

Perceptions of Nigerian Students' and Instructors' about the Use of Technology in Education

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ABSTRACT

Technology is significant in the improvement of quality of educational experience in learning. The introduction of technology into the educational system across the universe has brought in improvement to the system and made it more suitable for both the students and the instructors. Students are getting more interested in learning with the integration of the technology in the classroom. This study investigated the perceptions of Nigerian students' use of technology in their educational activities.

The study was carried out using mixed method analysis (Quantitative and Qualitative method) involving Nigerian students and Instructors at the Eastern Mediterranean University (EMU), North Cyprus. Data was collected from the Nigerian students pursuing their academic career in EMU with the use of quantitative and qualitative methods. Interview was conducted with the instructors. The findings showed that the use of technology has a great effect on students' motivation towards learning. The results the researcher got also reflected on the perceived ease of use and usefulness.

Keywords: Technology, Usefulness of Technology, Ease of Use, Perception.

ÖZ

Teknoloji kullanımı öğrenmenin gerçekleşmesi sırasında eğitim deneyimi kalitesinin artırılmasında önemli bir rol oynamaktadır. Eğitim teknolojisi kullanımı eğitimin çehresini değiştirmekte ve daha fazla fırsat yaratmaktadır. Öğrenciler, sınıf ortamlarına teknolojinin girmesiyle daha fazla bir ilgiyle öğrenmeye karşı daha ilgili olmaya başlamışlardır. Bu çalışmanın amacı Nijeryalı öğrencilerin eğitsel faaliyetleri sırasında teknolojinin kullanımı konusundaki algılarını araştırmaktır.

Çalışma Kuzey Kıbrıs, Doğu Akdeniz Üniversitesi (DAÜ)'de bulunan Nijeryalı öğrenciler ve öğretim elemanlarının katılımıyla karma analiz yöntemleri (nicel ve nitel yöntemi) kullanılarak gerçekleştirilmiştir. Veriler akademik kariyer için DAÜ'de bulunan Nijeryalı öğrencilerden kalitatif ve görüşme yöntemiyle toplanmıştır. Öğretim elemanlarından görüşme yoluyla toplanmıştır. Elde edilen bulgular teknoloji kullanımının öğrencilerin öğrenmeye yönelik motivasyonu üzerinde büyük bir etkisinin olduğunu göstermektedir. Sonuçlar aynı zamanda algılanan kullanılabilirliği ve kullanım kolaylığını yansıtmaktadır.

Anahtar Sözcükler: Teknoloji, Teknolojinin Faydası, Kullanım kolaylığı, Algı.

DEDICATION

This is dedicated to Almighty God. And my sincere gratitude goes to my parents Mr. and Mrs. S.O. Adeyemo. I will forever appreciate your effort in to bringing me to this height.

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Chapter 1

INTRODUCTION

The integration of technology into education has played an important part in the remarkable improvement of school productivity. With the use of computers in the classroom, blog and websites, mobile/handheld devices, interactive whiteboards, has brought about high engagement and motivation between students and instructors in the education system.

Technology in education was initially a bone of contention in the society. Making education technology aided with different views on developing education. There were a vast number of positives and negatives of using technology in education. However, educational bodies around the world gradually accepted technology, with the influence of technology in education. The positive impact made it possible for the negative consequences to be overlooked, which as leaves us with no biased mind that the educational system has improved due to the ever-advancing technology.

Inquiring students' perspectives gives acumen students' experiences to redefine ways technology is introduced into schools (Selwyn N., Potter J., & Cranmer S., 2010). Much have not to be said in research about experiences of students technology use in education looking at it from the perspectives of the students.

With the spread of technology through our society, the use of mobile phones, for example, is helping to push its utilization and increase across racial and economic boundaries. It is now seen that students coming to schools with tablets in addition to their laptops and smartphones. This increase in the use of technology as now made it difficult for educational institutions to invest their time and money.

It is important to remember that institution like the universities include a homogenous group of people. Rather they are inhabited by individuals who are age range from 16 years-old freshmen to the seasoned faculty members, which may different technological needs and usage patterns. In 2007, the Pew Internet and American Life Project report stated, “As information and communication technologies fall across board in the modern society. There are a lot of variations in what kind of technology people have, how it is used and what is thought to it” (Horrigan, 2007). For colleges, universities and campus libraries to make the best use of technology on their campuses, it is crucial to determine and know the actual needs of their communities.

Technologies are created to be used. With the advantages it poses to users, the computer system cannot improve users’ performance if it’s not used. Technology Acceptance Model (TAM) proposed the use of any information system depends on two major factors; the perceived usefulness and perceived ease of use. There’s need to investigate students’ perceived motivation, usefulness and ease of use.

Research has shown various factors that determine academics’ use and non-use of evolving technologies for both teaching and learning in developed countries. These factors comprises of the needs of the learners, the attributes and participation of academics, the availability of the technology. The working environment and how

much they perceive the use of the technology and the concerning conditions to which the academic is a part of it (Oshinaike & Adekunmisi, 2011).

A lot of the developing countries, including Nigeria, are faced by some of these factors like instructors' attitude, perception and usage. Technology usefulness, ease of use, and characteristics of instructors: gender, age, experience, qualification, views of peers, training, and the rest. Availability of infrastructural facilities cost of purchasing those infrastructural, management attitudes, use/knowledge of computer, and power supply amongst other are the challenges Nigeria system is facing.

1.1 Problem Statement

Education at EMU is passed by the instructors to the students through the use of technology, i.e., the projectors, whiteboard, PowerPoint slides, computers, the internet, numerous applications, online education and multimedia resources. Technology has brought flexibility into the educational system, the ways the instructors pass knowledge to the students to the media that they student receive it. With massive and accessibility technologies has brought into the system, the problem that need to be put into consideration is, how effective is it to the students, the perceived usefulness and the ease of use.

The quality of education in Nigeria needs urgent attention, an improvement to the quality to bridge the gap between the nations to meet even up with the class of the developing countries. Technology is a necessary tool for this purpose, also with instructors' involvement that will need to be trained. Its integration into the school curriculum will improve on the students' thinking and creativity. The instructors should also be ready to learn how to make and uplift students by making them to take

charge of their learning. Like some of the current lack creativity communications skills, analytical and critical thinking and problem-solving skills (Teo, 2000).

This research is on students' perception about the use of technology in education focusing on Nigerian student at EMU. Looking at the education system in Nigeria, the use of technology is lagging behind expectation and desire. Hence, the need to investigate Nigerian students' at EMU preserves use of technology in their academics, where technology plays the significant role in knowledge dissemination.

1.2 Purpose of Study

This study investigates Nigerian students' perceptions about the use of technology in education in term of its perceived effect on students' motivation, perceived usefulness and perceived ease of use in EMU. The perceptions of the instructors were investigated and got a list of advantages, disadvantages and suggestions about the use of these technologies.

1.3 Research Question

This study will be carried out using the following research question as the guide:

1. How do Nigerian students perceive the use of the technology in their classes?
 - 1.1 How do Nigerian students perceive the use of technology in their classes in terms of its effects on their motivation towards the course?
 - 1.2 How do Nigerian students perceive the usefulness of the technology?
 - 1.3 How do Nigerian students perceive the ease of use of the technology?
2. How do the instructors perceive the use of the technology in their courses?
 - 2.1 How do the instructors perceive use of technology effects on students' motivation towards in course?
 - 2.2 How do the instructors perceive the usefulness of the technology in classes?

2.3 How do Nigerian students perceive the ease of use of the technology in classes?

2.4 What are the advantages and disadvantages of the technology from the instructor's point of view?

2.5 What are the suggestions of the instructors' about the use of technology?

1.4 Importance

Different research has shown that the integration of technology into education has affected the learning process of the students and instructors. To discover the technology ability and study plans students apply to improve their learning. Technology renders high-yielding system that increases the learners' ideas and cognitive thinking in the current digital age. This study looked at the effectiveness of technology in education using the Nigerian students in EMU.

1.5 Assumptions

The following assumptions were made:

1. Participants of the study answered each of the questions in the instruments.
2. All the data collected were taken and analyzed.
3. Reliability and validity of the tools and result the study were accurate enough to give the chance for reasonable assumptions.

1.6 Limitations

During the course of carrying out this study, the following limitation was faced

- The data collection was limited to EMU 2014-2015 spring semester.
- The research could was within the Nigerian Students at EMU
- A limited number of responses were gotten from the students since it was a volunteer participation.

- The amount of data collected from the instructor was also limited due to their unavailability of the instructors as it was conducted at the end of the semester period when they are all busy with students' evaluation collation.

1.7 Definition of Key Terms

Perception: It is the ability to apprehend through the means of senses, understanding about the student and instructor use of technology in their educational activities.

Motivation: The focus the students have in completing a task through the usage of technology.

Technology Acceptance Model (TAM): It's a model that describe the acceptance of technology by an individual based on their perceived usefulness and ease of use of the technology.

Information and Communication Technology (ICT): It is used in this study as the integration of technology into the educational system to deliver quality learning and teaching.

Chapter 2

LITERATURE REVIEW

2.1 Technology in Education

In the last three decade, technology has impacted positively on our society and daily life. The growth of technology has prompted the agreement between educators and the rest of the society that it should play an essential part in students' education (Christie, 2008). In this study, technology will be related to educational aided electronic devices with the ones that provide interaction and its use in instruction. Schools' use of technology has increased over the years, from the usual black/white board to smart boards, and other efforts educators had put in integrating technology into the curriculum.

Technology in education involves a lot of equipment and application more than individual computers use, such as video conferencing, electronic whiteboards, eLearning, mobile learning and the rest. Educators have made the effort in deciding on the types of technology to use and how to use them. Researchers agreed there is no particular type of technology or the way which a technology can be used. But, all should be about how the technology will complement the goals of teaching and learning for the benefit of the students (Sivin-Kachala, J., & Bialo, E.R., 2000).

The role of each technology are quite different, for instance, email and word processing application can help improve student communication skills. Database application will enhance managerial skills; while modeling software raise their

understanding of mathematics and science concepts. Technology can help enhance student learning with some of the following opportunities:

- Evaluating wide-range of information and acquiring knowledge from various sources
- Drilling and practicing with expanding challenging content
- Envisaging difficulty to interpret notions
- Dealing with data engaging in hands-on learning and getting feedback
- Controlling information, fixing issues and producing the smart product.

Apple Computer, (2005) looked at the progression in the use of technology. Studies reviewed showed students use laptops mainly for taking notes, writing in a word document and organizing their work. Working in class, homework interacts with course mate and teachers, and use of internet for research work. Student use word processing application, web browsers, and email to deliver projects from school activities. While student that use their laptops to work on more complicated task like designing digital images and videos make use of design and multimedia.

2.1.1 Use of Technology in Education

Mudzimiri (2012) pointed that technology in education utilized all kinds of ways that he categorized into two: Cognitive and Productivity use. Technology classification has been a cognitive method when it's accustom to a means of accomplishing tasks that transcends the mind. On the other hand, productivity use is the application of different forms of multimedia like spreadsheets, word processors, e-book, databases, presentation software and others to enhance learning. For example, in virtual manipulative, it helps in solving fractions, work on patterns and help to accomplish mentally demanding guesswork. Multimedia interaction is a simulation that present a

real live scenario particular in courses that allow instructors to illustrate views that are too deep to demonstrate in the real classroom.

In education, hardware and software, web browsers, word processors, email are tools in which the instructors can rely on to create and aid effective learning environments (Mishra P. and Koehler M. J., 2009).

Abik, Ajhoun & Ensias (2012) stated technology growth has given various forms of e-learning. Use of multimedia technologies, electronic, and internet to raise the quality of education by creating better learning involvement through remote participation.

The advancement of technology in education has given learning a new approach. It has moved from teacher-centered to student-centered environments where it can be found that students actively taking part in the learning process and instructors have to be informed to be able to function in the constructive environment. Such instructor are much the digital teacher to operate in the world of the 21st-century students by providing instruction that includes presentations that are interactive and rich in media. Educational Technologies are the only way for to engage students with digital resources, boarding the content of the course and encouraging students to study with an engaging method.

