HAIGAZIAN UNIVERSITY

FACTORS THAT INFLUENCE INFORMATION COMMUNICATION TECHNOLOGY USAGE BY PRIVATE UNIVERSITY INSTRUCTORS IN LEBANON

By

SHANT ESTEPAN ESTEPAN

A Thesis

Submitted in Partial Fulfillment of the Requirements for the Degree of Masters of Business Administration

To the Faculty of Business Administration and Economics

At Haigazian University

Beirut, Lebanon

August 2015

HAIGAZIAN UNIVERSITY

FACTORS THAT INFLUENCE INFORMATION COMMUNICATION TECHNOLOGY USAGE BY PRIVATE UNIVERSITY INSTRUCTORS IN LEBANON

By

SHANT ESTEPAN ESTEPAN

Approved by:

Dr. Sona Jerejian **First Reader**

Assistant Professor in Business Administration

Faculty of Business Administration and Economics

Dr. Akram Tannir **Second Reader**

Lecturer in Business Administration

Faculty of Business Administration and Economics

Date of thesis presentation:

18 August, 2015

HAIGAZIAN UNIVERSITY

THESIS RELEASE FORM

I, Shant Estepan Estepan

☑ Authorize Haigazian University to supply copies of my thesis to libraries or individuals upon request

☐ Do not authorize Haigazian University to supply copies of my thesis to libraries or individuals for a period of two years starting with the date of the thesis defense.

_____

Signature

_____

Date

DEDICATION

This thesis is dedicated to the memory of my mother **Marie Malkhassian** who believed in my dreams and encouraged me to continue my Master's degree.

ACKNOWLEDGEMENTS

First, I would like to thank GOD for providing me the endurance, the patience, the strength, and the capability throughout this research study.

Second, I would like to express my deepest appreciation and gratitude to my advisor Dr. Sona Jerejian who has always been available when needed. Her constant support, guidance, keenness, and passion were a drive for me to achieve what I could not have done without her. She has been an outstanding ideal for me.

I would like also to thank Dr. Akram Tannir for his insight, statistical analysis, and support.

I want to specially acknowledge the support of my family, their continuous love and encouragement throughout these years.

A special thanks to Dr. Nazareth Nicolian for his support and guidance.

A special thanks to Mr. Alec Yaverian who has facilitated the process of data gathering.

A special thanks to the respondents who were very serious in answering the survey questionnaire. Their contribution helped tremendously to have accurate results.

Finally, I would like to thank Haigazian University for all the opportunities that they have provided, and especially for the possibility of higher education.

AN ABSTRACT OF THE THESIS OF

Shant Estepan Estepan **For** **Master of Business Administration**

Title: Factors That Influence Information Communication Technology Usage by Private University Instructors in Lebanon

This study aimed at developing a comprehensive and thorough understanding of the factors that drive more frequent use of Information Communication Technology (ICT) by higher education instructors.

We used a model where attributes of ICT operationalized as speedy and updated equipment, accessibility, ease of use and basic training provided, and organizational/social factors which we called Continuous Quality Management (CQM) and operationalized as leadership involvement, ICT continuous needs assessment/provision of solutions, ICT continuous upgrading activities, ICT continuous trainings and ICT continuous awareness campaigns were integrated.

We proceeded in doing two studies. In the study 1 we showed the positive influence of ICT key attributes and CQM attributes on the instructors' Perceived Usefulness (PU) of ICT operationalized as Productivity and Effectiveness, and Perceived Ease of Use (PEOU) of ICT operationalized as Easy Operation of ICT and Easiness of What Wanted to be done. In study 2 we showed the positive relationship between increased PU and PEOU of the instructors and the actual more frequent usage of ICT tools (Software, Hardware, Communication tools and Information Management and Gathering Technologies)

We administered a survey research questionnaire to a sample of private university full time instructors from seven of the League of Lebanese Universities (LLU).

TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

1.1 IMPORTANCE OF INFORMATION COMMUNICATION TECHNOLOGY (ICT)

According to Khoshneshin and Fazelian (2015), ICT is explained to be important when it is used in the right domains of education. They claim that it can improve the learning experience or infuse it with a new approach, all of which can make the learning and teaching practices more worthwhile. They also add that such a factor as ICT can greatly encourage students when they learn, and especially when they do so together with peers.

Furthermore, they explain that seeing as how ICT tends toward "being more open, flexible, and competitive" (Khoshneshin & Fazelian, 2015), higher education institutions are required to meet the prospects of these tendencies and through their academic statement, the universities must incorporate the use of ICT. The institutions are called for being mindful of student needs, for expanding their thinking and for updating their views on the setting in which learning is achieved as well as on what knowledge means today. In doing so, they are to make way for newer partnerships, newer programs, and effectively "develop internal policies to encourage innovation, experimentation, and teachers' creativity" (as cited by Khoshneshin & Fazelian, 2015). Ultimately, the realization of such initiatives would only support funding the use of ICT that shows promise in educational improvement.

Then, they continue highlighting the importance of the use of ICT in education, and focusing on its methods of use and its end results. However, they clarify that the same results are

not always produced for any use of this system. That is to say, there are various matters that the process of incorporating ICT in education involves, and that should be noticed by professionals in the field. Such matters include "educational policy and planning, curriculum and pedagogy, infrastructure, institutional readiness, teacher competencies, capacity building, financing, etc" (Khoshneshin & Fazelian, 2015). The use of ICT still proves to be a notable step forward in academics, even though no one ideal method of its incorporation into the system exists. For instance, instructors have begun making use of technology media to deliver the lessons with a more visual touch.

