

Awareness of Students on the Usefulness of ICT Tools in Education: The Case of EMU IT Students

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ABSTRACT

Educational technology importance and its use is widely becoming a norm in the traditional classroom, by both learners and teachers respectively. The significance of this dissertation focused on investigating EMU IT students' awareness on the usefulness and use of ICT tools. This dissertation also studied various students' awareness and other factors like skills in usage of ICT tools, purpose of usage etc., based on age, gender and class levels of the participants. The study also elaborates the basic trends of ICT, and the sync between ICT and education for pedagogical development. Data were elicited from participants through the use of questionnaires and interview questions. 120 Participants were all analyzed based on gender, age and class level on the awareness of ICT. Analyses were carried out on the gathered data using t-test, ANOVA, standard deviations and percentages. Also significant differences were conducted on variable factors based on participant's demographic characteristics.

The findings of this dissertation proved the awareness of EMU IT students on the usefulness of ICT tools are on a high scale and there were no significant differences on their awareness of ICT use and e-learning based on age, gender and class level. In a slim case, some data proved the existence of a significant difference on the awareness of student on usefulness of ICT and its use based on class levels.

Keywords Instructional Technology, Distance Education, E-learning, Information Communication Technology, Perception.

ÖZ

Eđitim teknolojisi önemi ve kullanımı yaygın sırasıyla hem öđrenciler ve öđretmenler tarafından, geleneksel sınıfta bir norm haline gelmektedir. Bu tez önemi yararlılıđı ve BİT araçlarının kullanımına ilişkin DAÜ Bilişim öđrencilerin farkındalıđını soruşturma üzerinde duruldu. Bu tez aynı zamanda çeşitli öđrencilerin farkındalık ve katılımcıların yaş, cinsiyet ve sınıf düzeylerine göre BİT araçları, vb kullanım amacına, kullanımı becerileri gibi diđer faktörler incelendi. Çalışmada ayrıca BİT temel eğilimleri ve pedagojik gelişimi için BİT ve eğitim arasındaki senkronizasyon ayrıntılı. Veriler anket ve mülakat soruları kullanımı yoluyla katılımcıların ortaya çıkarıldı. Yüz yirmi Katılımcılar tüm bilgi iletişim teknolojisi araçlarının bilinci cinsiyet, yaş ve sınıf seviyesine göre analiz edilmiştir. Analiz t-testi, ANOVA, standart sapmalar ve yüzdeleri kullanılarak toplanan veriler üzerinde yürütülmüştür. Ayrıca önemli farklılıklar katılımcının demografik özelliklerine göre deđişken faktörlere üzerinde yürütülmüştür.

Bu tez bulguları, yüksek ölçekte olan BİT araçlarının kullanışlılıđı DAÜ BT öđrencilerinin farkındalık kanıtladı ve yaş, cinsiyet ve sınıf seviyesine göre BİT kullanımı ve e-öđrenme kendi bilinci üzerinde önemli farklılıklar vardı. Ince bir durumda, bazı veriler sınıf düzeylerine göre BİT yararlılıđı ve kullanımına ilişkin öđrenci bilinci üzerinde önemli bir farklılıđın varlıđını kanıtladı.

Anahtar Kelimeler Öđretim Teknolojileri, Uzaktan Eğitim, E-öđrenme, Bilgi İletişim Teknolojileri, Algı.

This work is unreservedly dedicated to GOD Almighty

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Chapter 1

INTRODUCTION

In the past, learning philosophies give more insight on developing educational areas. Via learning behavior such philosophies have encouraged conversation and investigation in educational environment. Presently, on pedagogical area, behaviorism and constructivism have seized the spotlight of the target of investigators towards how experiences and knowledge is learned and constructed. Even as behaviorism and constructivism have always been the focal issues in learning philosophy, the tools adopted in pedagogy settings have been gradually strengthened and have passed the cleft of education life. These gadget comes in common with each other and falls underneath an umbrella called technology (Chris, 2007).

Behaviorism is a theory that a person is studied properly via the investigation of objective observational and quantifiable behavioral events, as against the subjective mental state (Watson, 1986). Lefrancois (1972), explained that behaviorism is mainly connected with behavior, in contrast to feeling, thinking or knowing. He further clarifies that it is based on the objective and awareness elements of behavior (Lefrancois, 1972). In this field, scholars try to find empirical description in other to guess the happening of behavior in relation with surrounding events, in other to organize the environment for encouraging an individual's capability to conform to his/her surroundings. "When a class of environmental events is shown

experimentally to have a predictable effect on behavior, behaviorists say that a functional relationship has been established” (Coleman, 1984)

Constructivism as a learning theory, posits that experience and knowledge is built and constructed by the learner on the basis of a mental activity. Students are proven to be lively species looking for definitions and meaning. This theory increases learner’s rational and theoretical development. The essential idea of constructivism learning principle is the part that knowledge or interaction with the connecting surrounding performs in learner training. “The social constructivist paradigm views the context in which the learning occurs as central to the learning itself” (McMahon, 1997). Social constructivism inspires students to reach at their description of what is true, subjective at their upbringing, beliefs or rooted general view. Past growths and sign methods, like semantic, logic and reasoning, and calculative systems, are embedded within student as a participant of a specific culture and beliefs, and all of these are assimilated all through the life of the student. This focuses on the aim of nature of the student’s public connection with information and communication technological (ICT) tools, instructional materials and also with the experienced associates of the public.

Some scholastic technologists which use most type of constructivist standpoint likewise rely on collaborative learning. Presently, on the part of education, constructivism has occupied a dominant lead role on which the aim of investigators have deviated into finding how experience is constructed. Looking at the development of ICT learning tool, constructivist learning theories have been studied and reviewed as instructors try to include ICT even though trying to harmonize constructivist centered educations. ICT tools as an instrument in learning is accepted

by few and disappointed by most persons; nevertheless nowadays digital populaces go across virtual worlds without indecision or doubts “Students are far more technologically savvy than the institutions that support them”(Desai, Hart & Richards 2008). This gives difficulty as learners endeavor to bring together their self-constructivist educational influence in combination with ICT tool they are not accustomed to or intimidated or pressurized by. Meanwhile, it is this particular ICT tool that unveils the recent and creative adoption of constructivist educational methods. According to Desai, Hart, and Richards (2008), “The vast amount of information that ICT supply on a daily basis has allowed students new ways to explore education compared to ordinary instructional tools”.

ICT is mostly presumed to be a platform and catalyst of trending educational change (Desai, Hart & Richards 2008). Instructional technology arranges a learner through assisting them to gather an insightful comprehension and familiarity of learning resource, ways for investigating and proffering panacea to issues via research study, principles, design, assessment, and utilization. Instructional technology target is on successful patterns to encourage learning by adopting technologies and imparting the usefulness of technological tools on learner and institutions.

According to the Association for Educational Communications and Technology Journal, a professional society for Educational Technology, defines instructional technology as:

“the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources”.

DE shadows the advancement of the ICT tools, and such tools make this education pattern possible by providing support through this situation, the instructor might know that these tools which helps as an educational material will happen constantly. So therefore, the instructor is expected to carry-out activities considering this possibility, organizing activities and establishing the educational actions as intermediation for this education process, in a bid to supersede prospects and, subsequently, the appropriation of knowledge and learning objectives. The improvement of novel ICT tools, that has activated revolution in our community and in individual's occupations, has allowed further prospects for educational process. It also led to the advancement of recent choices for the DE approach, putting together the known pedagogical materials together with ICT tools. All these approaches focus on the restoration of instructional-passage via developing a broader idea of the educational process so as to be at par with the society demand. By this way, ICT tools can also be adopted in colleges and top institutes of learning with the aim to properly make course contents available and accessible, then leading to higher alternative and flexibility of entrance to the DE. As novel ICT tools turn out to be obvious, learning became the center of all kinds of teaching, and the phrase distance learning once more was used to emphasize on its restrictions related with "distance", i.e. place and time (Guilar & Loring, 2008; Newby, Stepich, Lehman, & Russell, 2000). The term then evolved to describe other forms of learning, i.e. e-Learning.

E-learning has an unknown root, though it is advocated that it probably started from the Y Generation at the same period of another discovery mode called online learning. Some authors defined e-learning as strictly been assessable by adopting ICT tools which are either web-based, web-distributed or web-capable (Elis, 2004). It is believed that e-Learning not only covers content and instructional methods

delivered via CD-ROM, the Internet or an Intranet (Benson et al., 2002; Clark, 2002) but also includes audio- and videotape, satellite broadcast and interactive TV. What is richly clear is that there are some doubt as to what precisely are the features of e-learning, but the known fact is that all methods of e-Learning, whether they be as applications, programs, objects, websites, etc., can ultimately offer a learning chance for learners.

As it is common today that technology welcomes learners as they take a walk into modern classrooms; such ICT tools can include Liquid Content Display (LCD) projectors, CD-ROMS, computer software programs and interactive whiteboards. Regrettably, the presence of ICT tools does not necessarily mean its effectiveness (Furr, Ragsdal and Horton, 2005). Therefore, this study focuses on investigating Perception of EMU IT Students' on the Effectiveness of use of ICT tools in teaching and learning setting. Most learners generally support the use of technology in classrooms; Pedretti, Mayer-Smith, and Woodrow (1998), investigated learner's perception in relation to ICT educational tools. They discovered that learners perceived ICT tools as been useful and inspiring to education process. Furthermore, various learners in the study perceived ICT tools as an essential part of their learning process.

1.1 Problem Statement

New ICT tools generate excitement and fun and also worries and concerns. Since huge value of time, money and effort is put in into these ICT tools, it therefore should display educational value for learners so as to justify its cost and worth. ICT as a term has been largely investigated on. Nevertheless, since it is largely used, it has not been broadly studied. In as much as these ICT tools are growingly available

in the traditional classroom settings, knowing learners awareness of ICT tools at the undergraduate level is pertinent, as this will enable the instructors in education to properly ascertain the necessary technological tool to adopt when preparing the lesson content and resources to teach.

Learners are said to be the central focus at the thought of establishing an institution for learning, and these contemporary students are almost skilled at the usage of certain ICT tools even before the entrance of certain colleges or institutions. It is therefore, very necessary to make ready those basic ICT tools which should be adopted by such learner on the entrance of such institutions or colleges. For this reason, it will be a problem if these students awareness, attitudes, thoughts, skills, motivational factors and their ease of use is not determined at the initial stage before erecting a school, employing an instructor, building a curriculum or syllabus, preparing an instructional material or course objectives and further evaluating of the entire teaching and learning processes.

These remains the problem that this research work will further look into, because the data realized will be valuable for administrators, educational planners, individual teachers, parents and guardians, counsellors and government ministries. For if the awareness of these learners are further identified, then it becomes easier to identify the basic ICT tools preferred by IT students and their levels of skills at them; without this, then it remains a problem to be tackled in the general education system. Cross and Adam (2007) stated that even though ICT adoption have grown, most schools never had broad institutional visions or strategies on ICT adoption.

1.2 Aim of Study

The main aim of this dissertation is to examine the awareness of IT students in EMU on the effectiveness of ICT tools use in enhancing learning, according to their age, gender and class.

1.3 Research Questions

This study will be discussed by using the research questions mentioned below:

1. What is the difference in awareness level on the use of ICT tools by EMU undergraduate IT students according to gender and class level?
2. What is the significant difference on the awareness level of EMU undergraduate IT students on the skills of using ICT tools according to age and class level?
3. What is the percentage level of awareness of EMU undergraduate IT students on the Usefulness of ICT tools and e-Learning?
4. What is the significant difference on the perceived usefulness of ICT tools and e-learning by participating EMU undergraduate IT students according to gender and class level?
5. What is the percentage and significant level of skills and the level of purpose on the use of ICT tools by EMU undergraduate IT students?

1.4 Significance of the Study

Considering the increment of ICT tools, it is therefore important to carry out a quantitative and qualitative research on its value in teaching and learning process. It is vital to investigate student's perception of ICT tool's importance and hindrances at the undergraduate level, and this research will cover this end. The perceived importance of ICT tools must be analyzed; when learners do not identify value in ICT usage, then ICT adoption may be looked into or instructors might require

training and re-training on its use. From this study, the reader will understand the importance of placement in education as it tends to be a problem for it is very important to be able to determine student perception level according to their age, class and gender. It is proper to rightly determine if the ICT usage has been affected by age, class or gender of a particular learner, because this will further enable the proper placement of a particular learner to the right class for easy ICT usage during class activities and teaching and learning process, without which remains a problems. Furthermore, adding to the investigation of perceived effectiveness of ICT tools by students, levels of great enhancement were determined also from the learners. It is obvious from other researches that ICT tools are not always adopted effectively (Lawrenz, Gravely and Ooms, 2006). In most cases learners can perceive this and generate constructive feedback.

1.5 Limitation

This study faced limitation such as the issue of resource materials been limited due to time of gathering data.

1.6 Definition of Key Terms

Instructional Technology: This is any piece of gadget or technology incorporated into teaching and learning process (Cox, 2007)

Distance Education: This occurs when learners are far from each other. It is achieved through conferencing either video or audio. (Lockard & Abrams, 2001).

E-learning: This is the use of electronic means to pass instruction either the computer or mobile phone would do (Ellison, 2007).

Information Communication Technology: There are an arrays of gadgets and devices that is used to store, retrieve, gather, distribute information. (Cox, 2008).