2.1.2 Integration of Technology in Education

Learning process has brought new opportunities with the integration of technology that has served as means of communication and dissemination of pedagogical content (Abik M., Ajhoun R., & Ensias L., 2012). Technology is view as the combination of pedagogy and content of active learning outcomes by;

- i. Collaborative learning improved through computer-mediated context: This is the use of two or more electronic devices such as the computer. In collaborative learning or cooperative learning, students are sited in learning environment to learn a precise subject. Huang, Hsiao, Chang and Hu (2012) stated it to be a coordinated tutoring skill that is best for teaching in all grade level. With this, students' knowledge and gains are improved by studying in a well-equipped computer setting. Cooperative learning provides all necessary functionalities with structure to aid online student alliance such as email, computer conferencing, and modules for active learning enhancement.
- ii. Reusability of learning object: Learning Management system (LMS) is a technology system that has helped instructors to create, manage and administer learning object from a location for a lasting period of recreation. The revision of the learning materials becomes a process (Abik M., Ajhoun R., & Ensias L., 2012).
- iii. Facilitating of Global Learning: With e-learning, learners have been able to engage and receive lessons from the instructors without been at the same location. Efficient in many forms of learning like language learning where the mother tongue teacher can teach foreigners their language through video conferencing. It has been helpful to education has it allows dependable instruction from the originator without having to be at the same place (Abik M., Ajhoun R., & Ensias L., 2012).

2.2 Use of Technology in Nigeria Education

Technology plays a remarkable role in the advancement of any nation educational system. It is use to achieve social, economic, educational, scientific development

(Adedeji, 2010). It encourages cooperative learning, give information and make complex learning easier with the use of stimulation. Use of various technologies as multimedia resources has facilitated access to entire human knowledge, anytime, anywhere in a responsive, multi-modal, resourceful and efficient ways.

In Nigeria, the Federal Government recognizing the fact that attaining a quality education requires improving teaching, learning and educational system as a whole by making an attempt in integrating Information and communication Technology into the system. These brought about the introduction of National Policy on ICT in Education (FRN, 2010) to meet the human resources necessities of the nation attain and enhance sustainable socio-economic development. Similar to the earlier Nigerian National Policy on Education (FGN, 2004) aimed to enhance and improve the capability of teachers in the development and promotion of the active practice of innovative materials in schools. The nation needs to values the competence of the teaching workforce as a critical factor in its sustainable growth.

With the funds the government and private organizations are putting into the system, much still need to be done. Enrolled in a Nigerian school does not guarantee a good education due to the fact that there is no adequate training for teachers. To this some of them still stick to the traditional methods. But it is believed that computers, tablets, and phones can help with the growing connectivity students can be reached through technology than traditional teaching methods. Teachers can use free online resources to keep lesson up to date where books are scarce and applications allows classed to be more interactive, banishing ineffective rote learning.

Fabunmi (2012) studies from arbitrary sampling of ICT in the Nigerian universities indicate that the expectation of ICT and the perfect condition for educational research in technology driven campus are still in a significant illusion. In other opinion, he noted the unique attributes offered by ICT to the education system such as enabling the exchange of ideas, reducing isolation, involvement and encouraging interactive networks. Emphasize on the users of ICT ability to produce their information and not passive recipients.

Like in Adamawa State North East of Nigeria, a private-owned university called the American University of Nigeria runs the extra-curricular class in a co-educational private school. To prepare young school leavers for university degrees in sciences, they learn the use of the computer. A university lecturer from the University uses a \$40 credit card sized computer know as a “Raspberry Pi” to project mathematical chart on a whiteboard (E.W, 2014). This effort makes the youngster be bright, computer smart and ambitious and expose the student to the importance of the various technologies in their educational development. This initiative is good in the education system. The introduction of these technologies to the secondary school education will expose student who want to spend more time on educational activities and will bring positive improve their education achievement.

2.3 Perceptions of students’ towards Technology

Studies on perceptions of students’ towards technology have been carried out in many countries. The influence of technology on the lives of youth in the society is enormous, making it significant to know student’s perspective on technology and skillful practice (Frantom, et al., 2002). Studies showed that students’ interests have the impact on their learning, and their perceptions need to be considered when teaching with technology.

Boser et al. (1998) noted that “the positive attitude of students’ depends on the experience they have in a technology education program. And will find it amusing to pursue technological. Lewis (1999) also noted that the conception a particular student have on the condition of the content of technology is essential for better instruction and should put into consideration for improved learning.

Different studies were conducted to inculcate in the curriculum the views of stakeholders. Their interest has a bearing on societal needs and the teaching and learning outcomes of technology (Becker & Maunsaiyat, 2002; Burns, 1992). Raat et al. (1985) activity conducted under the Physics and Technology Project at the Eindhoven University of Technology in the Netherlands. He investigated 13-year-old students’ attitudes towards technology using the Pupils’ Attitude towards Technology (PATT) questionnaire. It discovered that the students perceived technology as a broad, diverse, but not too difficult subject, which the students were enthusiast having it taught in schools. Raat et al. also found that boys were more interested in technology than girls. Parental job backgrounds and technical education also influenced the students’ views. Differences in perception by gender, home, and school environments had large effects on students’ attitudes and conceptualization of technology. Further PATT studies done in 20 other countries include Nigeria, Kenya, and New Zealand. Most of these countries were offering prevocational curricula based on developments in the UK at the time (Raat, de Klerk Wolters, & de Vries, 1987). Raat et al. (1987) indicated since 1982, Nigeria had been offering a prevocational subject called “Introductory Technology” for 11-13-year-olds at the junior secondary level to develop their interest in the use of technology.

Jones (1997) discussed those dispositions towards, perceptions of phenomena and problems influenced by students' conceptual knowledge of technology. Nevertheless, students' perceptions and dispositions concerning the concepts and nature of technology may not exist except the students become independent, creative thinkers. Motivated lifelong learners who are capable of engaging with profound social and cultural changes attributed to the impact of technological advancement (Dow, 2006). Teaching programs relying on social views of learning (Brown, Collins, & Duguid, 1989; Hennessy, 1993; Perkins, Jay, & Tishman, 1993) may empower students in thinking. Technological activities should be meaningful, vital and relate to the technological world outside the school environment. The goal of instruction towards technological capability should be to develop transferable knowledge from the classroom situation to life after school (Perkins & Salomon, 1989). Students' preconception of the benefits of learning and engagement in technological activities may help strengthen their interest towards gaining further technological literacy.

2.4 Technology Acceptance Model (TAM)

In the past years, several acceptance models and theories have been formulated to help in research about the acceptance of technology. This run from Theory of Reasoned Action (TRA) formulated from social psychology, it is a very famous theory that was used to anticipate a wide scope human behaviors. It was applied to individual acceptance of technology by Davis et al. (1989). Motivational Model (MM) from the psychological perspective; supports general motivation theory to explain behavior. Davis et al. (1992) applied the model to understand the new adoption and technology use.

Theory of Planned Behavior (TPB) is the supplement of TRA with the addition of construct of perceived behavior control. Perceived behavioral control is also theorized to be determinant for intention and action. Combining the Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB) (Taylor and Todd 1995) is the combination of perceived usefulness from TAM and the predictors of TPB to provide a hybrid, model. Model of PC Utilization (MPCU) is adjusted to the theory of attitudes and behavior of Triandis (1980) by Thompons et al. (1991) to predict PC usage behavior.

Innovation Diffusion Theory (IDT) Moore and Benbasat (1991) adapted the characteristics of innovations that presented in Rogers (1962) and created attributes that could be used to study individual acceptance. Social Cognitive Theory (SCT) Compeau and Higgins (1995) applied and extended SCT to determine computer utilization or usage. The model examined the use of the computer, but the theory can also influence technology acceptance and use in general. And Venkatesh et al. (2003) proposed Unified Theory of Acceptance Use of Technology (UTAUT) from above theories and models. To measure perceived usefulness and intention to use based on the cognitive processes and social effects.

1. *Theory of Reasoned Action (TRA)*

A formulated theory from social psychology, it is a very famous theory that was used to anticipate a wide scope human behaviors. It used on individual acceptance of technology by Davis et al. (1989). The Core Constructs are

- i. Attitude: this is individual's negative and positive feelings about accomplishing the target behavior.

- ii. Subjective Norms: The user perception about what the people close to him think about him performing an action.

2. Motivational Model (MM)

The study is from psychology, it buttress the general motivation theory to analyze behavior. Davis et al. (1992) applied the model to understand the new adoption and use of technology.

- i. Extrinsic Motivation: User perception about wanting to perform an activity based on its relation to achieving distinctly valuable outcomes such as improved job performance.
- ii. Intrinsic Motivation: User perception on activity performance without been encouraged.

3. Theory of Planned Behavior (TPB)

The theory is TRA with the inclusion of perceived behavior control. The theory is the determinant of intention and action. Ajzen (1991) showed review of some studies that was able to use TPB to predict intention and behavior in broad settings.

- i. Attitude toward Behavior: adapted from TRA
- ii. Subjective Norm: adapted from TRA
- iii. Perceived Behavioral Control: This is the user perceived ease or difficulty of performing the behavior.

4. Combining the Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB)

The combination of perceived usefulness from TAM and the predictors of TPB that result in a hybrid model (Taylor and Todd 1995).

- i. Attitude toward Behavior: was adapted from TRA/TPB
- ii. Subjective Norm: was adapted from TRA/ TPB
- iii. Perceived Behavioral Control: was adapted from TRA/TPB
- iv. Perceived Usefulness: was adapted from TAM.

5. *Model of PC Utilization (MPU)*

It's an adjusted theory of attitudes and behavior of Triandis (1980) by Thompons et al. (1991) that predict PC usage behavior.

- i. Social Factors: Is the individualization of the reference group's subjective culture and explicit mutual agreement, in particular, social situations that the people made with others (Thompson et al. 1991).
- ii. Effect towards Use: This is the feelings of joy, pleasure, disgust, or displeasure that is correlated to a particular act by an individual.
- iii. Complexity: The state at which innovation is perceived as been difficult to understand and use.
- iv. Job-Fit: The limit at which an individual believes in using technology can enhance his/her performance on a job.
- v. Long-Term Consequences of Use: This is the result that has pay-off later on in the future.
- vi. Facilitating Conditions: This relates to the observer agreement with object circumstances in the environment that makes an act easy to accomplish.

6. *Innovation Diffusion Theory (IDT)*

Moore and Benbasat (1991) examined the essentials of innovations that Rogers (1962) presented and created attributes that could be used to determine respective acceptance.

- i. Relative Advantage: This is the extent at which the users perceive innovation as been better than its forerunner.
- ii. Ease of Use: The extent an innovation is seen as hard to use.
- iii. Image: The extent the use of innovation is perceived to increase one's status in his/her social system.
- iv. Visibility: The extent someone can be seen by others using the system in a particular organization.
- v. Compatibility: The extent when innovation is steady with existing values needs and previous experience of the potential adopters.
- vi. Result Demonstrability: The observable and communicable of the results in using the innovation.
- vii. Voluntariness of Use: The extent use of the innovation perceived as been of free will.

7. Social Cognitive Theory (SCT)

Compeau and Higgins (1995) extended SCT to determine computer utilization or usage. The model studied the use of a computer, but the theory also grants it to extend to acceptance and its use of information technology in general.

- i. Outcome Expectations-Performance: This is performance consequence of the behavior that deals with job-related outcomes.
- ii. Outcome Expectations-Personal: This is the performance result of the act that deals with individual esteem and sense of accomplishment.
- iii. Self-Efficacy: This is an act of judging one's ability to use technology in performing an appropriate task.

- iv. Effect: This is an individual's liking for the utilization of the computer or an appropriate behavior.
- v. Anxiety: an emotional reaction when it comes to fulfilling an action.

8. Unified Theory of Acceptance and Use of Technology

In 2003 Venkatesh et al. proposed the Unified Theory of Acceptance and Use of Technology (UTAUT), from the integration of the different theories and models. To measure perceived usefulness and intention to use rely on the cognitive processes and social effects.

- i. Performance Expectancy: The length someone believes that the system will assist him/her to attain improvement on the job performance.
- ii. Effort Expectancy: The length of ease linked with the use of a particular system.
- iii. Social Influence: The lengths someone perceives the acknowledgment of others by that he or she should use a particular system.
- iv. Facilitating Conditions: The length to which an individual admitting an organizational and technical infrastructure exists to support the utilization of the particular system.

For the purpose of the study, Technology Acceptance Model (TAM) is guided in investigating the perceptions of Nigerian students about the use of technology in education.

TAM (Davis, 1989) is the most used and cited of the entire model mentioned in this chapter. It was developed to forecast information system acceptance and identify a possible problem with the user experience. It was later extended to Technology

Acceptance Model 2 (TAM2) to include more variables in case of mandatory settings (Venkatesh and Davis 2000).