They further elaborate that ICT is more than just the object of the "Information Society;" it is a relevant forerunner that affects the way each individual student learns, and is embodied in educational change. Teachers, as they are the subjects of the use of ICT in educating, they add, are influential in bringing about this change. In fact, since the technology is no more than a tool on its own, it is up to the teachers to guide the classroom instruction through its proper use so that learning is achieved. Accordingly, Khoshneshin and Fazelian claim that when students accept the use of ICT, through a positive look to computers, its incorporation becomes productive, and they support this statement by referring to the social cognitive theory, which links a person's belief in accomplishing something to its desired outcome.

Stensaker et al. (2007) state that there has been a considerable improvement in the global use of ICT in universities since the early 1990s. Today, they say, universities can use ICT to perform different tasks like taking administrative decisions or assessing the efficacy of courses.

Griffin et al. (2011) remark that information today is accessible in any society, but since there is much of it, focus is shifted on the idea of handling this hefty amount by people, and on the ability "to use it in a meaningful manner."

Numprasertchai and Poovarawan, (2007) explain that in order to enhance how well an organization performs, there has to be the right technology which manages both domains of knowledge and information, shedding light on how ICT can "help an organization capture, distribute, and manage information" better (Numprasertchai and Poovarawan, 2007). ICT can also determine how information and knowledge relate, and is accordingly a medium through which processes of Knowledge Management (KM) can have an improved performance. As managing knowledge and the quality of technology develop, spreading that knowledge in time and space becomes effective. In fact, this improvement makes way for "storing, acquiring, transferring, exchanging, distributing, and reusing knowledge faster and more conveniently, both internally and externally" (Numprasertchai and Poovarawan, 2007). Thanks to the constant progress of ICT, individuals are now able to stay in touch with others in worldwide organizations, sharing information, knowledge, and ideas with greater productivity. The authors conclude that a knowledge management system (KMS) that has ICT as its base can exert an even more effective function when used in higher education institutions, many of which already dedicated their resources to integrate ICT into their system to increase their performance.

Swain and Panda (2009) state that when studies that suggest the appropriate strategies to integrate ICT in universities are conducted, results often point to several "organizational factors" that they call a "normative checklist," to ensure that the incorporation of the system is well attained:

- An instructional ICT strategy has to be well-defined.
- There has to be a professional organization responsible for the strategies process on ICT.
- The instructional top-management has to be involved and committed.
- ICT has to be linked to the organizational development initiatives.

- ICT has to be included in the human resource management activities.
- ICT has to be "marketed" inside the organization.
- A comprehensive and relevant documentation related to the process has to be developed.
- Financial resources must be available.
- Technical support and skills have to be available.

Moreover, the authors explain that the information sector has seen a noteworthy change as ICT has developed quickly, and this has given users different choices on how to deal with the sources of information in the quickest and most appropriate manner. Consequently, today's libraries thrive on using electronic resources in order to serve the different needs of the university bodies in the most efficient way possible.

Kwache (2012) further states that the use of ICT in educational institutions, either conventional or more modern, has positively affected the way content is taught, learned, or researched. As it offers many means that help teachers in their instructional practice, the usage of ICT renders these institutions very effectively.

Bhatti and Hanif (2013) justify man's inhabitance in what is called the "information society" by saying that IT (Information Technology) has globalized the world. They proceed to affirm the importance of information in education and how users such as scholars and professionals can't be productive without the most recent information. Thus, it is regarded as essential as "air, water, food, and shelter" (Bhatti and Hanif, 2013), and Kemp (1976) backs this by making of information the "fifth basic need."

1.2 DEFINITION AND INFRASTRUCTURE OF ICT

ICT is the term that denotes all the technologies which make information accessible via telecommunications. It is like IT (Information Technology); however, its specific focus is the communication technologies. The Internet, cellphones and wireless networks are among the most notable examples.

In forming what is now called the "global village," the information and communication technologies have given the society an opportunity to communicate on a larger scale. Instant messaging (like WhatsApp), social networks (like Facebook) and video conferencing (like Skype) are some of the technologies that people can use to communicate with others who may live in another country at any time. Thanks to these technologies, user from all across the globe can regularly keep in touch, and this leads to justify the study of ICT in terms of the effect that it has on the society.

The teaching-learning process becomes easier when universities employ what is called Learning Management Systems or LMSs (O'Leonard & Bersin, 2006). LMS is a complete webpage with all the tools that instructors can use to increase the organization of the lessons delivered and to make learning more captivating for the students (Laster, 2015). The instructors are able to form their lectures, check how much students are involved in the classroom, and evaluate how well they perform, as this technology is incorporated. LMS is known to use "synchronous and asynchronous technologies" so that the right tools for learning and administrating are easily made accessible (Black et al. 2007). Now, given that universities do invest well in integrating the LMS, the end-users are encouraged to utilize the existing technology.

Nafsaniath and Kyra (2013) say that research done previously shows that many higher education institutions have LMSs accessible to them and the authors include that the rights to own them have already been bought by more than nine-tenths of these institutions. Such universities and colleges that use LMSs (such as WebCT, Learn.com, KrawleLMS, Joompla LMS, ATutor, Blackboard, and Canvas) increase the range of settings in which learning is achieved to include learning more interactively, online, by distance, or through one that is "hybrid/blended" (Vovides, Sanchez-Alonso, Mitropoulou, & Nickmans, 2007). Moreover, the research done previously indicates that even though LMS is greatly available in many areas, the optimal results that such a remarkable technology can produce in the universities and colleges have not been realized yet (Watson & Watson, 2007).

