|---|---|---|---|---|
| | F | P | F | P | F | P |
| 1 | 2 | 6.4% | 6 | 19.5% | 23 | 74.1% |
| 2 | 4 | 12.9% | 7 | 22.8% | 20 | 64.5% |
| 3 | 9 | 29.03% | 5 | 16.1% | 17 | 54.8% |
| 4 | 6 | 19.3% | 9 | 29.03% | 16 | 51.6 % |
| 5 | 6 | 19.3% | 12 | 38.7% | 13 | 41.9% |
| 6 | 22 | 70.9% | 5 | 16.1% | 4 | 12.9% |
| 7 | 28 | 90.3% | 3 | 9.67% | 0 | 0% |
| 8 | 18 | 58% | 9 | 29.03% | 4 | 12.9% |
| 9 | 23 | 74.1% | 8 | 25.8% | 0 | 0% |
| 10 | 17 | 54.8% | 13 | 41.9% | 1 | 3.2% |
| Average | | 43.5% | | 24.8% | | 31.5% |

**Table 7 b**
**Technologies used in teaching in scientific colleges**

| Item No. | Never | | Occasionally | | Always | |
|---|---|---|---|---|---|---|
| | F | P | F | P | F | P |
| 1 | 32 | 80% | 4 | 10% | 4 | 10 % |
| 2 | 25 | 62.5 % | 6 | 15% | 9 | 22.5% |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | 32 | 80% | 3 | 7.5% | 5 | 12.5% |
| 4 | 36 | 90% | 2 | 5% | 2 | 5 % |
| 5 | 34 | 85% | 4 | 10% | 2 | 5 % |
| 6 | 36 | 90% | 2 | 5% | 2 | 5 % |
| 7 | 36 | 90% | 1 | 2.5% | 3 | 7.5% |
| 8 | 32 | 80% | 4 | 10% | 4 | 10% |
| 9 | 34 | 85% | 3 | 7.5% | 3 | 7.5% |
| 10 | 36 | 90% | 3 | 7.5% | 1 | 2.5% |
| Average | | 83.25% | | 8% | | 8.75% |

The responses of the participants' use of the different technologies in teaching given in ten items prove that although many instructors stated earlier they perceived computers as pedagogical tools and had positive attitudes towards integration, a considerably high number of them (83.25%) at the colleges of education stated that they never used these resources compared to 43.5% at the scientific colleges. One explanation for this result which contradicts to some extent the responses given in tables (6 a & b) could be that their classrooms are not equipped with these devices, or because of lack of software, or perhaps because some literary materials do not give themselves to be taught via technology, unlike scientific materials. This result verifies the first hypothesis which claims that integrating technology in teaching is not well implemented in Iraq. On the other hand, the most preferable devices utilized in instruction were laptops, data projectors, desktop computers and whiteboard with the percentage of 74.1, 64.5, 54.8 and 51.6% respectively at scientific colleges. The least used technology were mobile TV, and sound/video recorder. The results were reasonable since visual images facilitate comprehension at scientific colleges.

Non-users of educational technology were 16 out of 71 .One of them was from the college of science and the other 15 were from the Colleges of Education. Five items were given and the rating scale used for interpretations was disagree (1), undecided (2), and agree (3). The items were:

1. Classrooms are not equipped with technological devices.
2. Lack of teaching software
3. I don't have access to computers or the Internet.
4. I do not have sufficient training to integrate technology in my teaching.
5. Students are not ready for computer assisted learning.

**Table 8**

**Factor behind teachers non use of technology**

| Item No. | Disagree (1) | Undecided (2) | Agree (3) | Mean | Percentage |
|---|---|---|---|---|---|
| 1 | 2 | 0 | 14 | 2.75 | 91.6% |
| 2 | 3 | 2 | 11 | 2.5 | 83.36% |
| 3 | 8 | 0 | 8 | 2. | 66.6% |

| | | | | | |
|---|---|---|---|---|---|
| 4 | 8 | 1 | 7 | 1.9 | 64.58% |
| 5 | 7 | 3 | 6 | 1.93 | 64.5% |

The prominent factor that hinders teachers' use of technology was lack of equipment needed in classroom. the other important factor concerned availability of teaching software. Access, adequate training, and students' as well as teachers' readiness are the other factors.

**Conclusion and recommendations**

The study concerned digital literacy and investigated teachers' attitudes towards integrating technology in their instruction. A questionnaire was used as a data collection device and given to instructors at five colleges scientific and humanistic. The findings showed that most teachers used computers for general purposes such as emailing, surfing the Internet and doing office work, rather than for teaching. Teachers also reported positive attitudes towards computers but varied in the responses towards integrating technology in their instruction. Trained teachers seemed more willing to use technology in teaching, though instructors at the college of science reported not taking courses yet they managed their work efficiently. The results also revealed that teachers at the scientific colleges used technological devices more than teachers at the colleges of education. Lack of knowledge and low confidence in integrating technology resources in instruction as well as lack of technology resources and equipment at the colleges were the main barriers to technology integration. Finally, It is worth mentioning that this study is limited to 5 colleges so it is not generalized.

Regarding recommendations and suggestions, the researcher suggests the following

- It is high time to enhance digital learning in higher education in Iraq.
- Availability of technology equipment and equipment is required.
- Teacher Training is needed.
- Finally it is suggested that instructors be required to have a real digital literacy certification .

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# المعرفة الرقمية في الجامعة

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**ملخص البحث:**
ان الثورة المعلوماتية في القرن الواحد و العشرين قد غيرت وبشكل جذري من الفكر المتعلق بتدريس اللغة الثانية. فمن اجل التميز في عالم اليوم على المدرسين و الدارسين ان يتبنوا ادوارا جديدة ويتسلحوا بمهارات و معارف حديثة والتي تتجاوز المهارات الاساسية في القراءة والكتابة والاستماع والتحدث. مهارات لا يمكن الحصول عليها اذا التزم التدريسي بالمواضيع الاكاديمية البحتة وقيم الدارس على ما حفظه من تلك المواد.

يوضح البحث المهارات الواجب اتقانها والتي تعد اساسيات هذا القرن ومنها : التعلم الذاتي التعلم النشط التفكير النقدي التعلم التعاوني ,التعلم الرقمي. وسيكون التعلم الرقمي محور هذه الدراسة بسبب حداثته كما سيعرض البحث اراء بعض اساتذة جامعة بغداد في هذا الموضوع. ويقدم البحث اخيرا بعض المقترحات من اجل التميز في تعليم اللغة الانكليزية .