With two factors: perceived usefulness and perceived ease of use, TAM suggests user perceptions of value and ease of use defines mindset towards the system. According to the model, behavioral intentions to use in turn is determine by the actual system used in direct relationship between perceived usefulness and behavioral intentions to use as proposed by TAM in Figure 1.

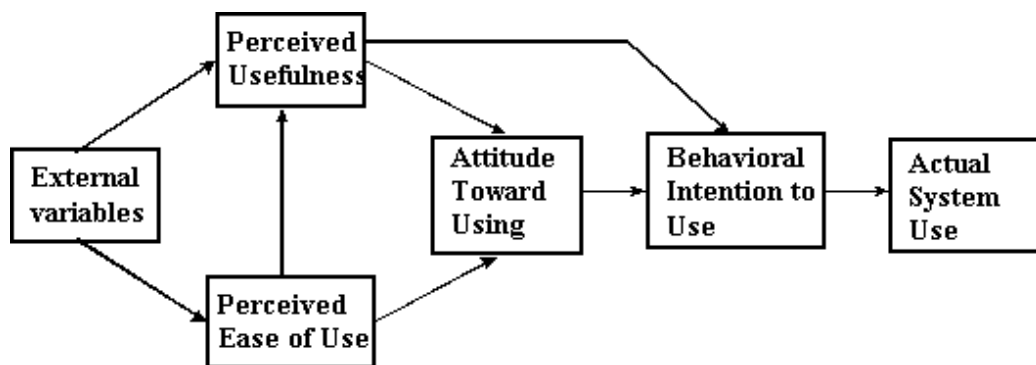


Figure 1: Technology Acceptance Model (Davis 1989)

Perceived Usefulness (U) is the amount at which the users believe about using a particular system would help enhance his/her job performance. A system with a high perceived usefulness, there's a user performance relationship. Perceived Ease of Use (EOU) is the amount at which the users believe about using a particular system would be free of effort. U and EOU are individual perceptions attached to definite opinions that users hold about the system (Dillon, A. and Morris, M., 1996). U and EOU are said to have a significant impact on user's attitude towards using the system, defining the feeling of favorable or unfavorable toward the systems. With the Behavioral intentions to use the system Behavioral Intention model as a function of acceptance (A) and usefulness (U) (Davis F. D. 1989).

Chapter 3

METHODOLOGY

3.1 Research Design

This study investigated the perceptions of Nigerian students' and instructors' of EMU about the use of technology in education. This research work used the basics of the descriptive study, and qualitative research. The intention for using mixed methodologies is to acquire independent knowledge of the perceptions of the students and the instructor that took part in the study. The advocacy of mixed methods research appreciates the value of both quantitative and comprehensive qualitative conception to figure out the fact of interest (Vankatesh et al., 2013).

The mixed method (quantitative and qualitative techniques) is used in collecting and analyzing data. In this approach, quantitative methods are cherished for their intensity of representation, and qualitative methods lie on the depth of investigation. Therefore, the purpose for the use of the mixed of these methodologies is for in-depth understanding of the perceptions of the students that will participate in the study. By this, interviews will be conducted which is the qualitative data collection and questionnaires (quantitative data collection) administered to collect data about their use of technology.

A case study is an investigation and analysis of a single or case, designed to acquire the sophistication of the object of study (Nerida Hyett et al., 2014). It provides useful suggestion in getting to know an appropriate experiences or incident that may have a

broader application in the field. The case study will, therefore, be conducted to explore the perceptions of the students, from the research question to investigate the enclosed explorative nature of the study.

The quantitative method will be used in collection of data and analyze students' attitudes to technology, their competence, experiences and perceptions about the use of technology. While, qualitative methods were used to collect and interpret instructors' perceptions (Jick, 1979). A qualitative method was used to probe and earn in-depth judgement of the instructors, using the informal, structured interview. The pros and cons with recommendation of the instructors were given during the interview.

The descriptive research is used to validate findings. This study finds out "what is" for both qualitative and quantitative (Knupfer & McLellan, 1996). For this, a detailed research was carried out in the study. The student questionnaire was used as one of the main source of data, which examined the view of student about the use of technology in education in terms of its effects on their interest, usefulness and its ease of use (Turşak, 2007, & Işık, 2009).

3.2 Samples

Purposive sampling is the method researchers use in selecting a subject and relate it to how it could add to a research work (Vaughn et al, 1996). This is used for the purpose of the instructors as it deals with interviews in educational research. Convenience sampling is a sampling technique that involve the respondent been selected on convenience for the researcher. Students selected for this study were Nigerian students in EMU due to the availability and accessibility. For these reasons, convenience sampling technique was utilized in this study.

The respondents of the study were the Nigerian students and the instructors at Eastern Mediterranean University during 2014-2015 spring terms (Table 3.1). The participants came from various departments as the questionnaire was administered by using the online platform (google form) at the University. The link was sent to students through email and message posted on Facebook pages that are linked to Nigerian student in EMU: NSS Emu Page: www.facebook.com/Thenssemu/posts/10205986070823480, Online Bazaar: www.facebook.com/groups/onbazar/permalink/876182802451938, Nigerian Association of Pharmacy Students (NAPS-EMU): www.facebook.com/groups/officialnapsemu, Bethesda Chapel: <https://www.facebook.com/cpecbethesda.chapel>.

Table 3.1: Students' Gender

Gender	Frequency (N)	Percentage (%)
Male	69	68.3
Female	32	31.7
Total	101	100

There were 120 students involved in the study, but only 101 of them responded Perception of Students' about the use of Technology in Education Questionnaire (PSUTE-Q) (Turşak, 2007, Işık, 2009). As seen in Table 3.1, 69 (68%) of them were male, and 32 (31.7%) of them were female.

The interview was conducted with the instructors across the university to get their perceptions about the use of technology in their teaching activities. Characteristics of the Instructors are given Table 3.2. Totally 5 instructors were interviewed during the study with them having worked in EMU for 10, 11, 4, 10 and 17 years respectively,

and used technology in classes for the same number of years. They were all working in different departments across EMU.

Table 3.2: Characteristic of Instructors

Questions	Instructors (Years)				
	1	2	3	4	5
How long have you been working as an instructor in EMU?	10	11	4	10	17
Have you ever used any Technology in your classes until now?	10	11	4	10	17

3.3 Data Collection Tools

During the study, two instruments were used to collect data. To obtain perceptions of Nigerian students' use of technology in education, "Perceptions of Students' about the use of Technology in Education Questionnaire (PSUTE-Q) (Turşak, 2007, & Işık, 2009) was used. In addition to that, to obtain instructors' perceptions about the use of technology in education, "Perceptions of Instructors' about the use of Technology in Education Interview Guide (PIUTE-IG)" was used. In Table 3.3 research questions and the corresponding instruments are given.

Table 3.3: Research Questions and Collection Tools

RESEARCH TOOLS	COLLECTION TOOLS
<p>Question 1: How do Nigerian students perceive the use of the technology in their classes?</p> <p>1.1. How do Nigerian students perceive the use of technology in their classes in terms of its effects on their motivation towards the course?</p> <p>1.2. How do Nigerian students perceive the usefulness of the technology?</p> <p>1.3. How do Nigerian students perceive the ease of use of the technology?</p>	<p>Perception of Students' about the use of Technology in Education Questionnaire (PSUTE-Q)</p>
<p>Question 2: How do the instructors perceive the use of technology in classes?</p> <p>2.1. How do the instructors perceive the use of technology in terms of its effects on students'</p>	

motivation towards technology use in their classes?	
2.2. How do the instructors perceive the usefulness of technology in classes?	
2.3. How do the instructors perceive the ease of use of technology in classes?	
2.4. What are the advantages and disadvantages of the use of technology from the instructor's point of view?	
2.5. What are the suggestions of instructors' about the use of technology in their classes?	

3.3.1 Perceptions of Students' about the use of Technology in Education Questionnaire (PSUTE-Q)

PSUTE-Q is the main instrument used to carry out the study to obtain Nigerian students' perceptions about the use of technology in education (Appendix A). The researcher modified the questionnaire for the study. The questionnaire developed by (Turşak, 2007) and revised by (Işık, 2009) for his research work.

3.3.1.1 Validity

The questionnaire from Tursak, 2007 & Işık, 2009 previously used on two different researches was modified to suit the use by the researcher. It was reviewed by experts in the field to also check for the validity. The research supervisor later approved it for the purpose of this research. And the response was checked at the interval during the period it was conducted to check for the validity. While collecting this data I enabled "only allow one response per person (requires login)" this gave room to get one response per respondent.

3.3.1.2 Reliability

PSUTE-Q was conducted online using Google Form. 0.782 was the calculated coefficient alpha value. This is an acceptable value in social sciences as stated by Garson (2007). With the number of each construct of the questionnaire and its Cronbach's Alpha value in Table 3.4.

Table 3.4: Statistics of Reliability of Students' Perception Questionnaire

Section	Subscales	Number of Items	Cronbach's Alpha
Section 1	Students' Computer Competency Level	7	.724
Section 2	Student Educational Technology background	4	.808
Section 3	Perceived effects on Students' Motivation towards educational activities	9	.697
Section 3	Perceived Usefulness	10	.749
Section 4	Perceived Ease of Use	8	.768
	Overall for Perception Construct	27	.782

Table 3.4 explains the reliability of the data gotten from the questionnaire, with the subscales with the distributed items. Students' computer competency level subscale has 7 items with 0.724 Cronbach's alpha value; student educational technology background has 4 items with 0.808 Cronbach's alpha value. Perceived effects on students' motivation towards educational activities has 9 items with 0.697 Cronbach's alpha value, with perceived usefulness in the same section has 10 items with 0.749 Cronbach's alpha value, the last subscale ease of use has 8 items with Cronbach's alpha value 0.768. The overall for perception construct for the 27 items falls under 0.782. With this value the questionnaire has an acceptable reliability as stated by Lee Cronbach (1951).

3.3.1.3 Questionnaire Subscales

The questionnaire consists of five sections and with six subscales. Students' computer competency level, educational technology background, usage, perceived effects on students' motivation towards educational activities, usefulness, and ease of use. Below is the breakdown of the sections, subscales and the questions in Table 3.5. The first two subscales have to do with the participant background information. Subscale three

and four were targeted to get students' view about technology, and the last section has questions about students' usage (Turşak, 2007, & Işık, 2009).

Table 3.5: Sections, Subscales and Number of Questions for PSUTE-Q

Section	Subscales	Number of Questions
Section 1	Students' Computer Competency Level	7
Section 2	Student Educational Technology background	4
Section 3.1	Perceived effects on Students' Motivation towards educational activities	9
Section 3.2	Perceived Usefulness	10
Section 4	Perceived Ease of Use	8
Section 5	Student's Usage	3
Total		41

The items in the subscales in Table 3.5 above are broken down and explain below in this chapter.

Section 1: *Students' Computer Competency Level*

This is covered under Section 1; the subscale has seven questions that were used to query the students' competence level about the technology and application. It was used to get the students' current competence level. The result will also be used to disclose the acute values that are gotten as the consequence of the student related constructs (Turşak, 2007, & Işık, 2009).

Section 2: *Student Educational Technology background*

This is covered under section 2; the subscale has four questions that were used to query the students' background on the educational technology. The purpose is for the outcome to interpret the likely acute values about the perception constructs.

Section 3.1: *Perceived Effects on Students' Motivation towards educational activities*

This section was included to know the students' view about the positivity or negativity of the use of technology affects their noticed motivation towards their academic activities. Interest/Enjoyment and Perceived ability factors serve in developing this model that was introduced by Edward L. Deci and Richard M. Ryan (2006) in Intrinsic Motivation Inventory (IMI). Likewise, the willingness and participation factor of the student was added to the scale. The study to examine the validity of IMI by McAuley, Duncan and Tammen (1989) showed a strong support for its validity. Table 3.6 shows all the questions and sub-factors of the motivation construct used in the questionnaire (Turşak, 2007, & Işık, 2009).

Table 3.6: Perceived Effects on Students' Motivation towards Educational Activities Questions and Factors

Question		Factors
S3.4	... increased my interest on our educational activities	Interest/Enjoyment
S3.6	... made our educational activities enjoyable	
S3.19	... made our education activities boring	
S3.15	... increased my satisfaction about our educational activities	Perceived Competence
S3.7	... decreased my willingness to work on our educational activities	Willingness
S3.11	... increased my motivation towards our educational activities	
S3.18	... increased willingness to work on our educational activities	
S3.3	... increased my participation in our educational activities	Participation
S3.12	... increased my study time on our educational activities	

Technology Acceptance Model (TAM) introduced by Davis (1989), established Perceived usefulness and perceived ease of use. "An essential function of TAM is to

establish the fundamentals for determining the force of ulterior influence on the inward thinking, mindset and motives.