Educational Technology: When a gadget is fused into teaching and learning process to pass an instruction in other to achieve an instructional goal. (Stallard & Cockard, 2001).

Perception: Understanding something or someone using one of your senses.

Chapter 2

LITERATURE REVIEW

This chapter focuses more on written perspective in investigating published data, statistics or information on the title of this dissertation. It will establish a background and justification for, and further illustrate knowledge on this research.

Acquiring education leads to continuous increment and dynamism to community at large via the adoption of technologies. Instructional technological educational tools adopted by teachers in designing instructional materials and operated by students in connecting with other learners and also the instructor together, for purposefully achieving learning objectives. In this area of study, instructional technology focuses interaction dexterity and educational theories, via the effective adoption and inclusion of various technological media (Eric, et al., 2009); further explains ICT in learning as a paradigm in education that gives learners the enablement and ability to pass on ideas and view in a more recent and novel way which would in any way be impossible, inefficient or ineffective, when using other instructional methods. That is to say, that ICT only not assist in passing on archaic content in a new or novel way – but it also helps in teaching new contents in new ways. ICT focuses on enhancing education; it should also help in increasing the general activities of teaching and learning in regards to efficiency and effectiveness. Another study also defined ICT for learning as the adoption of technology to enhance education (Peter, 2011); the study further buttress that, it is a systematic, repetitive process for designing and

developing instruction or trainings adopted for enhancing performance. Researches on ICT, always has optimistic outcomes. ICT majorly concentrates on enhancing the effectiveness and efficiency of conventional practice of teaching and learning process and this leads to educational change. Also O'shea and self (1983), stated that instructional technologist cannot again see ICT tools as just any piece or tool of equipment and engagement (O'shea and self, 1983); if instructional technologist are focused on analyzing vigilantly about teaching and learning, then ICT tools has an impact to give regardless of its adoption as a means of execution, for the design of ICT based learning environment provides us with a novel approach on the nature of education and its objectives.

Pitt (2005), describes ICT tools as not been restricted to the adoption of technological tools, and the importance is also putting the scientific and technical skill and knowledge in a way to get a concrete outcome (Pitt 2005). Humanity has designed science and technologies, beginning from the wheel to computer machines and the modifications were crucial important considering the relationship of such tools with/between human beings and nature, superseding the conventional/customary way of passing instruction in the classroom settings. To use a means, material or resource is not really conducive. Therefore all educational activities is formerly arranged, by adopting a well-constructed and articulated objectives which also allows learners to be kept abreast with novel and diverse contents. In doing so, students are encouraged to develop a more recent relationship with subjects formerly assimilated. The teaching duty adopts several arrays of technological resources, focusing on knowledge priority depending on the mediation of the instructor, using different assets and from diverse operational processes.

2.1 Usefulness of ICT Educational Tools

Modern ICT tools are adopted by thousands of institutions, and they are handy and most for free, captivating and exciting to adopt, which makes them necessarily important to be incorporated into education and most especially to enhance and enable social meetings. (Brown, 2010; Hamid, Waycott, Kurnia, & Chang, 2014; Hemmi et al., 2009; Seaman & Tinti-Kane, 2013; Selwyn, 2012). The regular growth of global access, ease of use, resilience and functionality of ICT tools have turned them to become attractive and interesting as flexible educational tools to be used in educational institutions of higher learning (Brown, 2010; Schroeder et al., 2010). Most authors proposed that ICT tools advocates for constructivist perspectives in education and that it has the possibility to connect online learning to a wider extent compared to what is previously witnessed in the conventional educational environments. (McLoughlin & Lee, 2008). Social educational technologies can enable resilience in educational process and also encourage trouble free publication, re-use of learning content, sharing of knowledge and description. They also encourage connections to important materials and resources in information setting that are controlled and administered by learners and instructors (Brown, 2010). Most literature works have exposed numerous usefulness of ICT tools for educational purposes. These also combine its use in enhancing learners' discussions (Crook, Fisher, Graber, Harrison, & Lewin, 2008; Odom, 2010); improving learning stimuli and experience (Chen, Hwang, Wu, Huang, & Hsueh, 2011); and taking individualized subject materials (Griffith & Liyanage, 2008; Racthman & Firpo, 2011). Also, some investigators protests that ICT educational tools and activities are very useful for improving learners' collaborative and cooperative skills (Tay & Allen, 2011) points where learners adopt ICT tools which are interesting to them

(Ellison, 2007; Hall & Hall, 2010). Using direct examples, the adoption of ICT educational tools has largely led to greater scores (Pursel & Xie, 2014) and also effective and competent operation of task (Tower, Latime, & Hewitt, 2014). ICT pedagogical activities might improve learners' involvement in a classroom setting, most especially amongst learners with greater focus. Learners can as well lower their anxiety stages or levels by adopting social ICT educational tools, instead of producing questions in an unruly manner amidst other students (Wheeler, Yeomans, & Wheeler, 2008).

Furthermore, by adopting ICT educational tools, most especially the socializing tools, such wikis, blogs and social networking sites, learners are majorly seen to be more active members in creating their own personal experience and idea (Preece & Shneiderman, 2009). ICT tools enables learners to openly manifest their selves, since they have the freedom to publish their content, work, material online through wikis and blogs. Adopting ICT educational tools can further build learners stimulus, motivation and support their focus to details, which will further lead to a total improved quality of work. Rifkin, Longnecker, Leach, Davis, and Ortia (2009) in their study notified that when learners publish their content, materials or work online for numerous viewers or audiences, such works most times are firsthand, captivating and interesting for others to view; this leads to a more proper evaluation from colleagues and instructors. The part ICT plays in education is fast becoming a pertinent and vastly deliberated issues in modern education policy (Rosen and Michelle, 1995). Majority of experts in educational line agreed that, if it is properly utilized, ICT possesses a huge capacity to increase instructional and learning aid to organize work force opportunities. ICT importance is very glaring from the educational approach. ICT adoption in classroom settings provides numerous

usefulness since it builds a quality learning surroundings (Heide & Henderson, 2001). The findings from research of more than a decade, “The Apple Classroom of Tomorrow” presented numerous importance of pedagogical technological tools in the classroom settings (Hoffer, 1988). By the close of their first year of investigation, in the late 80s, The Apple Classroom of Tomorrow presented these development measures: learners were doing fine on tests, learners writing skills were more effective, and learners concluded study units before schedule. Moreover, the worry that those learners would face isolation, which is one of the consequences of ICT usage, did not occur to these learners. Instead, learners cooperated more and displayed passion in the technology, as well as continual usage. Dwyer (1994) presented a summary of the numerous studies gotten via the Apple Classroom of Tomorrow project. First, ICT has effects on learning through ensuring numerous types of interactions. The conventional classroom setting migrated from an instructor-centered to a student-centered, and the learner turns from being a listener to being a collaborator. Moreover, ICT educational tools engage learners to higher level cognitive tasks. This is done via problem solving techniques and real-world projects. Kumar and Kaur (2005) posit that the recent information insurgency and growing effect of ICT have remodeled the approaches of education and research in some institutions of higher learning. Finally, ICT allows even instructors to question assumptions of the conventional or traditional teaching and learning process.

Educational technological tools is most times seen as a booster for modification, alteration in teaching patterns, modification in assimilation processes and in retrieval of information or data (Watson, 1986). Rubina, Shakeel and Aqeel (2011), sees ICT as technological tools that creates access to data via communication tech tools; and also views its capability to be important to enrollment and participating in the

contemporary information society. Educational technological tools can be adopted in discovering, developing, evaluating and presenting of information, and also to sample situations and issues and finally solve possible problems. Teaching and learning scene is the most important area for technology application. ICT tools can assist in creating optional opportunities for education (Casal, 2007). Rubina, Shakeel and Aqeel (2011), further states that, the aim of educational technological tools is widely to acquaint learners with the adoption and operations of computer machines and related ethical and social issues. ICT tools has also helped learning processes via numerous intelligence as it has revealed learning thru games simulation; this allows for active learning via all senses (Gateway, 2010). Adoption of various ICT tools has been unavoidable for learners in learning process. Through adopting novel ICT tools, learners can collect their expected data in a short range of time. Learners can reach and distribute electronic information, for example, e-journals, e-resources and can develop their learning ability through various newer information and communication technology patterns of wireless connections, web, search sites, databases and web technologies (Rubina, Shakeel and Aqeel, 2011).

Tinio (2002), lists the capabilities of ICTs in growing entrance and developing importance and value of education in emerging countries. Tinio additionally mentions the possibilities of ICT thus: Information communication technology significantly enable the achievement and immersion of knowledge, presenting growing nations extraordinary prospects to improve pedagogical methods, advance strategy preparation and implementation, and broaden the variety of chances for commercial and the needy. One of the highest adversities tolerated by the needy, and by numerous others, who reside in the pitiable countries, in their sense of

remoteness, and ICTs can expose entrance to knowledge in means inconceivable not long ago.

2.2 Trends of Information Communication Technologies in

Education

ICT tools most times salutes learners as they walk into contemporary settings or classrooms. This ICT tools might include software application programmes, LCD projectors, computer machines, scanners, printers, CD-ROMS, or interactive whiteboards etc. Ramzan (2004) views that wireless networks, virtual collections, virtual reference services, interactive web interfaces and individual web portals have led to alterations since the beginning of the new millennium. Investigations in the area of pedagogical technology has unveiled that ICT can be a pertinent resource for allowing for quality of instruction and understanding process in teaching. This is fact in the case acquiring disciplinary and technical concepts example, programming or math laboratory, or for the wielding of transversal cognitive capabilities.

This huge amount of technological tools assists our life in been stress free and they are very supportive in harnessing the large quantity of information that we get daily. It is true that we do not adopt them daily, but it is quite obvious that learners are in an incessant interaction with them and it cannot be ignored.

Hawkins Roberts (2010), of recent past wrote on a ten global trends and innovations that is widely seen all round the universe, in ICT and in pedagogical setting.

1. **Mobile Learning:** Apart from cell phones, there are iPads, netbooks, smart devices etc. the spread of gadgets that learners and instructors can adopt to fetch

knowledge and data straight into their possession. These indicators are popular: more than six billion subscribers, over 2/3 in emerging regions. An unbelievable development in this technology, predominantly in the underprivileged parts of the globe, with a billion innovative mobile devices created yearly. The iPhone on its own before now has over 200,000 applications, which offer a huge volume of pedagogical content. So the query turn out to be: what occurs when these gadgets move into the classroom? There are a lot of educational methods and approaches for effectively optimizing cell phones usage; e.g. “angry professor” a YouTube display at which a class professor destroys a learner’s alarming mobile phone.

That is a strategy for including ICT into a classroom setting. Moreover, there are additional usages of the cell phone for educational purposes, and possibly it is good to reflect on the meaning of the classroom. Undeniably, perhaps the best instances of the adoption of this technology device have been out of the classroom: all time data access to enable anywhere, any time learning; an information gathering and distribution device; and for passage of conventional lectures through podcast. A lot of these applications are not appropriate for teaching-method demonstration in a classroom setting. They are appropriate for a more vibrant, out-of-school experience. These are some illustrations of the types of applications being developed: (1) a walking tour through time, allows you to download ancient directional maps to physical places that you are and listen to a sound trip of a city; and (2) texting a message to a Wikipedia connected site with requests and getting a text response back on your mobile device. The latter occurs in South Africa.

2. Cloud Computing: This has numerous important application for education. One is mainly significant in emerging countries where capabilities are slim. It promotes

the initial trend, which is the increase of inexpensive gadgets for mobile education, where a smaller amount of power in computing memory is required. It supports also for third-party services and technical enablement, that is distributed IT support – decreasing the necessity for practical competence in a precise institute or locality. It is gadget- and locality-autonomy. For emerging nations, where capabilities are slim in terms of methodical and strategic support, also to shift that support to a third party is enormously valuable and economical. The trial is universal connectivity. To use the cloud you must be connected. Also there are challenges of secrecy and monitoring-of-content concern.

3. One-to-One Computing: The style in classroom settings all over the world is to create a data gadget to all students and build education surroundings that accept worldwide entrance to the information technological tools. If the gadget needed is one laptop per child (OLPC), or – growingly -- a net computer, smart cell phone, or the tablet coming back to life, classroom settings must arrange for the worldwide accessibility of individual educational gadgets. An instance which is in Uruguay, a nation to first put a PC at the disposal of kids at a gigantic scale in all primary institution. The project is termed Plan Ceibal. There are about 380,000 XO laptops with primary children all over the nation. They began this project not in the developed towns like Montevideo, but in the pastoral regions, and migrated to the capital. This project was seen not as a pedagogical project, but rather as a chance for community transformation. They have unveiled the institutes as resource venues to the society and are inspiring the distribution of the experience and ideas with relations and parents when the learners get back to their homes. Most of the first proof has revealed that eight-year-olds are getting the same level of practical mastery as eighteen-year-olds, and that it is actually curious on what could be termed a

‘hidden curriculum of discipline.’ When these many computers are bestowed at these kids disposal in every institution in a nation, there is a definite volume of pandemonium that follows. Robert Hawkins feels that part of the core issues that the Uruguayans are contending with is getting the instructors up to pace with the developments and the capabilities of the learner.

Apparently there is the price concern. There are still not much of proper information about the influence of ICT in pedagogy, most especially one-to-one computing, and the down road concerns of e-waste. The most significant thing, however, is the necessity for an all-inclusive plan-- the necessity to view across just the hardware, to view at the instructor teaching, the content mixing, and what Uruguay is performing in terms of unveiling it up to the society also.