The various hardware and software equipment and programs that ICT comprises are personal computers, assistive technology, scanners, digital cameras, multimedia programs, image editing software, LMS, database and spreadsheet programs in addition to the communication mediums that individuals will consult in order to find and retrieve information such as the Internet, email, and video conferencing.

Oye et al. (2011) state that "aspects of our social, economic, and cultural" life can be improved thanks to what ICT is capable of. Not only does the method of education change upon incorporating ICT into the higher education institutions, but also different teaching methods can be actualized and it would require students to be more active than they once were (Alabi, 2004). Communication and learning in a setting that is electronic-based become the most important focal points of ICT. In contexts of learning, the quality of properly communicating the knowledge people possess is what ICT relies on, whether it is done in a "synchronous or asynchronous" environment or a mixed learning setting.

Government and civil officials and other professionals have directed more and more interest in observing how ICT impacts “human development” as Internet use has become prominent, shared applications of IT and ICT as well as globalization have risen. Furthermore, the promotion of the use of ICT has been made in ideal contexts of prospective outcomes of the technologies, but some difficulties that it has laid also include the “digital divide” and the issue of developing countries in taking part of the information society.

Thus ICT is defined “as an organized communication networks including software, hardware, telecommunications, and information management technologies that allow for flattened organizational hierarchy, and social networking among value-chain members” (as cited by Eze et al., 2012).

1.3 PURPOSE OF THIS STUDY

After seven years of experience in implementing and teaching ICT usage in higher education, I decided to conduct research in this field and to develop a more comprehensive and thorough understanding of the factors that drive more frequent use of ICT by higher education instructors.

This study aims to investigate and explore the factors that influence ICT usage by University instructors in Lebanon from a Technology and Continuous Quality Management (CQM) perspectives.

It poses 2 big questions regarding the ICT system:

1. What are the key attributes of ICT in universities?
2. What are the CQM attributes in universities?

This research is in the field of innovation and change management and suggests that CQM component is needed to empower the ICT core attributes and create a positive intention to accept and use the ICT.

1.4 STATEMENT OF THE PROBLEM

1.4.1. Theoretical Model that Inspired my Research Study:

It has been my experience that there is an expectations gap between designers and users of ICTs. Thus, Fred Davis's 1985 model of TAM (Technology Acceptance Model), later revised in TAM 2, explains the Behavior Intention of people who use ICT. Davis found that 2 mediating factors: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) predict the intention to use ICT. He also found that some external factors, such as management support have their impact on PU and PEOU.

1.4.2. Problem in the Model that Inspired my Research Study:

According to Davis's Model, including the external variables was able to predict only 40% of the variance in system's use (system's use meaning the intention to use ICT system)

This suggests, say Legris, Ingham and Collerette (2001) that significant factors are not included in the models like TAM 1 and TAM 2. The authors propose to integrate Davis's model into a broader model which includes variables of both human and social change processes.

Legris, Ingham and Collerette (2001) find that a major limitation of TAM is in considering the Information System (IS) to be an independent issue in organizational dynamics. They report that research in the field of innovation and change management suggests that technological implementation is related to organisational dynamics, which will have a strong impact on the outcomes.

They refer to Orlikowski and Hofman, who acknowledge that the effectiveness of any change process relies on the interdependence between the technologies, the organizational context, and the change model used to manage the change. This supports the suggestion that it may be difficult to increase the predictive capacity of TAM if it is not integrated into a broader model that includes organizational and social factors. They also refer to Orlikowski and Tyre, who found that IS implementation tend to follow a pattern where the management proceeds with disjoint periods of intensive implementation, rather than with continuous improvement. This information is particularly useful for managers who have to make decisions about implementation strategies.

1.5 MY CONTRIBUTION

Inspired by Davis's model and considering its limitations, I have developed a preliminary ICT usage model, where organizational and social factors and the technology are integrated.

Thus, my contribution consists in my approach to a model that identifies ICT key attributes (such as speedy and updated equipment, accessibility, ease of use and basic training provided for) and ICT organizational /social attributes, elaborated as Continuous Quality Management (CQM) attributes (such as leadership involvement, ICT continuous needs assessment/provision of solutions, ICT continuous upgrading activities, ICT continuous trainings and ICT continuous awareness campaigns), and their influence on Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) attributes and ultimately on the more frequent usage of ICT by university instructors.

CHAPTER TWO

LITERATURE REVIEW

2.1 USES OF ICT BY UNIVERSITY FACULTIES

The Literature shows us the uses of ICT by University Faculty.

Al-Ansari (2006) describes faculty members' use of the internet in Kuwait University (KU). He states that as ICT is used more and more in the educational field, great change has accompanied teaching and learning. Research has indeed supported the usefulness of the internet in improving education. He states that this particular ICT, the internet, is what has brought about such change in the quality of education in universities, and shows just how it has increasingly promoted academic communication, as the World Wide Web started being used in the early 90s. The author adds, though, that how much of the internet is used differs within and among people, establishments, and nations.

Kwache (2012) then points out notable uses of ICT in several situations. For example, it can be used to ensure a line of communication between students and teachers via "e-mail, mailing lists, and chat rooms" (as cited by Kwache, 2012). It allows one to obtain with greater efficiency a lot of recent information that can be used to solve complicated problems. Furthermore, it lets researchers spread the results of their works better.