Section 3.2: *Perceived Usefulness*

The potential user's intuitive expectation of a particular application system could raise profession achievement inside an institutional background (Davis, et al., 1989). The assessment scale has six factors for the perceived efficiency (Turşak, 2007, & Işık, 2009);

- Work more quickly
- Job performance
- Increase productivity
- Effectiveness
- Makes job easier
- Useful

The items in this questionnaire subscale were developed based on these factors. The Table 3.7 represents the questions from the questionnaire and its attached factors and is 10 Likert-type questions for perceived usefulness (Turşak, 2007, & Işık, 2009).

Table 3.7: Perceived Usefulness Questions and Corresponding TAM Factors

Question		Factor
S3.1	... enabled me to achieve educational activities more quickly	Work more quickly
S3.16	... decreased my work speed in our educational activities	
S3.2	... improved my performance in our educational activities	Job Performance
S3.14	... has decreased my performance in our educational activities	
S3.5	... increased my productivity in our educational activities	Increase Productivity
S3.8	... strengthen my effectiveness in our educational activities	Effectiveness
S3.9	... made it effortless to study on our educational activities	Make Job Easier

S3.10	... was beneficial to access the educational activities	Useful
S3.13	... improved my opportunity to work on our educational activities	
S3.17	... was useful in our educational activities	

Section 4: *Perceived Ease of Use*

This is characterized as the severity the intended users expect target system to be stress-free (Davis, Bagozzi, & Paul, R., 1989). The scales have six factors for the perceived usefulness (Turşak, 2007, & Işık, 2009).

- Easy to Learn
- Clear & Understandable
- Easy to become skillful
- Easy to use
- Controllable
- Flexible

Table 3.8: Perceived Ease of Use Questions and Factors

Questions		Factors
S4.1	Learning to use “technology in education” was easy for me	Easy to Learn
S4.5	It was difficult to learn to use technology in education	
S4.2	It was easy to become skillful at using Technology in education	Easy to become skillful
S4.3	User interface and messages of computer technologies were clear and comprehensible	Clear & Understandable
S4.4	User interface and messages of computer technologies uses terms familiar to me	
S4.6	User interfaces and messages of technologies uses terms familiar to me	
S4.7	It was not easy to understand the user interface of educational technologies	
S4.8	I found use of technology in education easy to use	Overall Easy to use

8 Likert-type of questions with the strongly disagree, disagree, neutral, agree and strongly agree was used to identify ease of use as shown in Table 3.8.

Section 5: *Students' Usage*

The usage build up includes examining the available interrelationship of the awareness benefit of the technology. Three questions were developed to obtain the student usage. The first question was aimed at the periodical usage frequency; it was in an ordinal choice format. While the next two were answered with number figures input for the total time usage and total usage hours, included with open-ended question for obtaining usage reasons (Turşak 2007, & Işık, 2009).

3.3.2 Perceptions of Instructors' about the use of Technology in Education

Interview Guide (PIUTE-IG)

PIUTE-IG is the primary tools used to obtain the perceptions of instructors' on the student use of Technology in Education (Appendix B). It is a structured interview designed by the researcher for the study, adopted from the interview guide designed by (Turşak, 2007) and later revised by (Işık, 2009).

The interview guide was also sent to the head of the department to be examined, for approval and seek consent (Appendix C) before the interview was carried out with the instructors at EMU.

3.4 Data Analysis

While conducting this research, qualitative and quantitative methods were used during data collection. In the qualitative part, interviews were attended to by the instructors while the questionnaire was administered to the student to collect measurable data.

PIUTE-IG was used to carry out the interview session with the instructors at EMU after the letter of consent has been granted. All the instructors were asked for

permission to record the all conversation during the interview session by using an audio recorder. The recorded audio was scripted carefully.

Defining findings

The audio records were all written out in Microsoft Word. After which it was scripted out. The data collected were placed in the various sub-factors that was included in the result of the study.

Interpreting findings

The perception of the interviewees was analyzed and placed in the various sections. The sections were interpreted in accordance with to the result of the findings. General meanings were also given in accordance to the items of the sub-sections of the frameworks. The noticed points are figured out and added to the conclusion part of this study.

For collecting quantitative data, PSUTE-Q was administered to the students by using the online platform (Google Form). The link was sent to students’ emails and also posted on Facebook Pages at different times.

Table 3.9: Data Analysis Procedures

Method	Stages	Explanation of the process used
Qualitative	Coding	The interview questions audio recordings were scripted as it was said and conveyed on word document for analysis.
	Ordering and displaying	Proper theoretical structure that was refined and used in-line with the research questions. With the interview response been arranged by using the same theoretical structure.
	Conclusion drawing	Meaningful findings were made on the statistics figure, with outcome on the entire involved dissertation.
	Verify	The results were verified by analyzing with the reference made in the original data.
Quantitative	Coding	PSUTE-Q data was coded using a coding Guide as breakdown in this study.

	Descriptive statistics	Using descriptive analysis, statistics figures for each question was gotten using SPSS 23.0.
	Display	SPSS was used to create the chart and table and Microsoft office table functions for the research work.
	Conclusion drawing	From the Charts and tables, the interpretations were drawn with the conclusion.

3.4.1 Perceptions of Students' about the Use Technology in Education Questionnaire (PSUTE-Q)

PSUTE- Questionnaire was administered online by using Google Form, and the response was automatically saved on the response form (Perception of Nigerian Students' about the use of Technology in Education (Responses)). After 101 participants have been reached, the data was entered to Statistical Package for Social Sciences (SPSS 23.0) data file for analysis. Tables were analyzed with SPSS for better and easier interpretation.

3.4.2 Perceptions of Instructors' about the Use of Technology in Education Interview Guide (PIUTE-IG)

The descriptive analysis method was also used to analyze the interview data. According to this approach, the data obtained was summarized and interpreted by using the four steps predefined theme (Yıldırım & Şimşek, 2006);

- Preparing a framework for descriptive analysis
- Process data according to thematic framework
- Defining findings
- Interpreting findings

While the Perceptions of the Instructors about the Use of Technology in Education at EMU were also interpreted using the same four steps of descriptive analysis mentioned above (Isik, 2007).

3.4.2.1 Preparing a Framework for the Descriptive Analysis

The research questions and the interview guide were examined well before the framework was drawn up by the researcher. All the research questions were related to the students' and instructors' perceptions about the use of the technology in education. The framework was well composed with a related structure, and each of the research questions was integrated to the framework one by one.

At first, the framework was used to examine the perceptions of the instructors' about the effects of the students' using technology in education on their perceived motivation towards their educational activities. Under the motivation factor, interest and enjoyment sub-factors were added to be in the first part of the framework. Perceived competence, willingness and participation sub-factors were at the long run incorporation into the formation.

Furthermore, the factor of the perceived usefulness were incorporated to the formation to know the view of the instructors about it use of that allow student work promptly, raise their task achievement, capacity, make task effortless or not. On the other hand, the formation was arranged to test the anticipated ease of use. With the assistance of the factor, the researcher was able to see the instructors' perception about ease of the utilization of the system. This was tested through the teachers if the students use the system easily, and whether they are skillful at the end of the day or not. And fourth, advantages and disadvantages of the use of the systems were added at the formation to collect data about instructors' perception of technology. And recommendation made the last part of the formation to get instructors' ideas and opinions about the use of technology as it all reflex in Table 3.10 below (Işık, 2009).

Table 3.10: Conceptual Framework for Interview Data Analysis

1.	Effect of the use of technology on Students' Perceived Motivation towards activities in education
a.	Participation
b.	Interest/Enjoyment
c.	Perceived Competence
d.	Willingness
2.	Perceived Usefulness
a.	Work more quickly
b.	Job performance
c.	Increase productivity
d.	Effectiveness
e.	Make Job easier
f.	Overall Usefulness
3.	Perceived Ease of Use
a.	Easy to Learn
b.	Easy to become skillful
c.	Clear & Understandable
d.	Overall Easy to use
4.	Advantages and Disadvantages
5.	Suggestions

Chapter 4

FINDINGS

This chapter presents the results of the quantitative and qualitative analysis method used in investigating the Nigerian students' and instructors' perceptions about the use of technology in education at EMU. All the presented results are in accordance with the research questions used in this research work.

4.1 Characteristic of Students

4.1.1 Student Gender

Table 4.1: Students' Gender

Gender	Frequency (N)	Percentage (%)
Male	69	68.3
Female	32	31.7
Total	101	100

The students that participated in this study are numbered at 69 (68.3%) males and 32 (31.7%) females' Nigerian students studying at EMU.

4.1.2 Students' Computer Competency Levels

Table 4.2: Statistics of Students' Self-Reported Computer Competence

	Not Used	Beginner	Intermediate	Expert
Web Browsers	-	2	17	82
Search Engines	-	1	34	66
E-mails	1	2	20	78
Social Network Website	1	1	24	75

Microsoft Office Application	1	8	52	40	
Online Forum	6	29	47	19	
Graphics Application	12	42	30	17	
	Total	21	85	224	377
	%	2.97	12.02	31.68	53.32

From the students' responses the data obtained students' individual computer competence as shown in Table 4.2. 2.8% of the students have not used either of the computer software, 15.55% of the students were beginners just getting familiar with the software. Over 70% of the student had good competency where 37.54% of the students were intermediate and 44.09% of the students indicated that they are expert in the various computer software that includes web browser, search engines, e-mails, and social networks websites.

4.1.3 Student Educational Technology Background

Table 4.3: Statistics of Students' Self-Reported Background

	YES		NO	
	N	%	N	%
2.1 Have you ever taken any course using technology until now?	92	91.1	9	8.9
2.2 Have you ever taken any course using technology before this university?	79	79.0	21	21
2.3 Have you ever used technology for your courses until now (Whiteboard, Projector, PowerPoint presentation, Computer Lab, university library website)	93	93.9	6	6.1
2.4 Have you ever used the internet for your course studies until now? (Examples: Projects, Researches, Homework, etc.)	93	92.1	8	7.9

*Note: N=Number of students that responded to the item, %=Percentage of the student

As reported from the result in PSUTE-Q shown in Table 4.3, 91.1% of the students' have taken courses in which technology were used in teaching until now. 79% of the students' have taken a course using technology before coming to EMU. 93.9% of them

used technology in their courses until now. And 92.1% of the students' stated that they have used internet in their studies before.

4.1.4 Students' Usage

Table 4.4: How frequently did you use “Technology in Education” in your educational activities?

	N	%
Never	1	1.0
Once in a week	2	2.0
Three times in a week	7	6.9
Everyday	64	64.4
More than one in a day	26	25.7
Total	100	100.0

*Note: N=Number of students that responded to the item, %=Percentage of the students

Table 4.4 explains how frequently the students use technology in their educational activities. Only 1.0% of the participants reported that they were not using technology in his/her educational activities. 2% of the students reported that their usage limited to once in a week, while 7% said that they have used three times a week. The participants' percentage that chose every day was 64% and 26% of the participants used technology more than one time in a day in their activities.

Table 4.5: How many times did you use “Technology” in your out-of-class educational activities?

Time Usage	N	%
2	6	5.94
4	5	4.95
6	4	3.96
8	14	13.86
10	17	16.83

14	11	10.89
16	10	9.90
24	34	33.67
Total	101	100.0

*Note: N=Number of students that responded to the item, %=Percentage of the students

When participants were asked, “How many times did you use “Technology” in your out-of-class educational activities?” Table 4.5 shows the result of this question, 45.54 % of the students reported that they have used technology at most 10 times in their out-of-class educational activities.

Table 4.6: How many class hours did you use “Technology” in your in-class educational activities?

Hours Usage	N	%
2	8	7.92
3	5	4.95
4	10	9.90
5	8	7.92
8	12	11.88
9	10	9.90
10	9	8.91
12	18	17.89
14	6	5.94
16	4	3.96
21	3	2.97
24	6	5.94
35	1	0.99
40	1	0.99
Total	101	100.0

*Note: N=Number of students that responded to the item, %=Percentage of the students

Table 4.6 shows about 76.3% of students that participated in the survey have used technology between 4 to 16 hours in their class hours, out of the hours the students gave in their response to the question.