4. Ubiquitous Learning: Considering the rise of developing vigorous connectivity set-up and inexpensive computers, institutional settings all over the globe are evolving in the capability to afford educational chances to learners “anytime, anywhere”. This style needs a reconsidering of the customary 40 minute teaching. Also to hardware and web entrance, it needs the readiness of virtual tutors or instructors, and/or chances for child to child and individually-paced, deeper learning experience. There are instances all over the globe. In Korea, they have created a digital model in textbook form propelled in the direction of assisting learners at home after the classroom settings are over. The private teaching company in Korea is huge, and the key concerns they want to focus at is approaches to aid families to acquire that private teaching subsequently after school periods on a new inexpensive source via the adoption of information technological tools..

5. **Gaming:** The remarkable achievement of games with an emphasis on vigorous involvement, constructed in motivations and collaboration recommends that recent educational approaches are not decreasing and that pedagogical games would more efficiently entice the concentration, passion and attention of students. A current assessment by the Pew Internet and American Life Project per the Horizon Report discovered that enormously multiplayer and other internet game knowledge is particularly found amidst young individuals and that games proposes a chance for improved social collaboration and civic engagement among young individuals.

6. **Personalized Learning:** Robert Hawkins describes personalized learning as a trend that works right off the fifth trend. Learning structures are growingly able (via ICT) to properly comprehend learners' present knowledge base from past knowledge. Instruction can be designed to cater both education gaps and education styles so that instructors and institutions would more properly regulate the instruction - content pedagogy, to the learner wants.

This attention changes a classroom setting from a teaching trend to the central – which majority of our classroom settings do - to one in that the student, whether resilient or feeble, is the center of attention, teaching to his or her wants. So many institutions are starting to view at this issue. Achievement First is a commissioned institutions in New York that views at kindergarten 2 learners. They provide the students a reading passage assessment every six weeks, and individual learners are provided with classes centered on that test assessment. School of One is a program which views diverse educational approaches to create pedagogical content selecting amongst PC instruction, customary classes, distant teaching. Most of the initial marks on this program have been very optimistic. And also Wireless Generation is an

industry that supports with valuation system software to control learner and instructor demonstration in Chicago, D.C., and Indiana. They are assembling data about efficient teachings and methods for instructing precise pedagogical difficulties. More of this will be seen as institutions starts to adopt ICT more efficiently to gather and adopt information to direct instructions to learners and personnel.

7. Redefinition of Learning Spaces: Hawking (2010), states that it is the re-patterning of teaching and learning settings. It is focusing farther than the thirty chairs in a teaching and learning settings, five rows of six, industrialized pattern of education, to a setting where we unveil areas for more cooperative arrangement amongst learners and instructors - educational surroundings that are cooperative, inter-disciplinary, and learner-focused. We are observing more attention on lights, colors, rounded tables, personalized spaces, open education areas, and parts that nurture cooperative, program-focused learning. Concluding the issues as: how can we create our institutions to be more or less like a prisons and appear to be more like art galleries?

8. Teacher-Generated Open Content: Focuses on instructor produced exposed content, and MIT is among the inventors in unveiling content to the globe. This style is attaining drive at the personal instructor level all over the globe. Institutional structures are gradually enabling instructors and webs of instructors to equally recognize and generate education contents that they discover most operative in the classroom setting. Being capable to channel your best thought and being capable to convey that to your learners is a usual subject. More so, the notion of reshaping content-- there are numerous web scripts that permit instructors to add, modify, or otherwise convert resources to their own purposes and styles, in other for their

learners to get a driven replica that fits the speed of the course. An educational industry engaged in this is Flat World Knowledge, for example. This method is also a decent package as an instructors-teaching gadget. It affords chances for instructors to cooperate, distribute data with one another, and study with one another, by so, producing cooperative linkages and societies of practice. Clearly, copyright disputes ensue that dare our customary concept of copyright, and these are currently evolving, via Creative Commons licenses and the likes.

9. Smart Portfolio Assessment: The gathering, organization, categorization, and repossessing of information linked to education will enable instructors to properly comprehend education gaps and modify content and educational methods. More so, valuation is gradually shifting to recurrent formative valuations which gives itself to actual periodic information and little on highly-pressured assessments as the score of distinction. Gadgets are growingly accessible by learners to collect their work together in a way of web collection; every time they put up a tweet, blog comment, or photograph to any internet service, it will display on their individual collection which can either be peer and instructor evaluated.

10. Teacher Managers/Mentors: Robert Hawkins further states in his last trend that, the part of the instructor in the classroom setting is being changed from that of the font of knowledge to a teaching organizer aiding to direct learners via personalized learning passageways, recognizing important education materials, producing cooperative education openings, and creating understanding and backing both at official class period and outside of the labelled 40 minute teaching period. This change is to say than be put into practice and finally the success or disaster of information communication technology projects in the classroom settings

focuses on the individual element and the readiness of an instructor to pace or move into uncharted terrain or zone.

These trends or styles are supposed to be in vogue and challenge numerous conveying approaches important to official classroom settings as it is adopted in many nations. Hawkins (2010), states that technologies are essential to the operation of contemporary societies, these same ICT are also necessary to educational institutions. Learners and instructors should talk on this modification in our community as an opportunity to increase our instructive patterns so as to attain instructions with quality and value.

2.3 E-learning and its Importance

Morgan (2003), explained e-learning as a learning method that includes an internet-based features, supporting co-operation and access to resources that stretches far beyond the normal classroom setting. Equally to this explanation according to Morgan, e-learning was quite further differentiated from online and distance learning, as both online and distant learning are seen as more precise examples or courses involving e-learning. Explicitly “online” is adopted when referring to courses that possesses majority of online features and “distance” is adopted to when to courses that the teacher and learners are actually in same practical teaching and classroom setting or area.

Aside the initiative enlisted by Morgan, that e-learning supports the expansion of enrollment in institutions, grows their revenue, and enhances their goodwill and reputation and further more in the streamline of curricula; she further enlists e-learning’s importance to instructors and students.

Flexibility: The highest gain e-learning gives to learners is increased flexibility, either in subject taking or in the entrance to subject materials. Modifications in activities or family issues usually leaves learners not been able to undertake subjects on the school settings or on a set period. If subjects are taken online, learners usually have access to instructors and other subject materials on their own time and chance. This allows schools to maintain numerous non customary adults' students, student workers etc.

Improved and Revitalized Teaching: E-learning plans and strategies usually always includes course redesign. Teachers must often enroll into training and retraining before instructing online courses, and enhanced education outcomes when novel strategies are brought on board and there is a concerted aim to show learning objectives. Due to educational heads and faculty have a lot of worries on the quality of instructions, online education is usually more open to evaluation and review. At this, teachers and subject designers spend more efforts to build a structured, huge quality experience for learners.

Enhanced Learning Experience: The learning pattern now created by numerous LMSs enhance and quick response to learners with high information gathering and just-in-time evaluations. Learners can usually check their performances as against that of their colleagues, which is displayed to enhance learning and grow learner's ownership in their assimilation experience and involvement in the subject. E-learning enhances chances for cooperation between learners. Interaction of subject resources is no longer hindered to an hour period thrice weekly in a practical classroom setting. Learners can now and most times mandated to involve in interactions in an online platform that is related to the educational material. Study sessions are held online,

send blogs about their learning experiences, and distribute information online among their colleagues regarding subject materials. This twenty four hours interaction usually goes beyond the period of the course.

Learners can have access to e-learning subjects materials on numerous periods anytime they go online, leading to more chances to unify and integrate data. This can be specifically useful for learners with studying ailment or those for whom English is a second language. Learners who are quick readers and fast assimilators may excel, usually have lower “dead” period, and experience less frustration with the speeding content; exceptional learners may excel their path via degree programs more efficiently.

Improved Time to Degree: So many focus group participants during a study quoted that online subject taking enable learners finish school faster. Online subjects usually enables by growing the volume of the sections of a subject offered, the amount of learners who can enroll on a course or the rate with which a course is taken. This can be particularly needful when learners fail from required subjects which are among major subjects and should engage in retaking them before proceeding to the next subject level. More so, the focus group participant stated that workers and military students in particular are gaining through the flexibility of online subject enrollment and are viewing decreased time to degree (Jones, 2004).

Considering knowledge management, contemporary media pedagogy cannot be thought of without information technologies and it can be said that the part of E-learning is of endless importance. However, perhaps, it does not modify conventional education, it just broadens and perfects instruction methods. ICT's are intermediaries

amongst learners and professors. “Technologies can improve the value of pedagogy in numerous means: by growing student inspiration and involvement by enabling the attainment of rudimentary expertise, and by improving instructor teaching. Technologies are also revolutionary devices which, when adopted properly, will support the move to a student focused surroundings“(Virkus, 2008).

2.4 Related Literature

This section deliberates educational usefulness of adopting ICT tools in institutions of higher learning which have been discussed in past research works, accompanied by a review of related studies that have examined students perception towards the use of ICT tools and also the E-learning.

In Watson’s (1998) explanation, information communication tools have transformed the pattern at which individuals work nowadays and are currently renovating pedagogical approaches. For this reason, if institution coach kids in past skills and technologies they might not be operative and reliable in future’s globe. This is an adequate means for technology to gain worldwide acknowledgement and recognition. For example, technologies are reliable gadgets in enabling the realization of part of the Millennium Development Goals (MDGs), which is accomplishment of general primary education by 2015. Kofi Anan, the past United Nations Secretary General, explains thus, that to achieve the objective of Universal Primary Education by the year 2015; we should make sure that ICTs opens the lock of educational structures. This shows the rising request and progressively significant position which ICTs might get in educational setting. As technological tools create larger chance for learners and instructors to modify education to personal want,

community is, compelling colleges to provide proper answer to this technical invention.

Universities in the Western World financed a lot in technological infrastructures over 20 years ago, and learners adopts PC more frequent and for a much greater collection of applications tools (Volman, 2005). Numerous research disclose that learners adopting technological facilities regularly display greater learning achievements than persons that do not adopt. For example, Kulik's (1994) discovery across 75 researches in the United States displayed the following outcomes: Learners that adopted PC lessons in math, natural science, and social science were marked considerably greater on assessments in these courses. Learners that adopted simulation software in science also scored greater mark. The discoveries also showed that primary school learners that adopted lesson software in reading were marked considerably greater on reading scores. Most young learners that adopted PCs to compose their personal stories were marked considerably higher on evaluation of reading skill. Likewise, learners that adopted word processors or else adopted the PC for writing were marked high on evaluation of writing skill.

In the study conducted by Frederick and Kwame (2010), titled "perceptions of students, teachers and educational officers in Ghana on the role of computer and the teacher in promoting the first five principles of instruction" during this study three hundred 3rd year students were randomly picked from SHS for the purpose of their research. The research focused at determining the perceptions of learners, instructors, and instruction generals in Ghana on the function of the PC and the instructor in the execution of the first five principles of instruction for encouraging worthy teaching and learning process. Also, the research was aimed to discover the participants'

commendations for the teaching of the learners and instructors on the adoption of PC first of all, and also efficient teaching strategy principles by instructors on the other hand for the attainment of worthy educational setting. The aim is to attain a good pattern of planning and executing efficient education surroundings (combined with computer) to attain the contemporary objectives of pedagogy in Ghana as an emerging nation. The outcome of the research shows that in Ghana, learners possess solid perceptions that the PC can support the first five principles of instruction for effective education better than the instructor. For this reason, looking at the perspective of Ghanaian learners, it is essential to look more closely to the increment of computer systems in the teaching and learning setting so as to improve quality education. Their perceptions in this sense are in track with Kozma (1994), Schater (1999), Bector (2002), Sahhin & Toy (2009), to a great extent the Government and other personnel of Ghana. Learners' perceptions in this manner show that learners may consider the PC as the final way out to their educational difficulties or the PC may be a vital prerequisite to their educational difficulties. Ghanaian learners' perceptions in this manner are comparable to the features of "Digital Natives" or "Net Generations" (Prensky, 2001; Kenedy, Judd, Churchward, & Gray, 2008). Prensky (2001) described that Digital Natives have expended their whole lives bounded by and adopting PCs, digital music, mobile phones and other tools of digital era. He further stated that the Digital beliefs and surroundings which the natives grew up in had transformed the manner at which they reason and consequently the way they perceive education. Digital natives depend greatly on communication/interactive technological tools to obtain data and they possess a little patience to instruction by the instructors. Nevertheless, their perceptions are in disagreement with the suggestions of (Clark 1999; Sarfo & Elen 2007) that efficient

teaching plan by the instructor other than technology e.g. computer, is a proper way of attaining superior education. One potential purpose for the learners' perceptions not in track with the statement of Clark (1999) and Sarfo & Elen (2007) is that learners may not possess proper experience and ideas about the strong point and flaws of numerous teaching methods and media; they also might not possess adequate experience and disclosure to the first five principles of teaching and consequently would not establish any tangible judgment on efficient ways of supporting better educational values.

Another current research of 94 primary students in four Midlands colleges (McNicol et al, 2014) showed the continuous impact of home, institutions and locality on the degree and ways of technological tool adoption in teaching and learning. The degree of this different, outside college adoption of technological tools were also viewed as pertinent. It has been mentioned from initial days and it is still mentioned until this present era.