Al-Ansari (2006) found that in certain studies that were made, there were five categories of how the internet was used by teachers and professors:

(1) Informational internet use; (2) supplemental internet use; (3) essential internet use; (4) communal internet use; and (5) immersive internet use.

The first two categories qualify the use of internet as rudimentary, as it is meant only to access information or communication and not used as a means for more complex interactions. Teachers' use of the internet falls under the third category when it becomes higher as in engaging in online discussions which is a clear application of interaction. The final two categories describe the highest level of use of the internet that would involve class meetings that are virtual.

Al-Ansari (2006) records from another study how the internet is used by the faculty in the University of Rajshahi, Bangladesh. Out of the 218 members selected for the study, 12% stated that they hadn't used it. 88.07% used the internet for interacting via email, 70.64% for retrieving resources from the World Wide Web (www), and 55.96% for downloading files. Several tools were used least of all, wherein 5.5% used the internet for accessing audio-visuals, 8.26% for using mailing lists, and 9.63% for telephone services. Furthermore, 74.31% used the internet for communicating "with overseas education and research organizations," 68.81% for retrieving information about published works, and 53.67% for "finding information about higher education opportunities" (Al-Ansari, 2006). All of these reflect the principle uses of the internet. By contrast, 18.35% used it for searching for jobs, 29.3% for finding resources from the library, and 44.5% for checking information about conferences, all of which reflects minimal uses.

The investigation also identified the "very limited access to the internet and slow speed" as the "major problems" (as cited by Al-Ansari, 2006). From another study, Al-Ansari (2006) mentioned that many academics of the University of the South Pacific merely made use of the e-mail and the World Wide Web for purposes of communication or browsing respectively, and stated that they needed "specific training" to be more able to use the internet.

Numprasertchai and Poovarawan (2008) provide another example of how Kasetsart University (KU) incorporates ICT, whereby a system called NontriNet, a "computer network that

that links various resources of the university from several campuses" with the intent of connecting all of the university parts with the outside resources, successfully linked "more than 252 servers and 15,746 personal computers" (Numprasertchai & Poovarawan, 2008). Accordingly this ensures communication among all the members of KU, and the access of information online using computers found in the academic or faculty libraries and offices.

Moreover, Numprasertchai and Poovarawan (2008) state that the university applies an e-personal program in which the office that provides computer services gave out digital notebooks to borrow for one day as well as offered technical support with no congressional staff or students. This program, the authors add, was to make sure that people would be able to use the technologies to access and handle the information that would be on the Internet or from "internal sources" so that they could work with partners, stay in contact, and utilize the various services that the university offers online. "More than 3200 staff and professors in KU have been trained in the e-personal program since 2003" (Numprasertchai & Poovarawan, 2008). This e-personal program did show to be effective when people wanted to use more applications and tools in the context of their work after they took part in the program.

Numprasertchai and Poovarawan (2008) give yet another constructive application of ICT, and that is the use of M@xLearn by the Faculty of Engineering. It is an e-learning management system (LMS) which contains "more than 2000 courses" that can help the academics turn in their work with greater effectiveness. Many lecturers used this system in order to deliver and handle class courses and an appreciable number of these lecturers even used better learning tools than before as per the request of students who used M@xLearn in order to forward their recommendations.

Numprasertchai and Poovarawan (2008) once again state that the institutes and members of the staff at Kasetstart University have been able to carry out their research activities and have also managed to back them up by effecting different service programs, such as funding and developing databases for research by KU Research and Development Institure (KURDI), developing electronic libraries, and providing databases, electronic journals and portals that "link to internal and external research sources" (Numprasertchai & Poovarawan, 2008). The authors add as well that the necessary ICT equipment and applications that aid in forwarding research practices have also been provided and one such application includes the "web-based publication index program" which is designed to gather the published works by the research writers at KU.

Swain and Panda (2009) describe a case that shows how academics of the Business Schools in a state of India mainly use printed books and journals as well as websites. They also state scholars who hold a doctorate degree in the School of Business Administration and Economics are mainly the ones who make use of the electronic sources.

The authors continue to say that the faculty of the business schools tends to use tools while they reveal to be sharp in the use of electronic resources such as "e-journals and online databases" that are completely found in the general study domains of management like "economics, finance, marketing, international business, human resource management, and more" (Swain & Panda, 2009). Not only are the way related to the subject areas of study, but this particular faculty shows interest in observing the business status and likes to keep up with the economic situations of the world market that shifts quickly overtime and the faculty does this by accessing electronic information sources like electronic news, reports, and websites that have to with business issues. Thus, they conclude, this faculty's use of the technological tools is not like the use by other faculties of the university.

2.2 KEY ATTRIBUTES OF ICT IN UNIVERSITIES

The right strategies have to be taken in order to make sure that Knowledge Management System (KMS) is effective. Likewise, teachers and professors must collaborate with the institutes and know how to use the technology so that they would be able to make use of the appropriate knowledge during the proper situation. Numprasertchai and Poovarawan (2008), using what they found from their study, state that when a system infuses ICT, the number of students and how they perform, the results that can be extracted from research, and the different services such as community ones improve well enough to increase the performance of higher education institutions. They add that a knowledge management system which is based on ICT, that is, which uses the particular ICT tools, resulting in the various method its practice has shown to be feasible upon use.

Moreover, Numprasertchai and Poovarawan (2008) found that Kasetsart University benefitted from the use of ICT in KMS in raising the efficiency of the university's mandate management, particularly in the level of learning and community service. This system, they say, has also improved the level of research activity in the university to a worldwide excellence. They conclude that universities in general in developed nations can raise their efficiency when they make use of human knowledge thoroughly, complemented by the incorporation of the ever recent knowledge that comes from ICT used in the knowledge management system.