4.2 Characteristics of the Instructors

Table 4.7: Characteristics of Teachers at EMU

Questions	Instructors (Years)				
	1	2	3	4	5
How long have you been working as an instructor in EMU?	10	11	4	10	17
How long have you been working with educational technology?	10	11	4	10	17
What kind of application did you use in your experience?	Programming Language, Office Programmes, whiteboard	PowerPoint, Animations and course website	SPSS, E-View, Microsoft Excel	Publisher's interface (Mc Graw Hill), PowerPoint	Office Managements
Did you find it beneficial?	Yes, easy for students to understand	Yes, the student were able to follow easier	Yes	Yes	It depends how much it is used.

The interview questions results are given in Table 4.7. *Instructors* at Eastern Mediterranean University (EMU) used Technology in their teaching for a long time. As the this first instructor has 10 years, second has 11 years, third has 4 years, the fourth and fifth has 10 and 17 years both in EMU and with the use of Technology as an instructional materials in teaching the students. They also gave some of the tools they use as the Microsoft Office Package, Programming Language, SPSS, E-views and the rest. They all accepted technology has been beneficial to the teaching of the students, with the last instructor stating it depends on how it is been used.

4.3 Perceptions Students' about the Use of Technology in Education (PSUTE-Q)

PSUTE-Q survey was used to investigate Nigerian students' perceptions about the use of Technology in Education. This was carried out in three major aspects namely: How use of technology *affect the motivation of students' towards their educational activities, their perceived usefulness and Perceived ease of use* of the technology.

Table 4.8: Used Abbreviation for Student Perception Questions

Description	Abbr.
Strongly Disagree	SD
Disagree	D
Neutral	N
Agree	A
Strongly Agree	SA

Likert-scale (Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree) was the type of scale of the questionnaire with the abbreviations listed in the Table 4.8 above.

Table 4.9: Descriptive Statistics of Perception Construct

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
Perceived Effects of Motivation	12.7	13.9	9.1	9.7	6.7	7.3	27.8	30.4	35.1	38.4	3.79	0.93
Perceived Usefulness	11.4	11.3	8.8	8.7	2.2	2.2	31.6	31.3	47	46.5	3.93	0.74
Perceived Ease of Use	10.6	10.3	22.5	21.7	9.1	8.8	33.8	32.6	27.4	26.5	3.75	1.55
Overall	11.6	11.8	13.5	13.5	6.0	6.1	31.0	31.5	36.5	37.2	3.82	1.073

*Note: N=Number of students that responded to the item, %=Percentage of the students

Table 4.9 shows the descriptive statistics of the perceptions of the students. 23.84% of the students perceived a negative effect on the motivation, 7.3% were neutral and 68.85% had a positive perception on the perceived effects on motivation. On the perceived usefulness, 19.99% of the students were negative, and 2.18% were neutral while 77.72% of them perceived a great usefulness of the technology. On the other hand, 32.04% believed that the use of technology was hard for them, 8.83% were neutral about the ease of use, and 59.12% of the students perceived positively about the ease of use. As a result, the questionnaire score mean is 3.823 and the standard deviation is 1.073. In addition to that 25.29% of the students had a negative perception and 68.6% of them stating that they had positive perceptions about the use of technology in education which means nearly half of the students that participated in the study.

4.3.1 Perceptions of Students' about the Effects of the Use of Technology on their Motivation towards Educational Activities

By using 9 questions grouped into 4 indicator factors (Interest/Enjoyment, Perceived Competence, Willingness and Participation), the perceptions of the students' about the effects of the use of technology on their motivation towards educational activities were investigated.

Table 4.10: Descriptive Statistics of Sub-factors Effect of Perceived Motivation Factor

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
Interest /Enjoyment	20.3	20.1	9.3	9.2	8	7.9	23	22.7	40.3	39.9	3.53	0.971
Perceived Competence	0	0	4	4.0	10	9.9	48	47.5	39	38.6	4.2	0.779
Willingness	14.3	14.2	17.3	17.2	4	3.7	30	29.7	35	34.6	3.6	1.013
Participation	1.5	1.5	2.5	2.5	8	8	39.5	39.1	49.5	49	4.3	0.835

Overall	9.0	9.0	8.3	8.2	7.5	7.4	35.1	34.8	41	40.5	3.9	0.899
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*Note: N=Number of students that responded to the item, %=Percentage of the students

Table 4.10 shows the sub-factors of the effect of perceived motivation, When *Interest/Enjoyment factor* was examined, 29.3% of the students disagreed on the perceived motivation, 7.9% were neutral, and 62% of them agreed. In the case of *Perceived Competence*, 4.0% of the students disagreed, 9.9% of the students were neutral and 86.1% of them agreed to gain competence with the use of the technology. *Willingness* factor showed, 31.4% of the students gave a negative response while 3.7% of them were neutral and 64.3% agreed on their willingness to use those technologies. Finally 4% of the student disagreed on *participation* factor, 8% of the students were neutral, and 88.1% had a strong perception about their participation. The overall figure shows only 17.2% the students were not agree on the effect of perceived motivation while 75.3 agreed. It has resulted mean score of 3.9 and 0.899 standard deviation.

“Interest/Enjoyment” Factor of Perceived Motivation

Table 4.11: Descriptive “Statistics for Interest/Enjoyment” Factor of Perceived Motivation

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.4...increased my interest on our educational activities	3	3.0	0	0	5	5.0	41	40.6	52	51.5	4.376	0.835
3.6...made our educational activities enjoyable	0	0	0	0	17	16.8	28	27.7	56	55.5	4.386	0.761

3.19... made our educatio n activitie s boring	58	57.4	28	27.7	2	2.0	0	0	13	12.9	1.83	1.319
Overall	20.3	20.1	9.3	9.2	8	7.9	23	22.77	40.3	39.9	3.53	0.971

*Note: N=Number of students that responded to the item, %=Percentage of the students

In order to understand student's interest/enjoyment three items from section 3 in the questionnaire were used. Item S3.4 was asked to determine the students' perceptions about the effect of the use of technology would increase their interest on educational activities. The results showed that 3% of the respondents disagreed that the use of technology increase their educational activities interest while 92.1% agreed the use of technology increase their interest in educational activities. Item S3.6 results showed how the use of technology made the educational activities enjoyable for the students, 16.8% of the students were neutral with their response while the rest 83.2% of the student accepted the use of the technology in their educational activities made it enjoyable. Item S3.19 was used to understand whether the use of technology made educational activities boring or not. 85.1% of the students disagreed and 2% were neutral and 12.9% agreed to the perception of the effect of technology in educational activities made it boring. It has the overall mean of 3.53 and standard deviation of 0.971 shown in Table 4.11.

“Perceived Competence” Factor of Perceived Motivation

Table 4.12: Descriptive Statistics for “Perceived Competence” Perceived Motivation

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.15...increased my satisfaction about our educational activities	0	0	4	4.0	10	9.9	48	47.5	39	38.6	4.21	0.779

*Note: N=Number of students that responded to the item, %=Percentage of the students

Only item S3.15 was used to investigate this indicator. When we look at the Table 4.12, 4% of the students disagreed, 9.9% were neutral and 86.1% agreed when they respond to this item. The mean score for perceived competence was 4.21 and standard deviation value of 0.779.

“Willingness” Factor of Perceived Motivation

Table 4.13: Descriptive Statistics for “Willingness” Factor of Perceived Motivation

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.7...decreased my willingness to work on our educational activities	40	40	46	45.5	3	3.6	5	5	6	5.9	2	1.407
3.11...increased my motivation towards our educational activities	0	0	3	3	4	4	48	48	46	45.5	4.356	0.701
3.18...increased willingness to work on our educational activities	3	3	3	3	5	5	37	37	53	52.5	4.327	0.929
Overall	14.3	14	17	17.2	4	4	30	30	35	34.6	3.561	1.012

*Note: N=Number of students that responded to the item, %=Percentage of the students

Table 4.13 shows three questions from section 3 in the questionnaire that was used to investigate students' willingness. In Question 3.7, 85.5% of the students disagreed that use of technology decreased their willingness on educational activities, 3% were neutral while 10.9% agreed. Question 3.11 results showed, 3% of the students had negative perceptions about the use of technology on their motivation, while 4% were neutral, 93% were positive about the use of these technologies which motivated them towards educational activities. And, Question 3.18 which was the opposite question to question 3.7, 6% went against the use of technology to increase their willingness to work on educational activities and 89.5% agreed it increased their willingness. It has a total overall positive ratio of 64.6% with overall mean of 3.561 and 1.012 of standard deviation.

“Participation” Factor of Perceived Motivation

Table 4.14: Descriptive Statistics for Sub-factor of Perceived Usefulness

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.3...increased my participation in our educational activities	2	2	0	0	5	5.5	43	43	51	50.5	4.396	0.7626
3.12...increased my study time on our educational activities	1	1	5	5	11	11	36	36	48	47	4.238	0.9072
Overall	1.5	1.5	2.5	2.5	8	8	40	39	50	49	4.317	0.8349

*Note: N=Number of students that responded to the item, %=Percentage of the students

In Table 4.14, the two questions were used to investigate the Participation factor, Question 3.3 showed that 2% from the students' response that technology has not increased their participation, and 4.5% uncertain and 93.5% of the student stated technology has increased their educational activities. Question 3.12 was about how

technology has increased their study time, 6% disagreed, 1% were Neutral and 85% agreed to that. The overall scores showed that 4% disagreed on the technology participation factor while 88% of the student agreed on the overall participation factor ratio. The overall mean score was 4.317 and with standard deviation equals to 0.8349.

4.3.2 Perceptions of Students' about Usefulness of Technology

In investigating the usefulness of the use of technology in educational activities, the 6 factors described in Perceived Usefulness Construct of Technology Acceptance Model by Davis (1989) was used. The report of the descriptive statistics for the factors from PSUTE-Q is given in the below table 4.15.

Table 4.15: Descriptive Statistics for Sub-factor of Perceived Usefulness

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
Study more quickly	25	24.8	21	20.8	2	2	11	10	43	42.6	3.253	0.853
Study performance	25	25.3	20	19.8	1	1	16.9	17	38	37.1	3.208	0.945
Increase productivity	2	2	0	0	4	4.0	38	37.6	57	56.4	4.465	0.756
Effectiveness	2	3.0	0	0	4	4.0	48	47.5	48	45.5	4.327	0.814
Makes Study easier	3	3.0	3	3.0	1	1.0	45	44.6	49	48.5	4.327	0.884
Useful	1.3	1.7	1.3	1.3	2.7	2.7	43.3	42.9	52.3	51.8	4.223	0.745
Overall	9.8	10	7.6	7.5	2.5	2.5	33.7	33.3	47.9	46.7	3.967	0.833

*Note: N=Number of students that responded to the item, %=Percentage of the students

Table 4.15 shows the students' perception about the sub-factor of perceived usefulness. Briefly, 45.6% of the students had a negative response, 2% were hesitant and 55.6% were positive about the use of technology in their educational activities. On when we look at the "Study Performance", 45.3% were negative, 1% indecisive and

54.1% were positive about the use of technology. In the case of “*Effectiveness*”, just 3% were negative, 4% indecisive and 93% were positive about the use of technology has enhanced their educational activities. If we look at the “*Make study Easier*”, 6% of the results were negative and 93% positive about the use of technology has made easier for them while working in educational activities. As a result, 3% of the students didn’t find technology *useful*, 94.3% of the student found technology very useful in their educational activities. The overall score showed 17.5% had negative perception about the usefulness of technology in education, while 2.5% were indecisive and 80% were positive about the usefulness of technology in their educational activities. The part of the study resulted overall mean score of 3.697 and 0.833 standard deviation score.

“Work more quickly” Factor of Perceived Usefulness

Table 4.16: Description Statistics for “Study More Quickly” Factor of Perceived

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.1...enabled us to accomplish educational activities more quickly	2	2.0	0	0	1	1.0	17	16.8	81	80.2	4.73	0.68
3.16...decreased my work speed in our educational activities	48	47.5	42	41.5	2	2.0	4	4.0	5	5	1.77	1.03
Overall	25	24.5	21	20.5	2	2	11	10.4	43	42.6	3.25	0.85

*Note: N=Number of students that responded to the item, %=Percentage of the students

While investigating this factor, two questions from section 3 of the questionnaire were used. Table 4.16 shows the results of Question 3.1 and 3.16. In the case of question 3.1, 2% of them disagreed, 1% was neutral and 97% of them agreed on it. Question

3.16 investigated if use of technology decreased their speed in educational activities, 89% of the students disagreed while 2% were neutral and 9% agreed. 45% of the students disagreed and 53% agreed with the factor in the overall score, while the mean score is 3.253 and a standard deviation value of 0.8525.