Davis, Bagozzi and Warshaw (1989), established a research of 'action relating to reasons' (ICT reception) built on the research of Ajzen and Fishbein (in Davis et al, 1989) to examine the purpose why most individuals adopt PCs, and their perception to them. The model, displayed in *Figure 2* below, connects the perceived usefulness and easiness of adoption with the perception towards adopting technological tools and the actual adoption (PC usage). They experimented this model with 107 adult users that had been adopting an administrative system for 14 weeks. They discovered that individual's PC usage were connected to their purpose to use PCs, and perceived importance were also powerfully connected to this purpose. This promotes the aim of

this dissertation about perception of students on the usefulness of ICT tools and its usage.

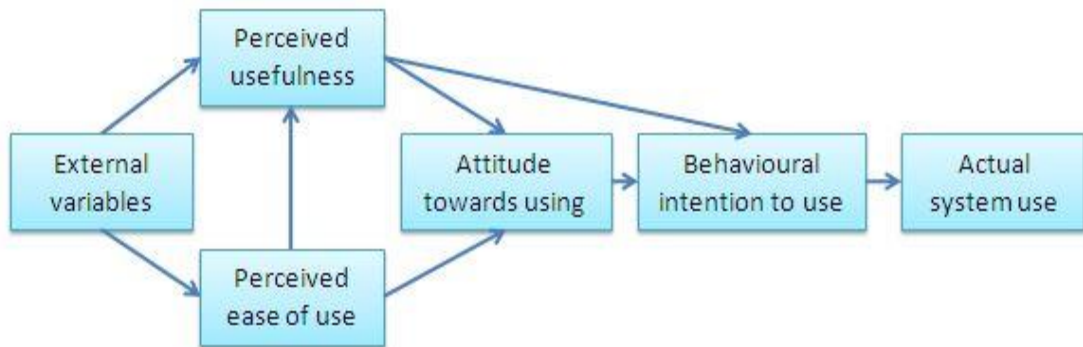


Figure 1: Technology acceptance model (Davis, Bagozzi and Warshaw, 1989)

Since the old days of adopting small microcomputers, there have been statements of learners remaining quite longer on the assignment, growing their dedication to education, attaining more via the usage of PCs and also being passionate about computer usage in their classes.

Via the usage of word processing, learners who formally do badly at writing and possess slight passion in this area of activity, develop their self-worth, their dedication and endurance in the education tasks. In a research by Cox (1997) of the perception of 144 students on how ICT helped in their college activity, more than 70 per cent of the students agreed that it assisted them to accomplish an improved value of school work:

“Computers are very useful machines. You can set out and present your work very well. You can type up essays and other information. When a mistake is made you can go back and delete the mistake or amend your document unlike typewriters where you have to use Tippex.”

Female secondary school student – aged 13 (Cox, 1997 p.17)

Becta (2001) cited Becker (2000) on the debate that learners are usually more ‘on task’ and show more optimistic moods if using PCs more than when provided with other tasks to perform. Likewise, the volume of non-task directed attitude drastically reduced during PC and teaching and learning sessions, following the usage of multimedia programmes for reading and spelling (*Becta citing Van Daal and Reitsma 2000*). Therefore, adopting digital video as part of learning tasks enhanced behavior and on task focus.

Becta (2004) cited Van Daal and Reitsma (2000) that “... learners with little levels of inspiration and moods of doubt concerning their learning abilities can display a more optimistic conduct during teachings adopting PCs than during conventional teachings”. Harris and Kington (2002), unveiled a range of optimistic influences of ICT tools on learners, together with improved capability to work individually, improved self-confidence in interacting with colleagues outside the college and family spheres, improved appearance at class and improved group activities and collaborative skills. Learners who adopt ICT in college felt more fulfilling in class, they were more inspired to learn and possess high personal-confidence and self-esteem, Becta also stated that “laptops inspired learners to engage lengthier and harder with an amplified superiority in their activities.”

It is obvious via these concepts, which have been investigated via numerous experimental studies, that the inspirational influence of technological tool, will have a significant impact on learners’ perception to learning, which invariably maintains a constructive influence on students’ accomplishment. It should be known, nevertheless, that these concepts only apply if the ICT activity is stimulating, inspiring and fulfilling. Evidences are available through several researches that

students can be bored and uninterested with some ICT engagements, just like any other teaching process.

Chapter 3

METHODOLOGY

This part of this dissertation focuses on discussing the approaches that will be adopted in carrying out the investigation of the topic case; which entails analyzing EMU student's awareness on the use of ICT educational tools and the effectiveness of such tools. Detailed explanation will be given about research design, sample data and case study, data collection, techniques and data analysis.

3.1 Research Method

This research study is a descriptive study that is exploratory in nature, and it involves a correlational element. Creswell (2003) advised that exploratory research is very helpful when “not much has been written about the topic or the research group being studied”. Descriptive research also known as survey research is majorly related with awareness, opinions, practices, procedures demographics and preferences (Gay and Airasian, 2000). The results of the quantitative analysis were supported by comprehensive interviews. This qualitative section was carried out not just to collect more comprehensive information but also to ensure the validity of the results. Gelsne (1998), stated that, the collection of multiple data approach leads to the validity of the data. Interviews became major advantage to explore on the unmet issues that the questionnaire generated and to also have an in-depth knowledge of students' awareness of ICT tools.

3.2 Research Group

Best and Khan (1993) explained a research group as “any group of individuals that have one or more characteristics in common that are of interest to the researcher”. The research group the researcher would actually like to generalize to is known as target research group (Gay and Airasian, 2000). The target population for this work is EMU undergraduate IT students in Famagusta, during Spring semester 2015 session in which the total populations of IT undergraduate students are 480 students.

3.2.1 Sample

A subset of the population which is referred to as the sample according to Wiersma (2000), will be selected using convenience sampling approach and thus will be administered a questionnaire for data gathering. And purposive sampling techniques will be carried out for interview participants. According to Patton (1990), “An intensity sample consists of information-rich cases that manifest the phenomenon of interest intensely (but not extremely)” The standard for selecting the interviewees will be based on their “intense” response to the crucial subject pertinent to the study.

The total number of questionnaire that was issued out were 140 pieces but respondent could only fill out 120 copies and the remaining 20 copies were unreturned due to factors concerned with the respondents. The questionnaire contains 55 questions that encompasses the whole ares of the research questions.

Participants for this dissertation comprises of 120 EMU undergraduate IT students, randomly selected, from year 1 to year 4 of the IT Department of EMU. Additionally, 17 students were also selected for interview purpose. They gave their

responses according to the 5 interview questions prepared to validate the gaps in the questionnaire.

Table 1. Demographics

		Frequency	Percent
Gender	Male	72	60.0
	Female	48	40.0
	Total	120	100.0
Age	20-25	44	36.7
	25-35	48	40
	35 and older	28	23.3
	Total	120	100
Year of experience	1	42	35.0
	2	46	38.3
	3	27	22.5
	4 And Higher	5	4.2
	Total	120	100

As it is shown in Table 1, out of the 120 students 72 were females which is approximately 60% of the sample while 48 of the remaining students were male students which is 40% of the sample group. Their age range were between 18-20 of which 36.7% of the sample lies in that age range, 21-22 has 40% of the student selected for the sample while the remaining 23 and older range were made up of 23.3% of the group.

Also according to their years of studies in terms of Levels, 35% of the sample group falls under the Level of year one students, 38.3% of the selected sample group also falls under the year of study Level 2, 22.5% of the group falls under the year of study Level 3 while the remaining 4.2% were in Level 4 as of the time the study was conducted.

3.3 Data Collection Tool and Techniques

Quantitative and qualitative approaches are adopted in this study to allow for the collection of data on the population of IT undergraduate students in EMU, Famagusta Cyprus through a questionnaire. The questionnaire for this study was invented by Anal Rhema and Iwona Miliszewska in their work “Analysis of student attitudes towards E-learning: The Case of Engineering Students in Libya” (Rhema and Miliszewska 2014). Questionnaires were given to participants in a bid to obtain data necessary for the research goal; 120 questionnaires were shared to 120 participants and also, five interview questions were also asked to 17 respondents each, during data collection process. The questionnaire was designed into two sections of which the first part comprises of the demographics and the second part contains 55 questions that relates to the whole research question of the dissertation. This is to ensure validity and reliability of the research and to deliberate on the critical issues meant for investigation throughout the study.

The questionnaire adopts a five point rating scale for the first part of the second section of the questionnaire namely: For Learning Purpose, For Other Purpose, Not Skilled at all, Neutral, and Very Skilled. While the second section of the questionnaire adopts the five point Likert Scale to measure the degree of responses from the respondents.

Collected data will be arranged and further compiled into a database in the Statistical Package for the Social Sciences (SPSS) and will further be analyzed according to a descriptive statistics test or assessment. Thompson (2009), stated that descriptive

analysis method is adopted when gathering data into a pertinent statement for assimilation and stress free understanding.

3.4 Data Analysis

Qualitative analysis was adopted to display the total analysis of the whole data, by deriving the group mean, average mean, max and min point, significant difference, p value points, median and modal point. The t-test was adopted to analyze the data that has to do with only two variables in a group e.g. gender while ANOVA was used analyze variables that contains more than two variables like age and class level for the work through SPSS v.21.0 (IBM.org).

Chapter 4

FINDINGS AND DISCUSSIONS

This part of this research work focuses on the analyzing and interpreting of data gotten for investigating the awareness of EMU IT undergraduate students on the use of ICT tools and its usefulness and also to determine the existence of any relationship between and amongst their awareness based on age, gender and class level.

4.1 Awareness on the Use of ICT tools by participating EMU undergraduate IT students according to gender and class level

In this section student's awareness of the use of ICT tool according to gender and class level is analyzed to determine their significant differences and mean responses.

4.1.1 Awareness on the Use of ICT tools by participating EMU undergraduate IT students according to gender

Table 2 analysis student's awareness on the use of ICT according to gender and also the relationship between genders regarding the use of ICT tools.

Table 2. Gender awareness on the Use of Technology

		Gender	Mean	Std. Div.	Sig Diff.
Q1	Use a computer to manage or manipulate digital photos	Male	1.40	.494	.768
		Female	1.42	.498	
Q2	Use a computer to create presentations	Male	1.47	.503	.887
		Female	1.52	.505	
Q3	Use a computer to create or edit audio and video	Male	1.53	.503	.763
		Female	1.54	.504	
Q4	Use a computer to play games	Male	1.51	.503	.333
		Female	1.56	.501	
Q5	Use the internet web or a LAN to play network games	Male	1.51	.503	.085
		Female	1.40	.494	
Q6	Use a hand-hold computer as a personal organizer	Male	1.44	.500	.131
		Female	1.38	.489	
Q7	Use the web to access a portal, course or learning management system	Male	1.39	.491	.759
		Female	1.63	.489	
Q8	Use the web to look up reference information	Male	1.44	.500	.529

		Female	1.48	.505	
Q9	Use the web for pastimes	Male	1.53	.503	.343
		Female	1.56	.542	
Q10	Use the web/internet to send or receive email	Male	1.53	.503	.703
		Female	1.50	.505	
Q11	Use the web/internet for instant messaging/chat	Male	1.56	.500	.881
		Female	1.56	.501	
Q12	Use the web to build and maintain a website	Male	1.44	.500	.775
		Female	1.54	.504	
Q13	Use social networking software on the web	Male	1.54	.502	.366
		Female	1.58	.498	
Q14	Use the web to download podcasts	Male	1.57	.499	.444
		Female	1.60	.494	
Q15	Use the web to publish podcast	Male	1.46	.502	.567
		Female	1.50	.505	
Q16	Use the web to share photographs or other digital material	Male	1.57	.499	.032
		Female	1.67	.476	
Q17	Use the web to make phone calls	Male	1.56	.500	.017
		Female	1.67	.476	
Q18	Use the web for web conferencing	Male	1.46	.502	.029
		Female	1.65	.483	
Q19	Use the web to keep your own blogs or vlogs	Male	1.46	.502	.691
		Female	1.52	.505	
Q20	Use the web to read other people's blogs or vlogs	Male	1.47	.503	.887
		Female	1.48	.505	
Q21	Use the web to comment on blogs and vlogs	Male	1.51	.503	.085
		Female	1.40	.494	
Q22	Use the web to contribute to the development of a wiki	Male	1.47	.503	.049
		Female	1.63	.489	
Q23	Use a mobile phone to text/msm people	Male	1.49	.503	.564
		Female	1.54	.504	
Q24	Use a mobile phone to access information services on the web	Male	1.54	.502	.650
		Female	1.44	.501	
Q25	Use a mobile phone to send or receive email	Male	1.51	.503	.880
		Female	1.52	.505	

Significant point = $*p < 0.05$ Average Mean = male 1.48, female 1.53
Rating scale: *For Learning Purpose, *For Other Purpose, *Do not know this Technology.

Table 2 show the awareness relationship between genders regarding the use of ICT tools. 25 questions cover the use of ICT as a dependable factor on gender usage of ICT, Q16, Q17, Q18 and Q22 all have significant outcomes which appears to be lower than the P value of < 0.05 , which is the significant point set for this study. Such four questions which is about just 16% of the total questions that covers areas of using ICT tools for sharing photographs, making phone calls, for web conferencing and for the development of wiki, invariably, shows that male and female EMU IT undergraduates students have significant differences on their perception on gender

use of ICT tools and as such shows no relationship of ICT usage on such subject. The remaining 84% of the questions in Table 2, clearly prove their significant points far above the P value of <0.05 and therefore displays that there is no significant difference on the awareness of opposite genders of EMU IT students on their usage of ICT tools to carry out various activities stated in the above questions. Therefore, a strong relationship exists between the genders awareness on their usage of ICT educational tool.