Swain and Panda (2009) find that teachers and professors only use ICT tools like laptops or other computers to gain access to information (electronic) that they need to follow up on their research and teaching practices or simply to become more knowledgeable and experienced. However, the authors also find that faculty members use these tools mainly in their office and often in computer labs and libraries, but almost never in other places within campus.

They continue to observe and state that older teachers and professors highly regard what most type of electronic resources contain while others in general have a preference for the "contents of full text journals and teaching/research related databases" (Swain & Panda, 2009). The authors move to assume that the more experienced instructors are the ones that will prefer all the contents found in the electronic resources.

Swain and Panda (2009) reveal that e-articles and e-journals are highly preferred to be used by instructors, whereas "electronic theses and dissertations (ETDs)" were the least preferred. They added that instructors' great use of e-articles was clear because those are important for conducting their researches and accommodating their pedagogical practices. Accordingly, the age of the instructors did not matter as long as the electronic services were used to effectively serve the pedagogical or research needs of these faculty members.

There were several remarks made by the various faculty members as to why they were reluctant to use e-resources. For example, one of them stated that he used the resources only for research purposes or to write articles, but not to prepare notes to deliver lectures or course content, which would instead be written manually. Another member claimed not to demonstrate cleverness with computers and so lacked interest in using the resources. Yet another instructor pointed out that while many electronic databases like EMX or EBSCO were very helpful in academics, certain internal challenges like discontinuous or sluggish internet connection discouraged him/her from using the database. Library professionals were also said not to be inclined in providing service in case of challenges faced while downloading articles online. Furthermore, others hold that the already great load on teaching or academics distracts instructors from making time to retrieve supplementary information found online.

The results of the studies show that the faculty does not use the sources of electronic information to their fullest, and so in order to widen the range of their use and for enhancing the e-information services for academic purposes, these steps have to be effected:

- "User orientation as a part of information literacy program should be strictly implemented" (Swain & Panda, 2009).
- In order for users to forward their comments on how well libraries offer their services, Library 2.0/Web 2.0 has to be integrated into the services of the business school libraries by means of specialized web sites.
- The staff that manages the libraries must be cooperative in instructing teachers on how to find full-text articles using the necessary searching tools and methods.
- Librarians have to stay in touch with the instructors by sending them e-mails to let these faculty members forward any issue they have about retrieving and downloading electronic sources found on online databases.
- A fast internet has to be afforded so that teachers could download important full text articles with full efficiency on their desktop computers;
- "Electronic thesis and dissertations (ETDs) projects should be successfully worked out and implemented" (Swain & Panda, 2009).
- It is very important that back volume journals be converted into digital ones under copyright consent.
- Heads of the center must acquire the number of downloads made by the faculty "at least once in a month through the librarian" (Swain & Panda, 2009).
- A network that links the similar libraries has to be established to ensure that databases may be accessed "on a shared basis" (Swain & Panda, 2009)

- Subscription to several notable databases “like EMX, EBSCO, ABI/Inform, Cygnus” can be achieved by libraries if their corresponding directorial staff provides more of the budget.

Al-Ansari (2006) found that because African countries did not have the proper facilities, the academic use of the internet is generally low. For example, Ani et al. (2005) stated that out that among the 29 university libraries that existed, merely four of them offered internet services. Ojedokun and Owolabi (2003), in an attempt to investigate how the internet was used by the instructors in Botswana, found that members were more capable of using the internet to carry out research activity rather than to aid in the teaching process. This accordingly prompts the need to formally train the members. According to Poda (2003), who studied how the academics of the University of Ougaddougou, Burkina Faso used the internet, found that there were seven factors that would affect the way it was used and these included “personal satisfaction, information accessibility, enhanced learning, cost effectiveness, technology infrastructure and equipment, financial challenges, and skill challenges” (Poda, 2003)

Al-Ansari (2006) pointed out on the studies performed that slow internet speed, no time, and the inability to access the internet from home were the problems that most respondents reported, the first of which was the most prominent problem. He adds that other researchers were also able to extract the reports of similar challenges.

Stensaker (2006) describes and comments on “the development of comprehensive and relevant documentation,” explaining that there is a “fragmentation” in how many sources of information exist and how coordinated they are within organizations, and this condition arises somewhat because of the many actors who must develop ways to infuse ICT into the pedagogical or learning practices. The author qualifies the institutions as “atomized” since there are many

different actors involved in the process whereby recent technology has to be purchased and applied. Further, a particular "help-desk" or any such resource is used to assist individuals with the use of the new ICT tools, and finally, there is a "third group of people" that instructs the way ICT can be used in teaching and that aims to develop new methods by which teaching and learning are carried out. The author refers then to a response from an informant who claims that people continuously faced a challenge in knowing how the tools and equipment given can be used in their professions of teaching.

He continues to explain that searching for information and documenting the use of the system becomes a challenge in such a condition. He provides an example saying that the "help-desk" is said by some respondents to deal with the issues that are related to the teaching process; others hold that there arises a clear disparity between "what they see as the resources being spent on the new technology, and the information and help they receive in learning to master it" (Stensaker, 2006).

Moreover, Stensaker (2006) states that an annual report showed that a good number of higher education institutions and sectors were able to fund the use of more equipment and machines all of which they thought showed how well ICT was incorporated into the system. He adds that other informants thought that infusing ICT in the contexts that allowed for learning and teaching couldn't rely only on the availability of resources and "good infrastructure" (Stensaker, 2006).