“Study Performance” Factor of Perceived Usefulness

Table 4.17: Descriptive Statistics for “Study Performance” Factor of Perceived Usefulness

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.2...improved my performance in our educational activities	2	2.0	1	1	0	0	30.7	31	67	66.3	4.58	0.74
3.14...has decreased my performance in our educational activities	49	48.5	39	38.6	2	2.0	3	3	8	7.9	1.832	1.15
Overall	25.5	25	20	20	1	1	16.9	17	38	37.1	3.21	0.95

*Note: N=Number of students that responded to the item, %=Percentage of the students

In order to investigate “Study Performance Factor”, two pair questions for each other (Question 3.2 and Question 3.14) were asked to the students and the result shown in Table 4.17. The overall response shows 45% of the student gave negative and 54% gave a positive response stating that use of technology has improved their performance in educational activities.

“Increase Productivity” Factor of Perceived Usefulness

Table 4.18: Descriptive Statistics for “Increase Productivity” Factor of Perceived Usefulness

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.5 ... increased my productivity in our educational activities	2	2	0	0	4	4	38	37.6	57	56.4	4.465	0.756

*Note: N=Number of students that responded to the item, %=Percentage of the students

To investigate the Increase Productivity factor of perceived usefulness only question 3.5 was used. Table 4.18 shows the results of this question. 2% of the students disagreed the technology increase their productivity in educational activities while 94% agreed. The mean score states 4.465 with a standard deviation of 0.756.

“Effectiveness” Factor of Perceived Usefulness

Table 4.19: Descriptive “Statistics for Effectiveness” Factor of Perceived Usefulness

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.8...enhanced my effectiveness in our educational activities	3	3.0	0	0	4	4.0	48	45.5	48	47.5	4.327	0.814

*Note: N=Number of students that responded to the item, %=Percentage of the students

For analyzing “Effectiveness” factor of the perceived usefulness, Question 3.8 was used. Table 4.19 showed that 3% of the students disagreed and 4% were neutral and 93% of the students agreed the use of technology has enhanced their effectiveness in educational activities. Mean score value was 4.327 and a standard deviation of 0.814.

“Make study easier” Factor of Perceived Usefulness

Table 4.20: Descriptive Statistics for “Make Study Easier” Factor of Perceived Usefulness

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.9 ... made it easier to study on our educational activities	3	3.0	3	3.0	1	1.0	45	44.6	49	48.4	4.327	0.884

*Note: N=Number of students that responded to the item, %=Percentage of the students

Only Question 3.9 from the questionnaire was used to *investigate “make study easier”* factor and the results shown in Table 4.20. 6% of the students were negative with their response, 1% was indecisive and 93% were positive about their perception on technology made it easier to study in their educational activities. The mean score is 4.327 and 0.884 for the standard deviation value.

Useful Factor of Perceived Usefulness

Table 4.21: Descriptive Statistics for Useful factor of Perceived Usefulness

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
3.10...was beneficial to access the educational activities	2	3.0	1	1	2	2.0	45	44.6	51	50.4	4.39	0.80
3.13...improved our opportunity to work on our educational activities	0	0	2	2.0	3	3.0	42	41.6	54	53.4	4.47	0.66
3.17...was useful in our educational activities	2	2.0	1	1.0	3	3.0	43	42.6	52	51.4	4.41	0.78
Overall	1.3	1.7	1.3	1.3	2.7	2.7	43.3	42.9	52.3	51.4	4.22	0.75

*Note: N=Number of students that responded to the item, %=Percentage of the students

Three questions were used for analyzing this factor. Table 4.21 shows the results of this factor. Question 3.10 which was asked to obtain perceptions of the students about its usefulness related with accessing to the technology. 4.0% of the students disagreed, 2% neutral and 95% of them agreed that use of technology has been beneficial to their access to educational activities. Question 3.13 stated that 2% of the students disagreed, 3% neutral and 95% of them agreed that use of technology has improved their opportunities to work on educational activities. While Question 3.17 stated 94 of the students agreed that use of technology was useful in their educational activities. The overall percentage shows 94.3% of the students found use of technology very useful. And overall mean score was 4.223 and standard deviation value equals to 0.745.

4.3.3 Students' Perceptions about Ease of Use

Six factors from Perceived Ease of Use Construct of Technology Acceptance Model designed by Davis were used to investigate the perceptions of students' about the use of Technology in Education. Ease of Use descriptive statistics obtained from the results of PSUTE-Q shown in Table 4.22.

Table 4.22: Descriptive Statistics for Sub-factors of Perceived ease of Use

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
Easy to Learn	23	22.7	23	22.7	3	3.0	26.5	26.3	25.5	25.3	3.085	0.923
Easy to Use	0	0	4	4.0	11	10.9	35	34.7	51	50.5	4.327	0.824
Easy to Become Skillful	0	0	1	1.0	12	11	46	45.5	42	41.6	4.28	0.709

Clear & Understandable	9.75	9.75	14	13.4	11	10.9	34	34.45	31.6	31.5	3.807	1.996
Overall	8.19	8.11	10.5	10.4	9.4	8.9	35.4	35.34	37.53	37.25	3.87	1.113

*Note: N=Number of students that responded to the item, %=Percentage of the students

Table 4.22 shows the responses of the students about the ease of use sub-factor about the use of Technology in their educational Activities. “*Easy to learn*” factor resulted in 45.4% of the students gave a negative response and 51% of the student had a positive response. “*Easy to Use*” factor had more positive response with 85.2% of the students stating technology was easy to use. Likewise, “*easy to become skillful*” factor had more positive response of 87.1% of the respondents, while “Clear & Understandable” factor resulted 23.15% of the students gave a negative response, 10.9% were indecisive and 65.95% of the students gave a positive response. The construct overall mean was 3.87 and the standard deviation value of 1.113.

“Easy to Learn” Factor of Perceived Ease of Use

Table 4.23: Descriptive Statistics for “Easy to Learn” factor of Perceived Ease of Use

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
4.1 Learning to use “technology in education” was easy for me	0	0	6	5.9	2	2.0	46	45.5	47	46.6	4.327	0.789
4.5 It was difficult to learn to use technology in education	46	45.5	40	39.6	4	4.0	7	6.9	4	4.0	1.842	1.056
Overall	23	22.75	23	22.75	3	3.0	26.5	26.2	25.5	25.25	3.085	0.923

*Note: N=Number of students that responded to the item, %=Percentage of the students

Two questions were used to investigate “easy to learn” factor of perceived ease of use (Table 4.23). The Question 4.1 showed 5.9% of the students disagreed that learning to use technology was easy for them, 2% were neutral and 92.1% were positive about learning to use technology in education was easy for them. The results of Question 4.2 showed 85.1% of the students disagreed that it was difficult to learn with the use of technology in education while 10.9% of the student agreed to this. In overall score 45.5% were of the negative opinion and 51.45% were positive. The overall means score is 3085 and 0.923 for standard deviation.

“Easy to Use” Factor of Perceived Ease of Use

Table 4.24: Descriptive Statistics for “Easy to Use” factor of perceived Ease of Use

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
4.8 I found technology in education easy to use	0	0	4	4.0	11	10.9	35	34.6	51	50.5	4.327	0.824

*Note: N=Number of students that responded to the item, %=Percentage of the students

Question 4.8 is the only question used to investigate “Easy to use” factor, it’s stated in Table 4.24 that 4% of the students disagreed that the use of technology was easy to use, 11% were neutral and 85.6% of the students agreed that idea. The mean score was 4.327 and 0.824 for standard deviation.

“Easy to Become Skillful” factor of perceived Ease of Use

Table 4.25: Descriptive Statistics of “Easy to Become Skillful” factor of perceived Ease of Use

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
4.2 It was easy to become skillful by using Technology in education	0	0	1	1.0	12	11	46	45.5	42	42	4.28	0.709

*Note: N=Number of students that responded to the item, %=Percentage of the students

This factor was measured by only one question (Question 4.2). Table 4.25 showed 1% of the student disagreed idea that it was easy to become skillful by using technology in education, 11% were neutral and 88% agreed. The mean score was 4.28 and standard deviation of 0.709.

“Clear and Understandable” Factor of Perceived Ease of Use

Table 4.26: Descriptive Statistics for “Clear and Understandable” factor of Perceived

	SD		D		Neutral		A		SA		Mean	Std. Dev.
	N	%	N	%	N	%	N	%	N	%		
4.3 User interface and messages of computer technologies were clear and understandable	0	0	1	1.0	15	14.9	41	40.6	42	41.6	4.76	4.129
4.4 User interface and messages of computer technologies were user friendly	0	0	2	.0	12	11.9	46	45.5	40	39.6	4.24	0.740
4.6 User interfaces and messages of technologies	0	0	9	8.9	7	6.9	45	44.6	40	39.6	4.149	0.899

uses terms familiar to me												
4.7 It was hard to understand the user interface of educational technologies	39	38.6	44	43.6	10	9.9	4	4.0	3	3.0	2.079	2.217
Overall	9.75	9.65	14	13.38	12	10.9	34	33.68	31.25	31.99	3.807	1.996

*Note: N=Number of students that responded to the item, %=Percentage of the students

For examining this factor 4 questions used and the results presented in Table 4.26. The Question 4.3 showed 82.2% of the students agreed that they had a clear and understandable user interface and messages of the computer technologies. The results for the Question 4.4 were, 85.1% of the students accepted that the user interface and messages of computer technologies was user friendly. In the case of Question 4.6 the results showed that 84.2% of the students accepted that the user interface and messages of computer technologies used the terms that they are familiar with them. And 83.2% of the students disagreed that it was hard to understand the use interface of technology in education. The overall percentage 23.03% disagreed on clear and understandable factor, 12% were neutral and 64.63% agreed on the clear and understandable factor.

4.4 The Perceptions of the Instructors

The perceptions of Instructors' about the use of technology in education were investigated with interview using "Perception of Instructors about the use of Technology in Education Interview Guide" (PUITE-IG). Five interviews was conducted within the instructors at EMU across the departments with a sample of the response included in Appendix C. The interview data was analyzed with descriptive analysis approach explained by Yıldırım & Şimşek, (2006). In line with the approach,

a conceptual framework that was used in this research for the descriptive analysis of the interview data was created (Table 4.27).

Table 4.27: Conceptual Framework for the Interview Data

1. Effect of the use of technology on Students' Perceived Motivation towards activities in education
a. Participation
b. Interest/Enjoyment
c. Perceived Competence
d. Willingness
2. Perceived Usefulness
a. Work more quickly
b. Job performance
c. Increase productivity
d. Effectiveness
e. Make Job easier
f. Overall Usefulness
3. Perceived Ease of Use
a. Easy to Learn
b. Easy to become skillful
c. Clear & Understandable Interface
d. Overall Easy to use
4. Advantages and Disadvantages
5. Suggestions

The framework for the interview data as listed in Table 4.27 above are; Effect of the use of technology on students' perceived motivation was carried out using items that includes; participation, interest/enjoyment, perceived competence, willingness. Perceived usefulness include; work more quickly, job performance, increase productivity, effectiveness, make job easier, and overall usefulness. Perceived Ease of Use are easy to learn, easy to become skillful, clear & understandable interface and overall easy to use. Advantages and disadvantages of the use with the suggestions from the instructions were all listed.

4.4.1 The Perceptions of the Instructors' about the Effect of the use of technology on Students' Perceived Motivation towards activities in education

The effect of the use of technology on students' perceived motivation towards activities in education was investigated with different questions. But the first was "How did the use of technology effect the motivation of the students towards their concentration on the activities, Positively Negatively or Not Affected?" All of the five instructors gave a positive response except one (instructor 5) who said it depends. They shared the following observations as indicators;

Instructor 1

"It affects the students' motivation positively and affects the students' grades".

Instructor 2

"There was an impression when they got the lecture material in a better way which made them to study after the class hour".

Instructor 3

"The students who used the applications for their their assignment and term projects had higher grades when compared to the ones done without using the applications".

Instructors 4

“Especially when using PowerPoint, the students could easily follow what the instructor was taking about and they understood better. It’s easy for them to follow”.

Instructor 5

“The willingness of the student to use their mobile phone to do research were high. They loved when projector was on and they were excited when video were presented in classes”.

Interest/Enjoyment

Interest/Enjoyment is the first predefined indicator for perceived motivation. In investigating the perceptions of the instructors’ about this factor, they have asked two questions; the first one for students’ interests and the other one for their enjoyment by using the technology.