With the average mean of 1.48 for male and 1.53 for female, in Table 2, 60% of the male responses are above the average mean for male students while 24% of the female respondents have their mean score above average. This signifies also that male student of EMU IT students uses ICT tools than female students of EMU IT students on general level of ICT usage.

In a direct response from student A, “I can’t really say, but I don’t think that what we girls use devices for is different from what guys use it for too. Except that we girls don’t actually engage in playing games and doing all kinds of programming and hacking. Except those, I don’t think any difference exist”.

Jorge et al. (2003), in a similar study discovered that ICT tools usage is often less used by female category and further reported that male often get used to ICT before their female counterpart and uses ICT tools more regularly and in several settings and have larger experience of numerous software.

4.1.2 Awareness on the Use of ICT tools by participating EMU undergraduate IT students according to class level

Table 3 analysis student's awareness on the use of ICT according to class level and also the relationship between class levels regarding the use of ICT tools

Table 3. Class- Level perception on the Use of Technology

		Class Level	Mean	Std. Div.	Sig Diff. Between and Within Groups
Q1	Use a computer to manage or manipulate digital photos	1	1.40	.497	.514
		2	1.48	.505	
		3	1.30	.465	
		4 & higher	1.40	.548	
Q2	Use a computer to create presentations	1	1.50	.506	.963
		2	1.48	.505	
		3	1.48	.509	
		4 & higher	1.41	.494	
Q3	Use a computer to create or edit audio and video	1	1.57	.501	.820
		2	1.48	.505	
		3	1.56	.506	
		4 & higher	1.60	.548	
Q4	Use a computer to play games	1	1.64	.485	.275
		2	1.43	.501	
		3	1.52	.509	
		4 & higher	1.60	.548	
Q5	Use the internet web or a LAN to play network games	1	1.43	.501	.680
		2	1.52	.505	
		3	1.41	.501	
		4 & higher	1.60	.548	
Q6	Use a hand-hold computer as a personal organizer	1	1.33	.477	.229
		2	1.43	.501	
		3	1.56	.506	
		4 & higher	1.20	.447	
Q7	Use the web to access a portal, course or learning management system	1	1.55	.504	.334
		2	1.50	.506	
		3	1.33	.480	
		4 & higher	1.60	.548	
Q8	Use the web to look up reference information	1	1.38	.492	.328
		2	1.48	.505	
		3	1.48	.509	
		4 & higher	1.80	.447	
Q9	Use the web for pastimes	1	1.55	.504	.517
		2	1.57	.501	
		3	1.44	.577	
		4 & higher	1.80	.447	
Q10	Use the web/internet to send or receive email	1	1.43	.501	.107
		2	1.54	.504	
		3	1.52	.509	
		4 & higher	2.00	.000	
Q11	Use the web/internet for instant messaging/chat	1	1.55	.504	.840
		2	1.52	.505	
		3	1.63	.492	
		4 & higher	1.60	.548	

Q12	Use the web to build and maintain a website	1	1.48	.505	.964
		2	1.48	.505	
		3	1.48	.509	
		4 & higher	1.60	.548	
Q13	Use social networking software on the web	1	1.57	.501	.747
		2	1.50	.506	
		3	1.63	.492	
		4 & higher	1.60	.548	
Q14	Use the web to download podcasts	1	1.50	.506	.561
		2	1.61	.493	
		3	1.67	.480	
		4 & higher	1.60	.548	
Q15	Use the web to publish podcast	1	1.50	.506	.964
		2	1.46	.504	
		3	1.48	.509	
		4 & higher	1.40	.548	
Q16	Use the web to share photographs or other digital material	1	1.64	.485	.956
		2	1.59	.498	
		3	1.59	.501	
		4 & higher	1.60	.548	
Q17	Use the web to make phone calls	1	1.55	.504	.614
		2	1.59	.498	
		3	1.67	.480	
		4 & higher	1.80	.447	
Q18	Use the web for web conferencing	1	1.45	.504	.386
		2	1.59	.498	
		3	1.52	.509	
		4 & higher	1.80	.447	
Q19	Use the web to keep your own blogs or vlogs	1	1.43	.501	.796
		2	1.52	.505	
		3	1.52	.509	
		4 & higher	1.40	.548	
Q20	Use the web to read other people's blogs or vlogs	1	1.45	.504	.520
		2	1.48	.505	
		3	1.56	.506	
		4 & higher	1.20	.447	
Q21	Use the web to comment on blogs and vlogs	1	1.48	.505	.633
		2	1.46	.504	
		3	1.52	.509	
		4 & higher	1.20	.447	
Q22	Use the web to contribute to the development of a wiki	1	1.55	.504	.628
		2	1.59	.498	
		3	1.44	.506	
		4 & higher	1.40	.548	
Q23	Use a mobile phone to text/msm people	1	1.57	.501	.592
		2	1.50	.506	
		3	1.41	.501	
		4 & higher	1.60	.548	
Q24	Use a mobile phone to access information services on the web	1	1.55	.504	.370
		2	1.48	.505	
		3	1.41	.501	
		4 & higher	1.80	.447	
Q25	Use a mobile phone to send or receive email	1	1.57	.501	.088
		2	1.43	.501	
		3	1.48	.509	
		4 & higher	2.00	.000	

Significant point = * $p < 0.05$.

Group Average mean = **1.45**

Rating scale: *For Learning Purpose, *For Other Purpose, *Do not know this Technology

Table 3 shows the perceptual relationship between and within Class Levels of EMU IT undergraduate students regarding the use of ICT tools, as same 25 questions were used to compare the Use of ICT tool as a dependable variable on students class levels (year of study) in using ICT. All the questions which covers such dependable factor has a high figure above the *P value* of 0.05, which is the significant point. This statistically signifies that a strong relationship exist at the various class levels perceptions on the usage of ICT tools. With the lowest significant difference point of 0.08 for Q25 which proofs that students of different class levels have relational responses on their perception on the use of mobile phone to send e-mail, appears to be far beyond the significant point and show no significant difference. Like Q7 shows a strong relationship on the perception of students based on their different class levels, i.e. no significant difference exist between them.

The average mean of 1.45 and the standard deviation of all the measures (questions) been less than (1), clearly shows that perceptions falls within and around the average mean, and also 95% of each class level mean is way above the general average mean. From this it can be understood that there is a general high usage of ICT tools amongst class levels

Student B, clearly answered “yes I think that there is a little difference when it comes to using IT learning tools by different class levels. You don’t expect a first semester IT student to know how to handle sophisticated software for programming the way a final year IT student will. But if you say for other purpose like socializing, especially outside academics then there is no too much differences”.

Another 4th year student C, answered that “in EMU, we almost use the same ICT tool for learning throughout our level of study, and there is no much special difference as to class level as a reason for using ICT tools. Unless it depends on the course been taught”.

Jaffer, Ng’ambi and Czerniewicz (2007) recommended that quantitative analysis of class levels of ICT use was a beneficial approach in addressing persistent education.

4.2 Age and Class level comparison on the Skills of Using ICT tools by participating EMU undergraduate IT students

This section compared student’s awareness on the skill of using ICT tool according to age and class level to determine their significant differences and mean responses.

4.2.1 Age comparison on the Skills of Using ICT tools by participating EMU undergraduate IT students

Table 4 compares student’s awareness on the skill of using ICT tools according to age and also the relationship between ages regarding their skills in using ICT tools.

Table 4. Awareness of students on Skills of Using ICT tools according to Age

		Age	Mean	Std. Div.	Sig Diff. Between and Within Groups
Q1	Use a computer to manage or manipulate digital photos	18-20	1.32	.471	.208
		21-22	1.50	.505	
		23 and older	1.39	.497	
Q2	Use a computer to create presentations	18-20	1.50	.506	.976
		21-22	1.48	.505	
		23 and older	1.50	.509	
Q3	Use a computer to create or edit audio and video	18-20	1.61	.493	.189
		21-22	1.54	.504	
		23 and older	1.39	.497	
Q4	Use a computer to play games	18-20	1.55	.504	.701
		21-22	1.56	.501	
		23 and older	1.46	.508	
Q5	Use the internet web or a LAN to play network	18-20	1.66	.479	.003

	games	21-22	1.40	.494	
		23 and older	1.29	.460	
Q6	Use a hand-held computer as a personal organizer	18-20	1.45	.504	.506
		21-22	1.44	.501	
		23 and older	1.32	.476	
Q7	Use the web to access a portal, course or learning management system	18-20	1.48	.505	.741
		21-22	1.52	.505	
		23 and older	1.43	.504	
Q8	Use the web to look up reference information	18-20	1.43	.501	.649
		21-22	1.44	.501	
		23 and older	1.54	.508	
Q9	Use the web for pastimes	18-20	1.64	.532	.237
		21-22	1.52	.505	
		23 and older	1.43	.504	
Q10	Use the web/internet to send or receive email	18-20	1.52	.505	.980
		21-22	1.52	.505	
		23 and older	1.50	.509	
Q11	Use the web/internet for instant messaging/chat	18-20	1.59	.497	.290
		21-22	1.60	.494	
		23 and older	1.43	.504	
Q12	Use the web to build and maintain a website	18-20	1.50	.506	.807
		21-22	1.50	.505	
		23 and older	1.43	.504	
Q13	Use social networking software on the web	18-20	1.66	.479	.217
		21-22	1.52	.505	
		23 and older	1.46	.508	
Q14	Use the web to download podcasts	18-20	1.50	.506	.163
		21-22	1.69	.468	
		23 and older	1.54	.508	
Q15	Use the web to publish podcast	18-20	1.52	.505	.359
		21-22	1.50	.505	
		23 and older	1.36	.488	
Q16	Use the web to share photographs or other digital material	18-20	1.57	.501	.571
		21-22	1.67	.476	
		23 and older	1.57	.504	
Q17	Use the web to make phone calls	18-20	1.57	.501	.241
		21-22	1.69	.468	
		23 and older	1.50	.509	
Q18	Use the web for web conferencing	18-20	1.43	.501	.192
		21-22	1.56	.501	
		23 and older	1.64	.488	
Q19	Use the web to keep your own blogs or vlogs	18-20	1.41	.497	.336
		21-22	1.56	.501	
		23 and older	1.46	.508	
Q20	Use the web to read other people's blogs or vlogs	18-20	1.55	.504	.165
		21-22	1.50	.505	
		23 and older	1.32	.476	
Q21	Use the web to comment on blogs and vlogs	18-20	1.41	.497	
		21-22	1.54	.504	.406
		23 and older	1.43	.504	
Q22	Use the web to contribute to the development of a wiki	18-20	1.57	.501	.811
		21-22	1.50	.505	
		23 and older	1.54	.508	
Q23	Use a mobile phone to text/msm people	18-20	1.50	.506	.976
		21-22	1.52	.505	
		23 and older	1.50	.509	
Q24	Use a mobile phone to access information services on the web	18-20	1.59	.497	.253
		21-22	1.42	.498	
		23 and older	1.50	.509	

Q25	Use a mobile phone to send or receive email	18-20	1.55	.504	.800
		21-22	1.52	.505	
		23 and older	1.46	.508	

*Significant point = *p<0.05. Group Average mean =1.46*

*Rating scale: *not skilled at all, *not very skilled, *neutral, *skilled, *very skilled*

Table 4 also shows the awareness relationship between and within age groups of EMU IT undergraduate students on their Skills in using ICT tools. 25 questions were used as measures to determine their skills in using ICT tools as dependable factor on student's age differences. From table 5, it can be observed that all the measures (questions), except one, produced a significant figure beyond the set point of P value of less than 0.05 error chance. This statistically proves that there is no significant differences as regards their various awareness on the wielded skills in using ICT tools. Q5 which shows a low significant point of 0.003 below the *P value* of 0.05 denotes that, in the use of web or Local Area Network (LAN) to play network games; the students produced difference in awareness responses according to their various ages.

The average mean of 1.46 and the standard deviation score of less than (1) for all measures (questions), statistically denotes that table 4 has a cluster mean (responses) within range, and further proves the existence of a strong positive relationship on various awareness on skills of students of different age group. Such relationship exist showing that 70% of EMU IT students are skilled or very skilled on the manipulation of ICT tools, while 15% of the students are neutral on the handling of ICT tools as seen from Table 10 below.

According to student B, "ICT gadget are at every ones disposal, both old and young. It depends on what tools you master, not what age you become".

Student D, says that “age doesn’t make one knowledgeable on being professional in handling a particular instrument of technology, a student becomes better when he practices a lot on that particular tool”.

Weston and Brain (2010), in his study similar to this one, discovered that students of younger age are more passionate and motivated on the courses and subjects that have ICT blended in the teaching and learning activities.

4.2.2 Class level comparison on the Skills of Using ICT tools by participating EMU undergraduate IT students

Table 5 compares student’s awareness on the skill of using ICT tools according to class level, and also the relationship between class levels regarding their skills in using ICT tools.

Table 5. Awareness of Class-Level on Skill of Using ICT tools.