Also part of the documentation process, two essential factors necessary to incorporate ICT in universities include "technical support and technical skills" (Stensaker, 2006). He adds that members of the technical staff use a technical jargon and this presents a clear issue, because the academic staff doesn't comprehend their language or understand their explanations of the

fine details of ICT, and accordingly, the needs of the instructors are not met. By contrast, these faculty members do not grasp how relevant the ICT courses may be. Even if they do take the courses, the faculty members still face challenges in putting their knowledge to use, that is, integrating the ICT in their activities, regardless of the many people that are able to assist them. In fact, Stensaker states that the majority of the staff does not see the assistance provided by these people as pertinent to satisfy their need.

Furthermore, Stensaker (2006) seeks to point out the reason universities are still unable to successfully integrate ICT in the teaching-learning process despite the "strategic initiatives" that they carry out. He states that the study made shows that the progress of technology and the method by which teaching and learning are done today are unadjusted. There are two reasons that justify such a condition, one of them being the lack of consideration of the differences among the various university disciplines—differences that were not included in the "normative checklist." Secondly, the fact that the incorporation of ICT in certain environments is more successful than in others can be traced back to decisive aspects like the disciplines that are scientific as well the "type of profession" (Stensaker, 2006). As an example, there is little inclination towards ideals of modern technology in the Humanities discipline, which instead tends to traditional ones; in doing so, the use of computers has even been avoided in some cases.

Oye, Iahad, and Rabin (2011) were able to indicate the major factors that hindered academics from using ICT. The time factor was identified to be a great issue by most respondents. Another prominent issue was inadequate training. Only very small numbers of respondents identified such barriers as the cost of ICT usage and lack of compensation, or that its use was unfitting in their courses. Likewise, university faculty members also could not reap the full benefits of the ICT development program, which is hindered with problems like "lack of

training opportunities for staff" (Oye et al., 2011). Similar issues are noted in another study wherein ICT use by instructors faced barriers such as little to no training, interest, or access to the ICT facilities. One study found again that in Nigerian universities, ICT use by the faculty was affected by problems such as insufficient number of facilities, increased workload, or ineffective funding.

Effort Expectancy (EE) is shown to have a strongly positive correlation with Behavioral Intention (BI) "at the 0.01 level (2-tailed)" with the construct having "a mean response of 3.87 and standard deviation of .562". The questions given to measure the effort expectancy are meant to elicit responses that show how easy one believes the use of ICT to be. Many individuals were indeed able to use it as given by the results that showed individuals' positive belief about the ease of use and comprehension of the user friendly ICT. Thus EE was strongly correlated with BI as with every construct, with the simplicity of use of ICT that is available showing the highest correlation (Oye et al., 2011).

Usluel, Askar, and Bas (2008) found in studies that while the use of ICT is indeed influenced by what perceptions users have about them, the availability of a sufficient number of ICT facilities is a more precedent factor in determining this use. Few or no facilities at all are found to be the notable "barriers" studied in researches to show which aspects hinder ICT use.

The following three hypotheses are proposed:

H1. ICT facilities have a positive effect on the ICT usage

H2. Perceived attributes have a positive effect on the ICT usage

H3. ICT facilities have a positive effect on the perceived attributes

The study was done to observe how the facilities that were offered, the user perceptions, and use of ICT in universities or colleges were all related. The Diffusion of Innovation (DOI) was used as the base of the model that would successfully allow the use of ICT to be examined; consequently, the model was able to form the hypotheses that were all validated. This study also shows how convenient DOI is in measuring how much of ICT is used in the universities of Turkey.

As a result, the use of ICT and the perceived attributes have shown to be positively affected by ICT facilities and this shows just how important it is that these facilities be rearranged in classes so that they meet the goals of proper teaching. However, this impact doesn't mean that rearrangement of the facilities is solely enough.

Thus it holds that ICT should be used far more frequently in classes and that the instructors should be competent both in terms of education and technology use; accordingly, university plans and policies should be made the means to allow such procedures to be institutionalized.

2.3 CONTINUOUS QUALITY MANAGEMENT ATTRIBUTES OF ICT IN UNIVERSITIES

The research done (Hue & Jalil, 2013; Ng'ambi, 2013) points out that there are no grounds to conclude that different types of technologies have properly been incorporated in university classes to make teaching and learning more effective. Shelton (2014) distinguishes between the technologies that are used more often, or "core" technologies (such as PowerPoint), than those used scarcely, or "marginal" ones (like blogs, podcasts, portfolios, wikis or social networks). According to Kirkwood & Price (2014), who thoroughly searched how technology had been used in teaching at universities, in at least half of the cases, the method of instruction had been kept the same even though technology had been made use of. This shows that making available a new means of passing on information was the concern.

According to Hue & Jalil (2013), there is a relation between how much of technology is used to accommodate "the teaching-learning process" and what views teachers have about the incorporation of ICT's in the program for the sake of making teaching more effective. It is made clear, then, that the attitudes and "practical knowledge" held by the instructors must be regarded in order to justify their use or avoidance of use of the technology (Hue & Jalil, 2013; Ng'ambi, 2013).