The first question was, “Have you observed that the use of the technology has increased students’ *interest* to their educational activities?” All of the instructors accepted that the use of technology has increased the students’ interest to their educational activities.

The second question was “Have you observed that the use of the technology has increased students’ *enjoyment* in their educational activities?” The instructors reported positive observations by stating “Yes” while the Instructor 5 stated that “it was depended on the method been used to teach the students”.

Perceived Competence

“Perceived Competence” was the second predefined indicator for the perceived motivation. To investigate the perceptions of instructors’ about this factor, following question was asked, “Have you observed that the use of the technology has increased students’ satisfaction about their educational activities?” They all gave a positive

response of “Yes” and the Instructor 5 added following statement “because of the fun they derive in using technology and it makes them active”.

Willingness

Willingness is the third predefined indicator for the perceived motivation. To investigate the perceptions of instructors’ about this factor, they were asked “Have you observed that the use of the technology has increased students’ willingness to work on their educational activities?” Three instructors gave a positive response. While Instructor 4 noted that it was not applicable and Instructor 5 said “it depended on how the technology was used”.

Participation

Participation was the final indicator for perceived motivation. To investigate the perceptions of the instructors’ about this factor, two questions were asked; one of which was about the change on students’ participation and the second one was about the change on their study time educational activities.

The first question was “Have you observed that the use of the technology has increased students’ participation to their educational activities”? All of the instructors gave positive responses except instructor 5 stated negative observation, because the students didn’t know when she’s going to use it, it served a surprise to the students.

The second questions asked “Have you observed that the use of the technology has increased students’ *study time* in their educational activities”? Three of the instructors gave positive observations while Instructor 4 and 5 observations was negative, instructor 5 stated that student didn’t study unless they have pushed, so use of technology still didn’t increase their study time.

4.4.2 The perceptions of the Teachers' about Usefulness of the Technology

The perception of the instructors' about usefulness of the Technology was investigated by asking following questions, "What do you think about the usefulness of the technology in educational activities? Was it useful or not". All of the instructors' gave positive responses and supported their observations when they were asked "in what way" question. Their responses were as follows;

Instructor 1

"It was useful because it made the instructors' job easier, pictures and animations could be used for presentation to the students. By this way, students would see what were taught instead of using their imagination".

Instructor 2

"It was better to explain the concepts with the use of the technology in educational activities."

Instructor 3

"The students used applications in their day to day activities and new technology, so it was easy for them to grab the knowledge to use in educational activities and made them interesting; in this way they have found it was useful."

Instructor 4

"The use of this technology was useful in students' educational activities because it made students to understand better".

Instructor 5

"It was useful because as an instructor, I was able to teach more content in a lesser time; in addition to that the students also understood more quickly, over all, it was a time saver".

Work more quickly

The first indicator for perceived usefulness was "Work more quickly. To investigate the perceptions of the teachers' about this factor, this question was asked "Have you

observed that the use of the technology has increased students' work speed in their educational activities". All of the instructors had positive responses on this question.

Job Performance

In order to investigate "Job Performance" the following question was asked "Have you observed that the use of the technology has increased students' performance in their educational activities?" All of the instructors stated positive opinions about the use of technology have increased students' performance in their educational activities".

Increase productivity

The third indicator for Perceived usefulness was "increase productivity". To understand this factor following question was asked. "Have you observed that the use of the technology has increased students' productivity in their education activities?" All of the instructors gave positive opinions except Instructor 4 stated a total negative opinion because technology made things easier, so that it caused them to be less productive.

Make job easier

For perceived usefulness, the fourth predefined indicator was ""Make job easier". In order to investigate the perceptions of the instructors' about this factor, two questions were asked;

The first question stated "Have you observed that the use of technology made it easy for students to access to the source of the educational activities?" The instructors had positive opinions on this factor.

The second question stated, “Have you observed that the use of the technology made the development of educational activities for students easy?”. All of the instructors reported positive observations.

Overall Usefulness

The final predefined indicator for investigating “Perceived usefulness” was “Overall Usefulness”. While investigating the perceptions of the instructors’ about this factor; The first question stated “Have you observed that the use of the technology increased students’ contribution in their educational activities?” All of the five instructors reported positive observations and it was explained more by instructor 4, he said that the students’ contribution to the educational activities has increased because they were more relaxed in the classroom environment which gave them a confidence to contribute to whatever the instructor was teaching.

The second question stated “Have you observed that the use of the technology improved students’ opportunity to work on educational activities?” All of the instructors accepted this opinion and went in line with it.

And the last question was “Have you observed that the use of the technology useful overall?” Instructors accepted that the use of technology in educational activities was useful overall.

4.4.3 Perceptions of Instructors’ about Ease of Use of the Technology

To understand the perceptions of the instructors’ about the ease of use of Technology in educational activities, the questions asked to them were grouped into four indicators in accordance with the Perceived Ease of Use construct of Technology Acceptance Model (TAM). The instructors’ responses were reported in the following session.

Easy to Learn

“Easy to learn” was the first indicator of the perceived ease of use. In order to investigate the perceptions of the instructors’ about this factor following question was used “Was learning to use technology easy for your students?” All of the respondents gave positive opinions to this question.

Easy to become skillful

The perceived ease of use’s second indicator was “Easy to become skillful”. The perceptions of the instructors’ were used to investigate this factor by asking following question “Was becoming skillful at using technology easy for your student”. Four, out of the instructors gave positive opinions. Only Instructor 5 gave a neutral opinion because the students only get skillful when they repeat a particular task.

Clear and Understandable interface

The third indicator for perceived ease of use was “Clear & Understandable”. The perceptions of the instructors’ about this factor were investigated by using four questions.

The first question stated, “Were user interface and messages of Technology clear for your students?” All of the instructors stated positive responses.

The second question was, “Were user interface and messaged of Technology user friendly for your students?” In this case, the perceptions of the four instructors were positive and the Instructor 5 stated a negative opinion that the students were lazy so they found it not user friendly.

The third question was “Does user interfaces and messages of Technology uses term familiar for the students?” The entire, five instructors gave positive opinions about the use of this technology.

The fourth and the last question asked to the instructors was “Was it hard to understand the user interfaces of technologies for your students?”. All of the instructors gave positive responses to this question by stating that it was not hard for the students to understand the user interface in their educational activities.

Overall Easy to Use

For investigating perceived ease of use the final indicator was “Overall easy to use”. The instructors were asked “In overall, was the use of Technology easy for your students?” to investigate the perceptions of the instructors about the factor. All of the instructors accepted that technology was easy for the students overall. It was easier for the students that grow up the technology.

4.4.4 Advantages and Disadvantages of this Technology from the Instructors Point of View.

During the interviews, the instructors were asked to give advantages and disadvantages of the use of technology in educational activities. The results are listed as follows;

Advantages

- It makes it easy to bring data closer to the students, easy to access data with the use of technology.
- It makes student to understand easily what they are taught.
- It is helpful and useful for students after graduation, in the real life scenario.
- It gives room for distance learning.

- It speeds up learning when it used appropriately.

Disadvantages

- The use of technology makes the students to get lazy in educational activities.
- When technology is used all the time in the educational activities it causes boredom.
- Its cause distraction during the class hour.

4.4.5 Instructors' suggestions about the use of Technology in Education

The instructions were also asked to give suggestions about the future and possible use of the technology in educational activities and they gave the listed contributions.

Suggestions

- Introduction of videos that could show the application process of the theories to the practice.
- Introduction of Smart Classroom, where students bring their own devices (mobile, tablet and laptop) to the classroom.
- The technologies used for education should be improved.
- Instructors should be trained and given refresher courses on the use of technology in education.
- Introduction of publisher interface into the education system.
- Improvement in the internet connection.
- PowerPoint should not be used from the beginning to the end of classes.
- Introduction of classroom technology that at a click could form the class into groups.

Chapter 5

CONCLUSION

This study is designed to investigate the perceptions of Nigerian students' about the use of technology in education. The questionnaire administered to Nigerian students for obtaining data in EMU. The findings revealed that Nigerian students embraced the use of technology and have contributed significantly to their learning achievement in EMU. The results of the findings summarized in terms of its perceived effects on students' motivation towards educational activities, usefulness and its ease of use.

Perceived Effects on students' Motivation towards Educational Activities

From the results of the study, 25.3% of the students stated negative perceptions, 6.1% were hesitant and 68.6% of the students had positively perceived the effect of about the use of technology on their motivation towards educational activities and the mean score was 3.82. The positive perception of the students had a higher percentage that participated in the research. It covered their interest/enjoyment, perceived competence, willingness and their participation towards the use of technology in educational activities.

Perceived Usefulness

The result of the perceived usefulness showed, the mean score value of 3.967. 17.5% of the students responded negatively to the usefulness of technology in education, 2.5% of the students were uncertain about their answers. And 80% of them responded

positively to the perceived usefulness of the use of technology in educational activities. It covered different factors i.e., the students' ability to study more quickly with the involvement of technology in their educational activities. They accepted to have better performance; productivity, effectiveness, and their education come easier with the use of these technologies.

Perceived Ease of Use

The answers of the Nigerian students on their perceived Ease of Use showed 18.51% of students didn't agree to the ease of use of technology in education, 8.9% of the students were indecisive. While 72.59% of the students agreed that it was easy for them to use technology in their educational activities.

5.1 Recommendations

Based on the literature review, it shows that the integration of technology into the educational system in Nigeria is far behind. Attention needs to be technology for learning and teaching in the Nigerian Universities. The universities also need to source for funds from various investors in other to acquire the appropriate technology. They should train the instructors through seminars and training courses on how they can integrate technology into their teaching process. And also encourage the student to embrace it. It's necessary for the government to develop a clear policy that could guide the development and integration of these technologies. The Federal Government of Nigeria should also improve the infrastructural facilities like electricity and Internet access within the university premises.

The perceptions of students about the use of technology in education still need further research. To discover more about the students' acceptance and the technology effect

on their academic achievement. Research should be carried out to compare perceptions of students' from different continents.

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APPENDICES

Appendix A: Perceptions of Students' about the Use of Technology in Education Questionnaire (PSUTE-Q)

This questionnaire is prepared to explore perception of Nigerian Students about the use of Technology in education.

The questionnaire is prepared to be used for the master thesis study performed in Computer Education and Instructional Technologies Department at Eastern Mediterranean University.

Your response will be kept confidential and will only be used for this study.

Contact:

Olusegun David ADEYEMO

adexsegzy@yahoo.com

Academic Supervisor:

Prof. Dr. M. Yaşar ÖZDEN

Please enter following information about yourself.

Gender Male Female

SECTION 1:

In this section, 7 technologies are listed. For each of the technology, please select one of the competency level that best describe your competency. Use your mouse pointer to select your choice and please select only one for each question.

		Not Used	Beginner	Intermediate	Expert
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1.1	Web Browser (Internet Explorer, Chrome, Mozilla, Opera)				
1.2	Search Engine (Google, MSN, Bings, Yahoo)				
1.3	Email (Yahoo, Gmail, Hotmail, Outlook)				
1.4	Social Networking website (Facebook, Instagram, twitter)				
1.5	Microsoft Office Applications (Word, Excel, PowerPoint)				
1.6	Online Forums and Blogs				
1.7	Graphics Application (Photoshop, Flash)				

SECTION 2:

This section contains questions about your previous experiences about use of technology in learning environments. Use your mouse pointer to select your answer and please select only one answer for each question.

		Yes	No
2.1	Have you ever taken any course using technology until now?		
2.2	Have you ever taken any course using technology before this university		
2.3	Have you ever used technology for your courses until now (Whiteboard, Projector, PowerPoint presentation, Computer Lab, university library website)		
2.4	Have you ever used the internet for your course studies until now? (Examples: Projects, Researches, Homework, etc.)		

SECTION 3:

Please indicate how much you agree or disagree with following statements listed below. Use your mouse to select your choice and please select one for each statement.