		Class Level	Mean	Std. Div.	Sig Diff. Between and Within Groups
Q1	Use a computer to manage or manipulate digital photos	1	1.40	.497	.514
		2	1.48	.505	
		3	1.30	.465	
		4 & higher	1.40	.548	
Q2	Use a computer to create presentations	1	1.50	.506	.963
		2	1.48	.505	
		3	1.48	.509	
		4 & higher	1.60	.548	
Q3	Use a computer to create or edit audio and video	1	1.57	.501	.820
		2	1.48	.505	
		3	1.56	.506	
		4 & higher	1.60	.548	
Q4	Use a computer to play games	1	1.64	.485	.275
		2	1.43	.501	
		3	1.52	.509	
		4 & higher	1.60	.548	
Q5	Use the internet web or a LAN to play network games	1	1.43	.501	.680
		2	1.52	.505	
		3	1.41	.501	
		4 & higher	1.60	.548	
Q6	Use a hand-hold computer as a personal organizer	1	1.33	.477	.229
		2	1.43	.501	
		3	1.56	.506	
		4 & higher	1.20	.447	

Q7	Use the web to access a portal, course or learning management system	1	1.55	.504	.334
		2	1.50	.506	
		3	1.33	.480	
		4 & higher	1.60	.548	
Q8	Use the web to look up reference information	1	1.38	.492	.328
		2	1.48	.505	
		3	1.48	.509	
		4 & higher	1.80	.447	
Q9	Use the web for pastimes	1	1.55	.504	.517
		2	1.57	.501	
		3	1.44	.577	
		4 & higher	1.80	.447	
Q10	Use the web/internet to send or receive email	1	1.43	.501	.107
		2	1.54	.504	
		3	1.52	.509	
		4 & higher	2.00	.000	
Q11	Use the web/internet for instant messaging/chat	1	1.55	.504	.840
		2	1.52	.505	
		3	1.63	.492	
		4 & higher	1.60	.548	
Q12	Use the web to build and maintain a website	1	1.48	.505	.964
		2	1.48	.505	
		3	1.48	.509	
		4 & higher	1.60	.548	
Q13	Use social networking software on the web	1	1.57	.501	.747
		2	1.50	.506	
		3	1.63	.492	
		4 & higher	1.60	.548	
Q14	Use the web to download podcasts	1	1.50	.506	.561
		2	1.61	.493	
		3	1.67	.480	
		4 & higher	1.60	.548	
Q15	Use the web to publish podcast	1	1.50	.506	.964
		2	1.46	.504	
		3	1.48	.509	
		4 & higher	1.40	.548	
Q16	Use the web to share photographs or other digital material	1	1.64	.485	.956
		2	1.59	.498	
		3	1.59	.501	
		4 & higher	1.60	.548	
Q17	Use the web to make phone calls	1	1.55	.504	.614
		2	1.59	.498	
		3	1.67	.480	
		4 & higher	1.80	.447	
Q18	Use the web for web conferencing	1	1.45	.504	.386
		2	1.59	.498	
		3	1.52	.509	
		4 & higher	1.80	.447	
Q19	Use the web to keep your own blogs or vlogs	1	1.43	.501	.796
		2	1.52	.505	
		3	1.52	.509	
		4 & higher	1.40	.548	
Q20	Use the web to read other people's blogs or vlogs	1	1.45	.504	.520
		2	1.48	.505	
		3	1.56	.506	
		4 & higher	1.20	.447	
Q21	Use the web to comment on blogs and vlogs	1	1.48	.505	.633
		2	1.46	.504	
		3	1.52	.509	
		4 & higher	1.20	.447	

Q22	Use the web to contribute to the development of a wiki	1	1.55	.504	.628
		2	1.59	.498	
		3	1.44	.506	
		4 & higher	1.40	.548	
Q23	Use a mobile phone to text/msm people	1	1.57	.501	.592
		2	1.50	.506	
		3	1.41	.501	
		4 & higher	1.60	.548	
Q24	Use a mobile phone to access information services on the web	1	1.55	.504	.370
		2	1.48	.505	
		3	1.41	.501	
		4 & higher	1.80	.447	
Q25	Use a mobile phone to send or receive email	1	1.57	.501	.088
		2	1.43	.501	
		3	1.48	.509	
		4 & higher	2.00	.000	

*Significant point = *p<0.05. Group Average Mean =1.60
Rating scale: *not skilled at all, *not very skilled, *neutral, *skilled, *very skilled*

Table 5 shows the students awareness relationship between and within Class Levels regarding the skills level of using ICT tools as a dependable factor. All the questions shows that there is no significant differences on class level usage. All the questions used as a measure for this study shows no significant differences on class levels awareness on the skill of using ICT tools, this is evident as all the significant figure were all > 0.05 significant point.

Table 5 also has a group average mean of 1.60 and also all the standard deviation score are below (1). It is comprehended that each mean score of individual class were not very far from the group average mean, and thus proves a strong relationship as to the responses on their awareness on the skills of EMU IT students on ICT usage based on class level differences.

Student E, directly responded that “I think that students of different class should have the same skill level set when it comes to using educational ICT tools, I believe that it is not much of a difference when it comes to ICT tool usage in all courses and IT classes”.

4.3 EMU undergraduate IT students' awareness level on the

Usefulness of ICT tools in education

This section, analyzes student's awareness level on the usefulness of ICT tools by showing their percentage level of awareness based on individual responses.

4.3.1 General awareness level on the Usefulness of ICT tools in Education

Table 6 analyzes student's awareness level on the usefulness of ICT tools, based on percentages and mean responses.

Table 6. Students' awareness level on Usefulness of ICT tools.

		SD		D		N		A		SA		Mean
		n	%	n	%	n	%	n	%	n	%	
Q26	Design and build web pages	1	.8	7	5.8	16	13.3	50	41.7	46	38.3	4.11
Q27	Create and present multimedia shows	2	1.7	5	4.2	11	9.2	52	43.3	49	40.8	4.20
Q28	Create and present audio/video	2	1.7	4	3.3	20	16.7	53	44.2	41	34.2	4.06
Q29	Create spreadsheets	1	.8	4	3.3	21	17.5	59	49.2	35	29.2	4.03
Q30	Use programming languages	2	1.7	3	2.5	12	10.0	62	51.7	41	34.2	4.14
Q31	Use matlab to simplify the implementation of numerical linear algebra routines	2	1.7	4	3.3	21	17.5	45	37.5	48	40.0	4.11
Q32	Download or access online audio/video recordings of lectures	3	2.5	2	1.7	16	13.3	58	48.3	41	34.2	4.10
Q33	Download or access online audio/video recordings of supplementary content material	2	1.7	5	4.2	13	10.8	57	47.5	43	35.8	4.12
Q34	Use the web to access university based services	3	2.5	2	1.7	17	14.2	55	45.8	43	35.8	4.11
Q35	Use your mobile phone to access web-based university services information or services	2	1.7	8	6.7	25	20.8	49	40.8	36	30.0	3.91
Q36	Use instant messaging/chat on the web to communicate/collaborate with other students in the course	2	1.7	4	3.3	24	20.0	48	40.0	42	35.0	4.03
Q37	Use instant messaging/chat on the web to communicate with lecturing and administrative staff	-	-	10	8.3	29	24.2	49	40.8	32	26.7	3.86
Q38	Use social networking software on the web to	6	5.0	18	15.0	31	25.8	40	33.3	25	20.8	3.50

	communicate/collaborate with other students											
Q39	Use the web to share digital files related to your course	2	1.7	8	6.7	15	12.5	56	46.7	39	32.5	4.02
Q40	Use web conferencing or video chat to communicate/collaborate with other students	4	3.3	4	3.3	22	18.3	53	44.2	37	30.8	3.96
Q41	Keep your own blogs as part of your course requirements	3	2.5	4	3.3	24	20.0	52	43.3	37	30.8	3.97
Q42	Contribute to another blog as part of course requirements	5	4.2	5	4.2	18	15.0	56	46.7	36	30.0	3.94
Q43	Contribute to students to the development of wiki as part of the course requirements	2	1.7	2	1.7	23	19.2	55	45.8	38	31.7	4.04
Q44	Receive grades/marks from your lecturer via text message on your mobile phone	4	3.3	6	5.0	22	18.3	50	41.7	38	31.7	3.93
Q45	Receive pre-class discussion questions from your lecturer via text message on your mobile phone	3	2.5	4	3.3	12	10.0	52	43.3	49	40.8	4.17
Q46	Receive administrative information about the course via text message on your mobile phone	3	2.5	3	2.5	20	16.7	51	42.5	43	35.8	4.07

*n=120, %=100, *Average mean = 3.835.

Rating scale: *SD-strongly disagree, *D-disagree, *N-neutral, *A-agree, *SA-strongly agree

Table 6 shows general level of usefulness of ICT tools in learning. The maximum point for the table is 105 and minimum point appears to be 21. From the table it can be comprehended that more than 75% of the students responses falls in the range of agree and strongly agree, which is a positive result that shows a great usefulness of ICT tools on general educational purpose for students. 17% are actually neutral on their response as to the importance of ICT tools.

Table 6 also has an average mean of 3.85, and it is evidential that in all the individual mean score for the questions used to measure this variable 99% of them are all above the average mean and thus shows a great importance of ICT tools to EMU IT students in general.

Student F replied “of course, I don’t think that any course can survive without the inclusion of technology into the course content, I believe that such class would be boring and activities would be uninteresting”.

Student G replied also that “ICT helps me to understand my work easier, and I feel happy any time we have to do practical courses that involves ICT tools, this makes me so active in class”

Student A also says that “it is the love of operating IT tools and its general importance to the world that made him chooses IT department”

It is worth to mention that, Bector (2002), supports the findings in this study that ICT is trending and useful all aspects of life and still helping.

4.3.2 EMU undergraduate IT students awareness level on E-Learning

Table 7 analyzes student’s awareness level on e-learning, based on percentages and mean responses.

Table 7. Students’ awareness level on E-Learning

		SD		D		N		A		SA		Mean
		n	%	n	%	n	%	n	%	n	%	
Q47	I feel confident in using computers	1	.8	5	4.2	11	9.2	56	46.7	47	39.2	4.19
Q48	I enjoy using ICT for my studies	4	3.3	2	1.7	16	13.3	54	45.0	44	36.7	4.10
Q49	I believe that e-learning gives me the opportunity to acquire new knowledge	2	1.7	1	.8	16	13.3	54	45.0	47	39.2	4.19
Q50	I believe that e-learning enhances my learning experience	2	1.7	3	2.5	13	10.8	54	45.0	48	40.0	4.19
Q51	I believe that convenience is an important feature of e-learning	1	.8	2	1.7	14	11.7	49	40.8	54	45.0	4.28
Q52	E-learning increases the quality of learning because it integrates all forms of media	-	-	4	3.3	18	15.0	44	36.7	54	45.0	4.23
Q53	Adopting ict and e-learning allows for increased student	1	.8	1	.8	17	14.2	57	47.5	44	36.7	4.18

	satisfaction											
Q54	I would be interested in studying courses that uses e-learning	1	.8	4	3.3	23	19.2	55	45.8	37	30.8	4.03

**n=120, *%=100, *Average mean = 4.11. Max 40, Min 8.*

*Rating scale: *SD-strongly disagree, *D-disagree, *N-neutral, *A-agree, *SA-strongly agree*

Table 7 shows the general perception level of e-learning, with a maximum score of 40 and a minimum score 8. It can be comprehended that 80% of the responses of students fall under the rating scale of agree and strongly agree. Thus proving a positive response to e-learning usefulness. 12% of the responses are on a neutral scale showing the students negligence as too e-learning importance.

The average mean is 4.11 in Table 7 and this shows that about 96% of the total responses on questions measuring e-learning importance are above the average mean. This statistically proves that there is a high recognition of e-learning and its importance to students.

Student H, in her reply on the usefulness of e-learning to her study “I believe that e-learning has helped me learn what I can’t learn in the classroom and has helped me a lot during my assignments and school works”.

Also another student I, replied that “e-learning has helped me on my researches, on my projects and also directly on my course work. By providing useful and suitable data for use during work activities”

4.4 Gender and Class level comparison on Awareness level of Usefulness of ICT tools Education by participating EMU undergraduate IT students

This section compares student's awareness level of usefulness of ICT tools according to gender and class level.

4.4.1 Gender comparison on awareness level of Usefulness of ICT tools in learning by participating EMU undergraduate IT students

Table 8 analyzes student's awareness level on the usefulness of ICT tools, based on genders by showing their significant differences and also their mean responses.

Table 8. Gender relationship on the awareness of usefulness of ICT tool.