Even if it is important to know about the technology, teachers still don't seem to feel "confident" about its use, and it comes to show that using ICT in classroom settings is significantly affected by what instructors believe and by what views or ideas they have about the teaching practice (Marcelo, Yot, & Mayor, 2015). The fact that whether or not there is a change in teacher's perspectives about the knowledge and uses of technology in class has been found to be indeed controversial. The research that has aimed to study the idea of such change directs light onto understanding

teachers' justification of which changes are easy to accept, and which are not, according to their "implicit theories and practical knowledge" (as cited by Marcelo et al., 2015). They add that teachers make use mostly of the technologies that would suit their own pedagogical approaches in performing their jobs, and this is what the authors meant when they state that teachers actually do tend to change, as supported by the input of technology, yet keeping some elements constant.

It is quite evident that electronic services are much searched for considering the type of information that is possessed today. In order to prepare an electronic learning setting that serves the needs of its users today, libraries used in universities have spent appreciably on resources to be able to acquire, produce, organize, and handle the "digital resources" (as cited by Marcelo, Yot, & Mayor, 2015). Surely the course of doing so considers some aspects such as how many computers to supply, which best software packs to buy, in addition to "placing orders with online vendors" (Marcelo, Yot, & Mayor, 2015) as well as the need to take part in associations to provide more of the resources, all to the benefit of students and other users.

Therefore, Swain and Panda (2009) state that in order to support these services even more, a forum must be created by the "information professionals" of the schools of business in which the potential difficulties and future expectations of the electronic based environments that libraries will set are talked over. The authors complement this idea with the need to plan for carrying out a "Business School Libraries of Orissa Network (BSLONET)" (Swain & Panda, 2009) in order to promote the use of the electronic resources by instructors through the formation of an exemplar that others from all around the globe can follow in their respective settings.

Stensaker (2006) states the assertion of the academic and administrative staff that in order to make the initiatives for incorporating ICT part of the institution, resources for forming the technological tools and equipment are required, and an essential factor to help with this is "leadership involvement". He adds that those who assume leadership know how necessary it is when they are involved "especially if funding for ICT projects is sought externally" (Stensaker, 2006).

According to Stensaker (2006), an organization must also connect ICT to the long term strategies that make up initiatives for general development. He found that some means by which the institutions express these long term strategies render the initiatives for ICT as individual activities having the least coordination with the other endeavors or aims that develop the organization. This, along with the fact that users are not interested in integrating or using the technological tools, makes the program for ICT development "an administrative issue" (Stensaker, 2006). Such a change of the need to incorporate ICT to explain this administrative issue is significant, because then, the aim of its use to improve the learning and teaching processes shifts to an aim that incorporates ICT "for practical and efficiency reasons."

The ICT Library presents a significant aspect of Continuous Quality Management (CQM) of ICT that is integrated in the higher education institutions. Bhatti and Hanif (2009) state that library professionals should acquaint themselves with the needs and information searching patterns of the users. So that this library operates effectively, the collection of its resources should be suitably selected to satisfy users' demands—be they for research studies or general education. Accordingly, when the staff identifies the way by which information or resources is sought by instructors, the services offered by the library can be better, and this shows how the

awareness of members' behavior is an important step to increase the effectiveness of the library services.

Moreover, Bhatti and Hanif (2013) state that a change in the source of information is followed by a change in technology with which the library professionals have to keep up. Considering that there are challenges brought upon by the introduction of these recent sources, especially the www, the library should strive to retrieve the appropriate information and offer the latest items that meet the needs of its users.

Kwache and Yusuf (2005) state that when areas that require attention are fully dealt with, ICT can then be well incorporated in all the divisions. They add that teachers or educational professionals that represent the actors or stakeholders are also able to treat any minor problems that arise. The following lists other important measures to be taken:

- International ICT standards have to be adopted and they should be included in the Nigeria curriculum, particularly, that of teachers' education.
- Teachers have to be trained regularly in order to use computers and be skillful in ICT.
- Expert figures on ICT should be trained "for instructional design and development" and in doing so, coordinate with educators.
- In giving ICT utmost importance, the government should fund the training of educators like teachers on how to use computers so that they are skilled enough in ICT to instruct students the essentials of computer or ICT use.
- The attitudes of potential ICT users must be reshaped in order to ensure that people are more willing to take on refined approaches like new ways of teaching, retrieving resources from various sources, working together with other people from different regions and communities of people in online, virtual, home, or school settings.

Al-Ansari (2006) states that educational prospects of the university as well as the state of the library are at stake, given what has been observed previously, and this calls for them to address the following measures:

- The university infrastructure pertaining to IT as well as the libraries should be improved as by means of setting and preparing strategies, so that the infrastructure meets the needs of pedagogical and research activities based on IT.
- In order to point out potential challenges that any user might face in using IT at the university, a "training needs analysis" must be done.
- According to the outcome obtained from the training needs analysis, specialized training has to be developed to sharpen IT skills.
- Paid or free access to e-information resources has to be developed and enhanced since it is important for teachers or researchers. Accordingly, library managers must undertake this significant step.
- Several measures must be taken by the library management at the same time to develop their existing IT applications, increase IT skills of staff members, improve the resources for information retrieval, and enhance the programs needed to train users on how to make use of the resources and the services provided.

Stensaker (2006) shows just how it is important that ICT should be "marketed", as he states, that convincing the instructors of the purposes of using new technology is a common problem that all informants agree on. As such, a lot of these informants call for instilling faculty members with an interest in the use of new technological tools, yet this initiative has not been marked as the greatest need in the universities that were mentioned in the studies.