Using “Technology in Education”;

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3.1	... enabled us to accomplish					

	educational activities <u>more quickly</u>					
3.2	... improved <u>my performance</u> in our educational activities					
3.3	... increased <u>my participation</u> in our educational activities					
3.4	... increased <u>my interest</u> on our educational activities					
3.5	... increased <u>my productivity</u> in our educational activities					
3.6	... made our educational activities <u>enjoyable</u>					
3.7	... decreased <u>my willingness</u> to work on our educational activities					
3.8	... enhanced <u>my effectiveness</u> in our educational activities					
3.9	... made it <u>easier to study</u> on our educational activities					
3.10	... was <u>beneficial to access</u> the educational activities					
3.11	... increased <u>my motivation towards our</u> educational activities					
3.12	... increased <u>my study time</u> on our educational activities					
3.13	... improved <u>our opportunity to work on</u> our educational activities					
3.14	... has decreased <u>my performance</u> in our educational activities					
3.15	... increased <u>my satisfaction</u> about our educational activities					

3.16	... decreased <u>my work speed</u> in our educational activities					
3.17	... was <u>useful</u> in our educational activities					
3.18	... increased <u>willingness</u> to work on our educational activities					
3.19	... made our education activities boring					

SECTION 4:

Please indicate how much you agree or disagree with each of the following statements listed below. Use your mouse pointer for selecting Please indicate how much you agree or disagree with each of the following statements listed below. Use your mouse pointer for selecting your choice and please select only one for each statement.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4.1	Learning to use “technology in education” was <u>easy</u> for me					
4.2	It was <u>easy to become skilful</u> at using Technology in education					
4.3	User interface and messages of computer technologies <u>were clear and understandable</u>					
4.4	User interface and messages of computer technologies <u>uses terms familiar to me</u>					
4.5	It was <u>difficult to learn to use</u> technology in education					
4.6	User interfaces and messages of technologies <u>uses terms familiar to me</u>					

4.7	It was <u>hard</u> to understand the user interface of educational technologies					
4.8	I found technology in education <u>easy to use</u>					

SECTION 5:

#	Question
5.1	<p>Approximately, how frequently did you use “Technology in Education” in your educational activities? Please select one of the choices which best describes your usage.</p> <p> <input type="checkbox"/> never <input type="checkbox"/> once in a week <input type="checkbox"/> three times in a week <input type="checkbox"/> everyday <input type="checkbox"/> more than ones in a day </p> <p>Please indicate your reason:</p> <div style="border: 1px solid black; height: 50px; width: 100%;"></div>
5.2	<p>Approximately, how many times did you use “Technology” in your out-of-class educational activities? Please enter your answer in the following box.</p> <p>Times</p> <div style="border: 1px solid black; width: 50px; height: 20px; margin-left: 20px;"></div> <p>Please indicate your reason:</p> <div style="border: 1px solid black; height: 50px; width: 100%;"></div>
5.3	<p>Approximately, for how many class hours did you use “Technology” in your in-class educational activities? Please enter your answer in the following box</p> <p>Class hours</p> <div style="border: 1px solid black; width: 50px; height: 20px; margin-left: 20px;"></div> <p>Please indicate your reason:</p> <div style="border: 1px solid black; height: 50px; width: 100%;"></div>

Appendix B: Perceptions of Instructors about the Use of Technology in Education Interview Guide (PIUTE-IG)

The aim of this interview is to explore the perceptions of Instructors of EMU about the use of Technology in educational activities by the students.

The interview is prepared to be used for a masters' thesis study performed in Computer Education and Instructional Technologies in Eastern Mediterranean University.

If is it all right for you, I will like to record our conversation to make sure that I will not miss any point of the interview.

Your response will be kept confidential and will be used only for this study.

Contact: adexsegzy@yahoo.com

Academic Supervisor:

Prof Dr. M. Yaşar ÖZDEN

Interview Date : ____ / ____ / _____

Interviewer : _____

Interviewee : _____

SECTION 1:

1. How long have you been working as an instructor in EMU?
2. How long have you been working with educational technology?
3. What kind of application did you use in your experience?

3.1 Did you find it beneficial?

If the answer is yes

3.2 What were the beneficial features?

SECTION 2:

4. How did the use of technology effect the motivation of the students towards their concentration on the activities in education, Positively, Negatively or not effected?

If the answer is “not effected” continue when the following questions;

- 4.1 Why do you think that the use of the system do not effect student’s motivation? What can be the possible factors in your opinion?

Continue the question 5.2.1 to drill down to get detailed information and ensure negative answer.

If the answer is “negatively”, continue with the following questions;

- 5.2 Why do you think that the use of the system affected student’s motivation negatively? What can be the possible factors in your opinion?

Continue with question 5.2.1 to drill down to get detailed information and to ensure negative answer.

If the answer is “positively”, continue with the following questions;

- 4.2 What are the indicators of the increase of the students’ motivation by the use of this technology?

If the following indicators are not covered, ask following questions.

Have you observed that the use of the technology has increased?

5.2.1 ... student's participation to the educational activities?

5.2.2 ... student's interest to the educational activities?

5.2.3 ... student's enjoyment in the educational activities?

5.2.4 ... student's study time in the educational activities?

5.2.5 ... student's satisfaction about the educational activities?

5.2.6 ... student's willingness to work on the educational activities?

SECTION 3:

5. What do you think about the usefulness of this technology in student's educational activities? Was it useful or not?

If the answer is negative, continue with the following questions;

6.1 Why do you think that the use of the system was not useful?

6.1.1 What were the insufficient features?

6.1.2 What can be the possible improvements?

Continue with question 6.2.1 to drill down to get detailed information and ensure negative answer.

If the answer is positive, continue with the following questions;

6.2 In what ways, was this technology useful in student's educational activities?

If the following indicators are not covered, ask the following questions.

Have you observed that the use of the technology has?

6.2.1 ... increased students' work speed in the educational activities?

- 6.2.2 ... increased students' performance in the educational activities?
 - 6.2.3 ... increased students' productivity in the educational activities?
 - 6.2.4 ... increased students' contribution to the educational activities?
 - 6.2.5 ... made the development of the educational activities easy?
 - 6.2.6 ... made it easy for students to access to the sources of the educational activities?
 - 6.2.7 ... improved students' opportunity to work on the educational activities?
- 6.3 Was the use of this technology useful overall?

SECTION 4:

Please answer the following questions based on your observations.

6. Was learning to use "Educational Technology" easy for your students?
7. Was becoming skillful at using "Educational Technology" easy for your students?
8. Were user interfaces and messages of "Educational Technology" clear for your students?
9. Were user interfaces and messages of "Educational Technology" user friendly for your students?
10. Does user interfaces and messages of "Educational Technology" uses terms familiar for your students?
11. Was it hard to understand the user interfaces of "Educational Technology" for your students?
12. In overall, was the use of "Educational Technology" easy for your students?

SECTION 5:

13. What can be your suggestions about the future and other possible uses of this technology in the educational activities?

14. What can be other advantages of the use of this technology?

15. What can be other disadvantages of the use of this technology?

My questions end here. Thank you very much for your contribution. Do you have any other comments on the issue or the questions?

Appendix C: Sample of Interview Response

4

Perceptions of Instructors about the use of Technology in Education Interview Guide (PIUTE-IG)

The aim of this interview is to explore the perceptions of Instructors of EMU about the use of Technology in educational activities by the students.

The interview is prepared to be used for a masters' thesis study performed in Computer Education and Instructional Technologies in Eastern Mediterranean University.

If it is all right for you, I will like to record our conversation to make sure that I will not miss any point of the interview.

Your response will be kept confidential and will be used only for this study.

Contact: adexsegzy@yahoo.com

Academic Supervisor:

Prof Dr. M. Yaşar ÖZDEN

Interview Date : 14 / 07 / 15
Interviewer : Prof. Dr. Mustafa Kemal Adayama
Interviewee : Prof. Dr. Burak Ali Çelik

Section 1:

1. How long have you been working as an instructor in EMU? 10 years
2. How long have you been working with educational technology? 10 years
3. What kind of application did you use in your experience? powerpoint / ~~past~~ / ~~excell~~
4. Did you find it beneficial? Yes
If the answer is yes
4.1 What were the beneficial features? Speed Publisher's interface (Mc Graw Hill)
5. How did the use of technology affect the motivation of the students towards their concentration on the activities in education, Positively, Negatively or not effected? Positively

If the answer is "not affected" continue when the following questions:

- 5.1 Why do you think that the use of the system do not affect student's motivation? What can be the possible factors in your opinion?

Continue the question 5.2.1 to drill down to get detailed information and ensure negative answer.

If the answer is "negatively", continue with the following questions;

5.2 Why do you think that the use of the system affected student's motivation negatively?
What can be the possible factors in your opinion?

Continue with question 5.2.1 to drill down to get detailed information and to ensure negative answer.

If the answer is "positively", continue with the following questions;

4.2 What are the indicators of the increase of the students' motivation by the use of this technology?

Point → Attract. / Easy to follow

If the following indicators are not covered, ask following questions.

Have you observed that the use of the technology has increased?

5.2.1 ... student's participation to the educational activities?

Yes. they fully participate

5.2.2 ... student's interest to the educational activities?

Yes.

5.2.3 ... student's enjoyment in the educational activities?

No. Yes

5.2.4 ... student's study time in the educational activities? 5.2.5 ... student's satisfaction about the educational activities?

Yes.

5.2.6 ... student's willingness to work on the educational activities?

N/A.

SECTION 3:

6. What do you think about the usefulness of this technology in student's educational activities?
Was it useful or not?

Useful

If the answer is negative, continue with the following questions;

6.1 Why do you think that the use of the system was not useful?

6.1.1 What were the insufficient features?

6.1.2 What can be the possible improvements?

Continue with question 6.2.1 to drill down to get detailed information and ensure negative answer.

If the answer is positive, continue with the following questions;

6.2 In what ways, was this technology useful in student's educational activities?

It makes students to understand better.

4

If the following indicators are not covered, ask the following questions.

Have you observed that the use of the technology has?

- 6.2.1 ... increased students' work speed in the educational activities? *No Yes*
- 6.2.2 ... increased students' performance in the educational activities? *Yes*
- 6.2.3 ... increased students' productivity in the educational activities? *No*
- 6.2.4 ... increased students' contribution to the educational activities? *Yes*
- 6.2.5 ... made the development of the educational activities easy? *Yes*
- 6.2.6 ... made it easy for students to access to the sources of the educational activities? *N/A*
- 6.2.7 ... improved students' opportunity to work on the educational activities? *Yes*
- 6.3 Was the use of this technology useful overall? *Yes*

Control and more relaxed environment in class & confidence in class

they get used to doing things easier they made them more less productive

SECTION 4:

Please answer the following questions based on your observations.

- 7. Was learning to use "Educational Technology" easy for your students? *Yes*
- 8. Was becoming skillful at using "Educational Technology" easy for your students? *Yes*
- 9. Were user interfaces and messages of "Educational Technology" clear for your students? *Yes*
- 10. Were user interfaces and messages of "Educational Technology" user friendly for your students? *Yes*
- 11. Does user interfaces and messages of "Educational Technology" uses terms familiar for your students? *Yes*
- 12. Was it hard to understand the user interfaces of "Educational Technology" for your students? *No*
- 13. In overall, was the use of "Educational Technology" easy for your students? *Yes*

SECTION 5:


- 14. What can be your suggestions about the future and other possible uses of this technology in the educational activities? *Improvement in internet connection*
- 15. What can be other advantages of the use of this technology? *Distance learning may be useful.*
- 16. What can be other disadvantages of the use of this technology? *Make students lazy.*

Introduction: Idea of Publisher interface (internet connects to the educational system)

My questions end here. Thank you very much for your contribution. Do you have any other comments on the issue or the questions?

Thank you!

Appendix D: Letter of Consent

	doğu akdeniz üniversitesi	eastern mediterranean university	İç Yazışma Inter-Office Memorandum
Gönderilen/To	:Prof. Dr. Ülker Vancı OSAM Eğitim Fakültesi Dekanı (v)		Tarih/Date : 29/05/2015
Gönderen/From	:Doç. Dr. Ersun İŞÇİOĞLU Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölüm Başkanı		Sayı/Ref No.: EGF05-2015-0065
Konu/Subject	:145412 numaralı öğrencimiz Olusegun David Adeyemo anket izni hk.		
<p>Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümü, Eğitimde Bilgi ve İletişim Teknolojileri Yüksek Lisans Programı, 145412 numaralı öğrencisi Olusegun David Adeyemo, tez çalışması kapsamında Üniversitemizdeki öğrenci ve öğretim elemanlarına ekte yer alan anket ve görüşme formunu uygulamak istemektedir.</p> <p>Konu ile ilgili olarak, gereğini olurlarınıza saygılarımla arz ederim.</p>			
Ek:	1- Olusegun David Adeyemo' nun Dilekçesi 2- Anket Formu. 3- Görüşme Formu		
Eİ/fg.			