		Gender	Mean	Std. Div.	Sig Diff.
Q26	Design and build web pages	Male	4.00	.979	.109
		Female	4.27	.765	
Q27	Create and present multimedia shows	Male	4.11	.987	.404
		Female	4.33	.753	
Q28	Create and present audio/video	Male	4.00	.979	.273
		Female	4.15	.743	
Q29	Create spreadsheets	Male	4.00	.805	.384
		Female	4.06	.861	
Q30	Use programming languages	Male	4.08	.884	.944
		Female	4.23	.722	
Q31	Use matlab to simply the implementation of numerical linear algebra routines	Male	3.97	.949	.858
		Female	4.31	.854	
Q32	Download or access online audio/video recordings of lectures	Male	3.93	.924	.921
		Female	4.35	.729	
Q33	Download or access online audio/video recordings of supplementary content material	Male	4.06	.948	.980
		Female	4.21	.771	
Q34	Use the web to access university based services	Male	4.11	.958	.545
		Female	4.10	.778	
Q35	Use your mobile phone to access web-based university services information or services	Male	4.03	.978	.718
		Female	3.73	.917	
Q36	Use instant messaging/chat on the web to communicate/collaborate with other students in the course	Male	4.06	.948	.893
		Female	4.00	.875	
Q37	Use instant messaging/chat on the web to communicate with lecturing and administrative staff	Male	3.78	.907	.156
		Female	3.98	.911	
Q38	Use social networking software on the web to communicate/collaborate with other students	Male	3.58	1.207	.141
		Female	3.38	1.003	
Q39	Use the web to share digital files related to your course	Male	3.97	.978	.275
		Female	4.08	.871	
Q40	Use web conferencing or video chat to communicate/collaborate with other students	Male	3.89	1.042	.322
		Female	4.06	.836	
Q41	Keep your own blogs as part of your course requirements	Male	3.96	1.027	.197

		Female	3.98	.785	
Q42	Contribute to another blog as part of course requirements	Male	3.93	1.066	.301
		Female	3.96	.898	
Q43	Contribute to students to the development of wiki as part of the course requirements	Male	4.03	.919	.365
		Female	4.06	.755	
Q44	Receive grades/marks from your lecturer via text message on your mobile phone	Male	3.82	1.117	.026
		Female	4.10	.778	
Q45	Receive pre-class discussion questions from your lecturer via text message on your mobile phone	Male	4.11	1.056	.073
		Female	4.25	.668	
Q46	Receive administrative information about the course via text message on your mobile phone	Male	3.97	1.007	.479
		Female	4.21	.771	

*Significant point = *p<0.05 *Average mean = male 3.86, female 3.85*

*Rating scale: *SD-strongly disagree, *D-disagree, *N-neutral, *A-agree, *SA-strongly agree*

Table 8 above, shows a gender awareness relationship on the usefulness of ICT tool. 21 questions cover the awareness level of usefulness of ICT tools as a dependable factor. Only Q44 showed a significant difference at a point of $0.026 < 0.05$ which is the significant point for this study. 98% of the remaining questions statistically proves to show that there is no significant difference on gender awareness of the usefulness of ICT tools.

Rosen and Michelle (1995), in his study concluded that male students are very experienced in operating basic software than their female counterparts, though there is no significant difference.

The average mean for this table shows 3.86 and 3.85 for male and female respectively. And 92% of all the individual responses (mean) both for male and female are far way above the average mean scores from the table. This statistically shows a higher awareness level in relationship amongst male and female on the usefulness of ICT tool and thus shows a strong relationship.

4.4.2 Class level comparison on awareness level of Usefulness of ICT tools in learning by participating EMU undergraduate IT students

Table 9 compares student's awareness level on the usefulness of ICT tools, based on Class levels by showing their significant differences and also their mean responses.

Table 9. Class-Level relationship on the awareness of Usefulness of ICT tool.

		Class Level	Mean	Std. Div.	Sig Diff. Between and Within Groups
Q26	Design and build web pages	1	4.19	.773	.174
		2	4.24	.822	
		3	3.78	1.121	
		4 & higher	4.00	1.225	
Q27	Create and present multimedia shows	1	4.26	.627	.001
		2	4.50	.753	
		3	3.70	1.137	
		4 & higher	3.60	1.517	
Q28	Create and present audio/video	1	4.19	.707	.027
		2	4.22	.814	
		3	3.63	1.182	
		4 & higher	3.80	.447	
Q29	Create spreadsheets	1	4.02	.680	.754
		2	4.11	.823	
		3	3.89	1.050	
		4 & higher	4.00	.707	
Q30	Use programming languages	1	4.19	.707	.084
		2	4.24	.673	
		3	3.81	1.145	
		4 & higher	4.60	.548	
Q31	Use matlab to simplify the implementation of numerical linear algebra routines	1	4.36	.692	.004
		2	4.13	.909	
		3	3.59	1.118	
		4 & higher	4.60	.548	
Q32	Download or access online audio/video recordings of lectures	1	4.33	.687	.002
		2	4.20	.749	
		3	3.56	1.086	
		4 & higher	4.20	1.095	
Q33	Download or access online audio/video recordings of supplementary content material	1	4.00	.826	.005
		2	4.46	.657	
		3	3.74	1.130	
		4 & higher	4.00	.707	
Q34	Use the web to access university based services	1	4.19	.671	.158
		2	4.24	.822	
		3	3.78	1.219	
		4 & higher	4.00	.707	
Q35	Use your mobile phone to access web-based university services information or services	1	3.81	.969	.384
		2	4.07	.772	
		3	3.89	1.188	
		4 & higher	3.40	1.140	
Q36	Use instant messaging/chat on the web to communicate/collaborate with other students in the	1	4.14	.814	.408
		2	4.07	.854	

	course	3	3.78	1.155	
		4 & higher	4.20	.837	
Q37	Use instant messaging/chat on the web to communicate with lecturing and administrative staff	1	3.88	.889	.315
		2	3.96	.815	
		3	3.59	1.083	
		4 & higher	4.20	.837	
Q38	Use social networking software on the web to communicate/collaborate with other students	1	3.40	1.191	.356
		2	3.72	.981	
		3	3.26	1.259	
		4 & higher	3.60	1.140	
Q39	Use the web to share digital files related to your course	1	4.26	.798	.058
		2	4.02	.931	
		3	3.74	1.059	
		4 & higher	3.40	.894	
Q40	Use web conferencing or video chat to communicate/collaborate with other students	1	4.17	.696	.030
		2	4.07	.904	
		3	3.52	1.312	
		4 & higher	3.60	.548	
Q41	Keep your own blogs as part of your course requirements	1	4.05	.854	.634
		2	3.98	.856	
		3	3.78	1.188	
		4 & higher	4.20	.837	
Q42	Contribute to another blog as part of course requirements	1	4.07	.778	.046
		2	4.00	.966	
		3	3.52	1.282	
		4 & higher	4.60	.548	
Q43	Contribute to students to the development of wiki as part of the course requirements	1	4.10	.726	.466
		2	4.13	.806	
		3	3.81	1.111	
		4 & higher	4.00	.707	
Q44	Receive grades/marks from your lecturer via text message on your mobile phone	1	4.07	.745	.016
		2	4.07	.854	
		3	3.41	1.421	
		4 & higher	4.40	.548	
Q45	Receive pre-class discussion questions from your lecturer via text message on your mobile phone	1	4.33	.650	.139
		2	4.22	.867	
		3	3.81	1.272	
		4 & higher	4.20	.837	
Q46	Receive administrative information about the course via text message on your mobile phone	1	4.21	.682	
		2	4.17	.797	
		3	3.67	1.330	.077
		4 & higher	4.00	.707	
Q47	I feel confident in using computers	1	4.17	.824	.646
		2	4.30	.662	
		3	4.07	1.107	
		4 & higher	4.00	.707	
Q48	I enjoy using ict for my studies	1	4.21	.682	.006
		2	4.28	.750	
		3	3.56	1.311	
		4 & higher	4.40	.894	
Q49	I believe that e-learning gives me the opportunity to acquire new knowledge	1	4.21	.871	.189
		2	4.35	.640	
		3	3.93	.997	
		4 & higher	4.00	.707	
Q50	I believe that e-learning enhances my learning experience	1	4.21	.782	.004
		2	4.41	.580	

		3	3.70	1.171	
		4 & higher	4.60	.548	
Q51	I believe that convenience is an important feature of e-learning	1	4.38	.764	.352
		2	4.26	.648	
		3	4.07	1.072	
		4 & higher	4.60	.548	
Q52	E-learning increases the quality of learning because it integrates all forms of media	1	4.38	.731	.094
		2	4.30	.695	
		3	3.89	1.086	
		4 & higher	4.20	.837	
Q53	Adopting ict and e-learning allows for increased student satisfaction	1	4.19	.740	.018
		2	4.35	.566	
		3	3.81	1.001	
		4 & higher	4.60	.548	
Q54	I would be interested in studying courses that uses e-learning	1	4.14	.683	.010
		2	4.20	.687	
		3	3.56	1.121	
		4 & higher	4.00	1.000	

*Significant point = *p<0.05 *Group Average mean = 2.58*

*Rating scale: *SD-strongly disagree, *D-disagree, *N-neutral, *A-agree, *SA-strongly agree*

Table 9 shows the awareness level on usefulness of ICT tool and e-learning according to class level. 21 questions covers the usefulness of ICT tools and e-learning as dependable variables. Q27, Q28, Q31, Q32, Q33, Q39, Q40, Q42, Q44, Q47, Q49, Q52 and Q53 respectively carries a P value lower than 0.05 significant difference point. This statistically shows that 61.9% of the entire questions proves that there is a significant difference on class level awareness on the usefulness of ICT tool.

The group average mean of 2.58, appears not to be in range around the individual mean scores for each questions for measurement. This clearly proofs that the absence of mean clusters around the average mean supports the significant differences on the class level awareness on ICT usefulness.

Student J, in her analysis said that “I feel like quitting IT department most especially when I am about to enter my programming class not to talk of the exam, to me it is of

no importance and makes my studies hard and uninteresting, though I would have loved it if it is easier”.

Student K, “I am in my third year now and I still cannot boast of a single sophisticated ICT tools I can handle properly, how I wish everything is just theoretical and not practical at every point”. He further states that “e-learning would have been of good benefits to me if it is practiced in my department, but since it is not, it is useless to me within the school setting unless for home activities”.

Students L, states that “I would have failed woefully if not for the help of most ICT tools adopted which make academics faster and easier for me”.

Student M, “all the courses I took during the spring semester that has to do with ICT activities where all distinctions, because it took my time and finally paid me off at the end”.

4.5 EMU undergraduate IT students General Skills and the Level of Purpose on the Use of ICT tools

This section analyses student’s general skills and level of purpose on the use of ICT tools.

4.5.1 EMU undergraduate IT students General Skills on the Use of ICT tools

Table 10 analyzes student’s general skill level on using ICT tools, by showing their percentages and individual mean responses.

Table 10. General Skill level on Using ICT tools.

		Not Skilled at all		Not Very Skilled		Neutral		Skilled		Very Skilled		Mean
		n	%	n	%	n	%	n	%	n	%	
Q1	Use a computer to manage or manipulate digital photos	19	15.8	31	25.8	32	26.7	29	24.2	9	7.5	2.82
Q2	Use a computer to create presentations	22	18.3	30	25.0	27	22.5	30	25.0	11	9.2	2.82
Q3	Use a computer to create or edit audio and video	11	9.2	29	24.2	37	30.8	26	21.7	17	14.2	3.08
Q4	Use a computer to play games	12	10.0	25	20.8	38	31.7	27	22.5	18	15.0	3.12
Q5	Use the internet web or a LAN to play network games	8	6.7	25	20.8	39	32.5	35	29.2	13	10.8	3.17
Q6	Use a hand-held computer as a personal organizer	7	5.8	8	6.7	31	25.8	42	35.0	32	26.7	3.70
Q7	Use the web to access a portal, course or learning management system	8	6.7	13	10.8	27	22.5	42	35.0	30	25.0	3.61
Q8	Use the web to look up reference information	13	10.8	27	22.5	36	30.0	29	24.2	15	12.5	3.05
Q9	Use the web for pastimes	8	6.7	21	17.5	29	24.2	37	30.8	25	20.8	3.42
Q10	Use the web/internet to send or receive email	10	8.3	31	25.8	37	30.8	26	21.7	15	12.5	3.07
Q11	Use the web/internet for instant messaging/chat	5	4.2	25	20.8	35	29.2	38	31.7	17	14.2	3.31
Q12	Use the web to build and maintain a website	9	7.5	17	14.2	35	29.2	40	33.3	19	15.8	3.36
Q13	Use social networking software on the web	10	8.3	19	15.8	29	24.2	36	30.0	26	21.7	3.41
Q14	Use the web to download podcasts	5	4.2	20	16.7	34	28.3	37	30.8	24	20.0	3.46
Q15	Use the web to publish podcast	3	2.5	21	17.5	35	29.2	36	30.0	25	20.8	3.49
Q16	Use the web to share photographs or other digital material	6	5.0	20	16.7	31	25.8	33	27.5	30	25.0	3.51
Q17	Use the web to make phone calls	5	4.2	18	15.0	37	30.8	34	28.3	26	21.7	3.48
Q18	Use the web for web conferencing	4	3.3	18	15.0	33	27.5	39	32.5	26	21.7	3.54
Q19	Use the web to keep your own blogs or vlogs	5	4.2	20	16.7	33	27.5	36	30.0	26	21.7	3.48
Q20	Use the web to read other people's blogs or vlogs	2	1.7	14	11.7	29	24.2	41	34.2	34	28.3	3.76
Q21	Use the web to comment on blogs and vlogs	-	-	8	6.7	19	15.8	54	45.0	39	32.5	4.03
Q22	Use the web to contribute to the development of a wiki	3	2.5	6	5.0	26	21.7	50	41.7	35	29.2	3.90
Q23	Use a mobile phone to text/msm people	1	.8	7	5.8	24	20.0	50	41.7	38	31.7	3.98

Q24	Use a mobile phone to access information services on the web	2	1.7	4	3.3	17	14.2	52	43.3	45	37.5	4.12
Q25	Use a mobile phone to send or receive email	1	.8	5	4.2	28	23.3	53	44.2	33	27.5	3.93

**n=120, *%=100, *Average mean = 3.47*

Table 10 shows the general skill level of EMU IT undergraduate students. The maximum score is 75 and the minimum score is 25. 25 questions were used to analyze the students' level of skills in ICT tools. 45% of the students are skilled in the use of ICT tools, while 30% are neutral as to the use of ICT tools from the table 15% of the students lies in the range of Not Skilled at all and Not Very Skilled and just 10% of the students are Very Skilled in the use of ICT tools by EMU students.

50% of the individual mean responses are below the average mean of 3.47. This statistically shows that not all EMU IT undergraduate students are Very Skilled at the use of ICT tools. Thus majority of them lies on the Neutral scale and also on the Not Very Skilled scale of using ICT tools.

Student N, stated that "I can basically use the simple educational technology tools but some software are very difficult to operate mainly, ones for programming".

Student H, also explained that "I can use the internet at any level, operates MS packages, and the computer generally. But there are some technical software packages that I still cannot operate".

4.5.2 EMU undergraduate IT students Level of Purpose on the Use of ICT tools

Table 11 analyzes student's general level of purpose on the use of ICT tools by showing their individual mean responses.

Table 11. Level of Purpose on the Use of ICT tools.

		For Learning		For Other Purpose		Do Not know this Technology		Mean
		n	%	n	%	n	%	
Q1	Use a computer to manage or manipulate digital photos	71	59.2	49	40.8	-	-	1.41
Q2	Use a computer to create presentations	61	50.8	59	49.2	-	-	1.49
Q3	Use a computer to create or edit audio and video	56	46.7	64	53.3	-	-	1.53
Q4	Use a computer to play games	56	46.7	64	53.3	-	-	1.53
Q5	Use the internet web or a LAN to play network games	64	53.3	56	46.7	-	-	1.47
Q6	Use a hand-hold computer as a personal organizer	70	58.3	50	41.7	-	-	1.42
Q7	Use the web to access a portal, course or learning management system	62	51.7	58	48.3	-	-	1.48
Q8	Use the web to look up reference information	65	54.2	55	45.8	-	-	1.46
Q9	Use the web for pastimes	56	46.7	63	52.5	1	.8	1.54
Q10	Use the web/internet to send or receive email	58	48.3	62	51.7	-	-	1.52
Q11	Use the web/internet for instant messaging/chat	53	44.2	67	55.8	-	-	1.56
Q12	Use the web to build and maintain a website	62	51.7	58	48.3	-	-	1.48
Q13	Use social networking software on the web	53	44.2	67	55.8	-	-	1.56
Q14	Use the web to download podcasts	50	41.7	70	58.3	-	-	1.58
Q15	Use the web to publish podcast	63	52.5	57	47.5	-	-	1.48
Q16	Use the web to share photographs or other digital material	47	39.2	73	60.8	-	-	1.61
Q17	Use the web to make phone calls	48	40.0	72	60.0	-	-	1.60
Q18	Use the web for web conferencing	56	46.7	64	53.3	-	-	1.53
Q19	Use the web to keep your own blogs or vlogs	62	51.7	58	48.3	-	-	1.48
Q20	Use the web to read other people's blogs or vlogs	63	52.5	57	47.5	-	-	1.48
Q21	Use the web to comment on blogs and vlogs	64	53.3	56	46.7	-	-	1.47
Q22	Use the web to contribute to the development of a wiki	56	46.7	64	53.3	-	-	1.53
Q23	Use a mobile phone to text/msm people	59	49.2	61	50.8	-	-	1.51
Q24	Use a mobile phone to access information services on the web	60	50.0	60	50.0	-	-	1.50
Q25	Use a mobile phone to send or receive email	58	48.3	62	51.7	-	-	1.52

*n=120, *%=100, *Average mean = 1.51

Table 11 shows the general level of purpose on the use of ICT tools. 25 questions were used to analyze the student's purpose of ICT use. From the table above, 50% of the general responses shows that ICT tools were actually used for Learning Purpose, and 50% of the remaining responses shows that ICT tools were also used for other purposes, other than learning.

The average mean of the total responses is 1.51. from the total responses only 48% of the individual mean scores are above the mean which clearly shows that students uses ICT tools more for other purpose than for learning purposes.

Student D, states that “I cannot imagine myself a day without using the internet to interact with friends”.

Student A, also replied that “ICT tools are very important especially during communication and learning, and it sometimes save money and time”.

Oliver (2002) in a related study, has for instance shown that the ICT has most times been adopted for other purpose other than learning by students of colleges.

Chapter 5

CONCLUSION

This dissertation investigated the awareness of undergraduate students on the use of ICT and its usefulness and its relationship according to gender, age and class level of students. 120 undergraduate student from IT department of EMU participated in this research study. The survey was conducted during spring semester of 2014-2015 in EMU.

The results of this research study proved that general awareness of EMU IT students on the use and usefulness of ICT tool is relatively very high, and also that students are moderately skilled certain skills necessary for learning. The study also showed that the purpose for which ICT is used is majorly for learning purpose and slightly for other purposes too.

Also, based on this research study, EMU IT students awareness on the usefulness of ICT and its uses do not have any significant difference according to gender, age and class level. It is evident that male and female perception hold no importance on the purpose of use, skills possession and general usefulness of ICT tools.

The research study also proves that age of students shows no significant difference on the use of ICT and its usefulness to students, and also for learning purpose. Also this study further proved that there is a significant difference on class level awareness on the usefulness of ICT tools.

This research work concludes that EMU IT students have a high awareness on the use of ICT and its importance. And that they possess a moderate skill ability on several ICT tools for educational purpose. Also it can be seen that there ICT awareness based on class level is of great significant, because all the students in various classes holds different views on ICT uses and its usefulness.

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APPENDICES

Appendix A: Questionnaire

Dear Respondent,

My name is Ilodigwe Udoka Tochukwu, I am a master's student in the Information and Communication Technology Department at Eastern Mediterranean University, Famagusta. In the delimitation of my thesis, the purpose is to evaluate perception of emu it students on e-learning and effectiveness of use of ICT tools in education. The information and data gotten from the questionnaire will build a basis of the scientific work and will never be adopted for any other purpose.

Demographics

Gender: Male Female

Age: 18 – 20 21 – 22 23 and older

Year of Studies: 1 2 3 4 and higher

s/n	item	For Learning	For other purpose	Not skilled at all 1	Neutral 2	Very Skilled 3
1	Use a computer to manage or manipulate digital photos (e.g. using iphone, Dig, Image)	<input type="checkbox"/>	<input type="checkbox"/>			
2	Use a computer to create presentations (e.g. PowerPoint)	<input type="checkbox"/>	<input type="checkbox"/>			
3	Use a computer to create or edit audio and video (e.g. iMovie, Movie Maker)	<input type="checkbox"/>	<input type="checkbox"/>			
4	Use a computer to play games	<input type="checkbox"/>	<input type="checkbox"/>			
5	Use the Internet web or a LAN to play Network games	<input type="checkbox"/>	<input type="checkbox"/>			
6	Use a hand-hold computer (e.g. a PDA) as a Personal organizer (e.g. diary, address book)	<input type="checkbox"/>	<input type="checkbox"/>			
7	Use the web to access a portal, 'Course or Learning Management System'	<input type="checkbox"/>	<input type="checkbox"/>			
8	Use the web to look up reference information (e.g. online dictionaries)	<input type="checkbox"/>	<input type="checkbox"/>			
9	Use the web for pastimes (e.g. for leisure activities)	<input type="checkbox"/>	<input type="checkbox"/>			
10	Use the web/internet to send or receive email (e.g. Hotmail, Yahoo, Outlook)	<input type="checkbox"/>	<input type="checkbox"/>			
11	Use the web/internet for instant messaging/chat (e.g. MSN, Yahoo)	<input type="checkbox"/>	<input type="checkbox"/>			
12	Use the web to build and maintain a	<input type="checkbox"/>	<input type="checkbox"/>			

	website					
13	Use social networking software on the web (e.g. Facebook)	<input type="checkbox"/>	<input type="checkbox"/>			
14	Use the web to download podcasts (e.g. using Juice, iTunes)	<input type="checkbox"/>	<input type="checkbox"/>			
15	Use the web to publish podcast (e.g. using Podifier, Podcaster, PodProducer)	<input type="checkbox"/>	<input type="checkbox"/>			
16	Use the web to share photographs or other Digital material (e.g. using blinklist, Flickr)	<input type="checkbox"/>	<input type="checkbox"/>			
18	Use the web to make phone calls (e.g. VoIP using skype)	<input type="checkbox"/>	<input type="checkbox"/>			
19	Use the web for web conferencing (e.g. using a webcam with Skype)	<input type="checkbox"/>	<input type="checkbox"/>			
20	Use the web to keep your own blog or vlog	<input type="checkbox"/>	<input type="checkbox"/>			
21	Use the web to read other people's blogs or vlogs	<input type="checkbox"/>	<input type="checkbox"/>			
22	Use the web to comment on blogs or vlogs	<input type="checkbox"/>	<input type="checkbox"/>			
23	Use the web to contribute to the development of a Wiki	<input type="checkbox"/>	<input type="checkbox"/>			
24	Use a mobile phone to text/MSM people	<input type="checkbox"/>	<input type="checkbox"/>			
25	Use a mobile phone to access information services on the web	<input type="checkbox"/>	<input type="checkbox"/>			
26	Use a mobile phone to send or receive email.	<input type="checkbox"/>	<input type="checkbox"/>			
		Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
27	Design and build web pages?					
28	Create and present multimedia shows (e.g. Power Point)?					
29	Create and present audio/video (e.g. iMovie, Movie Maker)?					
30	Create spreadsheets (Excel, etc.)?					
31	Use programming languages (C++, Java, etc.)?					
32	Use Matlab to simplify the implementation of numerical linear algebra routines?					
33	Download or access online audio/video					

	recordings of lectures?					
34	Download or access online audio/video recordings of supplementary content material?					
35	Use the web to access university based services (e.g. enrolment, sign up for tutees, pay fees)?					
36	Use your mobile phone to access web-based University services information or services (e.g. enrolment, sign up for tutees, pay fees)?					
37	Use instant messaging/chat (e.g. MSN, Yahoo, ICQ) on the web to communicate/ collaborate with other students in the course?					
38	Use instant messaging/chat (e.g. MSN, Yahoo) on the web to communicate with lecturing and administrative staff?					
39	Use social networking software (e.g. Facebook) on the web to communicate /collaborate with other students?					
40	Use the web to share digital files related to your course (e.g. sharing photos, audio files, movies, websites etc.)?					
41	Use web conferencing or video chat to communicate/collaborate with other students?					
42	Keep your own blogs as part of your course requirements?					
43	Contribute to another blog as part of your course requirements?					
44	Contribute with other students to the development of wiki as part of your course requirements?					
45	Receive grades/marks from your Lecturer via text message on your mobile phone?					
46	Receive pre-class discussion questions from your Lecturer via text message on your mobile phone?					
47	Receive administrative information about the course via text message on your mobile phone (e.g. timetable or assessment changes, information on new learning resources)?					
48	I feel confident in using computers					
49	I enjoy using ICT for my studies					

50	I believe that e-learning gives me the opportunity to acquire new knowledge					
51	I believe that e-learning enhances my learning experience					
	I believe that convenience is an important feature of e-learning					
52	E-learning increases the quality of learning because it integrates all forms of media (print, audio, video)					
53	Adopting ICT and e-learning allows for increased student satisfaction					
54	I would be interested in studying courses that use e-learning					
55	I feel confident in using computers					

Appendix B: Interview Questions

1. Do you derive satisfaction when it comes to ICT tools use in school and outside of the university?
If yes/no, what is your notion on the general performance of the various ICT tools used for your learning purpose?
2. Your access towards ICT tools within and outside the university appears to be limited or free?
If limited, could it be based on lack of competence, availability, nor exposure to such tools by tutors?
If free, how frequent is your access to such tools.
3. Generally, it is perceived that ICT tools are useful when it comes to learning purpose. On a personal assessment what is your view on the general perception?
4. Do you think ICT tools consume your time during study and distract your focus during teaching and learning process?
 - i. If yes, how?
 - ii. If no, do ICT tools speed up your learning processes as a student?
5. Do you encounter any professional support whenever you have access to ICT tools during learning?
If yes, were you supported via automatic system support or was it a professional personal support?
If no, is it a norm or difficulty on the school or environment?
6. How can you describe the general trends/features of the ICT tools used for learning purpose?
7. ICT is believed to have bridged the gap or fall of classroom instructors when it comes to educational advancement. What is your perception towards this view? And can you say it really led to the massive integration of ICT tools in learning processes?
8. What do you like about e-learning? Is there anything distracting learning via such medium?
9. Compare e-learning and traditional classroom learning, which one makes you feel more confident as an intelligent student?
10. E-learning rarely encourages face to face interaction between instructors and learners. Is this a problem for you, as regards learning?
 - a. If no, how then can you rate your progression and quality of education as a self-learner/tutor, (less, average, or best)?

b. If yes, what usefulness is the instructor's presence when you come in contact with them during teaching and learning process?

11. E-learning requires ICT tools to ensure learning takes place. How versatile are you in handling such tools?

Can you say that such ICT tools are costly for you as a student to afford?