According to Bates (2000), for quite some time, universities have overlooked the importance of providing incentives to faculty members in order to prompt their interest in becoming more knowledgeable and skillful in ICT areas. Now, such a task, however, seems to be part of other ones to be carried out, such as ensuring productivity in research activities, and this would only render "ICT competence to be given lower priority" (Bates, 2000). The author also provides some deficiencies that he identified in the higher education institutions selected for the study. One of them includes the lack of compensation given to the staff members that put in much effort and time to develop the courses on computer technology. Another is the absence of "the links with human resource management activities" in addition to how weakly ICT is promoted within the institutions (Bates, 2000). He says that a contradiction lies in these deficiencies as expectations to incorporate ICT in the institutions to alter the way they perform their activities rise.

Bhatti and Hanif (2013) claim that the professional staffs could offer users the appropriate facilities that are helpful if the staff knew the users' behavioral patterns and could also help them better use such tools as "Online Public Access Catalogue (OPAC), search engine, e-mail, databases and famous websites". They add that libraries as well should supply as much facilities to users as possible and they continue by saying that ICT facilities "such as internet, laser printer, scanner, fax machine, telephone and modern methods of searching information" should be made available for the staffs (Bhatti & Hanif, 2013).

Oye et al. (2011) find that in order to improve or work on the infrastructure of ICT in educational domains, awareness should be raised in the staff members. This includes holding seminars, planning conferences, and attending workshops "for top management and other critical staff within the Ministry of Education, National University Commission (NUC), and in the

universities and with other stakeholders" (Oye et al., 2011). All of this is directed towards aims like acquainting users to any issues the infrastructure may present, clarifying the needs and suggestions they may have, having many stakeholders be involved, and receiving any comments that the members of the staff or management may forward.

Augustus et al. (2005) finds that in order for the universities or colleges in the UK to attain and retain quality, there are principles that can be followed in order to develop this "conceptual framework" and they include the following:

- Those who assume leadership such as the chancellery, deanery, and other heads are required to make sure the development of the quality of the activities—be they academic or not—is supported by ICT infrastructure.
- The leadership staff should ensure that ICT is used fully in order to carry out or improve the goals, objectives, and methods used in pedagogical or research activities.

Bhatti and Hanif (2013) in their study also revealed that social scientists were lacking in information skills because users in libraries are generally not trained in dealing with IT. Other problems that were typically identified include a dearth in the number of computers and other electronic resources. Thus, certain strategies given below must be laid:

- A qualified staff should be hired to run the departmental libraries of the faculty of Social Sciences given that they lack a professional one.
- The Social Sciences libraries should offer various services including Internet, reference, abstracting, and indexing.

- Workshops to remain updated about recent technology should be held frequently by the Social Sciences faculty, especially “in the Central Library of Bahauddin Zakariya University Multan” (Bhatti & Hanif, 2013).
- “Information literacy program should be arranged in every departmental library of Social Sciences” (Bhatti & Hanif, 2013).
- The professional staff should be trained on dealing with the mentioned services and on modern technology.
- Specific workshops should be held so that the faculty is knowledgeable about information technology; users in a library should also receive awareness about such aspects as “information technology, search engines, and reputed databases” (Bhatti & Hanif, 2013).

Thus, a question is raised on how to deal with the unfavorable attitudes that users have and in doing so, to make the use of Blackboard, which is a very constructive Learning Management System (LMS) more frequent. According to Fathema and Sutton (2013), these were the conclusions made:

For one, compatibility between Blackboard and browsers and other software needs to be ensured through an upgrade. There were also other technical problems or challenges that needed to be tended to such as the sluggish speed and the repeated crashing of Blackboard, as remarked by the respondents.

Second of all, instructors have a chance to be trained more on Blackboard, particularly those who do not know much about it, are uneasy using it, or who only use some of the many tools that this database provides. Because the training sessions and workshops provided by the university are not enough to meet the needs of every instructor or professor, it is found that

providing more comprehensive “awareness programs, workshops and training sessions” are needed to familiarize the staff with Blackboard and to sharpen their skills using it (Fathema & Sutton, 2013). This is further enhanced if the needs of the users that are subject to the training are first analyzed for a better understanding.

Finally, according to Fathema and Sutton (2013), many of the faculty members made use of only one of the various features Blackboard provides: grading. They explained by saying that that teachers lacked interest in using its other features, or simply, they did not know of them; or in case they did, they either “do not know how to use them” or they overlook the possibility that these additional features could also be helpful in their profession (Fathema & Sutton, 2013).

2 .4 OUR STUDY MODEL BASED ON TAM

Khoshneshin and Fazelian (2015) state that many researches have been done to identify a causal relation between the views that users have about technology and the use itself; the findings reveal that there are in fact aspects that influence the using of ICT found in people's attitudes. The teaching process, for instance, has been noted to be an important factor in course delivery when ICT is used. Shaft, Sharman, and Wu (2004) assert these are the sole method by which one can understand the behavior towards the use of ICT in class. Russell noted how the attitude that one has towards ICT use and the use itself are linked. He holds that the views that one has about technology must be also changed if their use in class is going to change.

Fathema and Sutton (2013) find that the Technology Acceptance Model (TAM) is the framework to use in this case because it is more effective in determining technology adoption behaviors than any other model. It can "predict or explain" the behaviors that users have about most technology that involves computers (Davis et al., 1989). TAM can determine how much different users are satisfied with a certain system and can generally acquire the information that involves users' attitudes in a way that is fast and cheap (Mathieson, 1991). Lastly, research done previously has revealed that TAM is "empirically strong and powerful" (Lee et al., 2003), "parsimonious" (Davis et.al., 1989), and the most applicable model to understand the adoption or use of technology by users (Davis et al., 1989, Venkatesh & Morris, 2000, Venkatesh & Bala, 2008). It is also worth noting that TAM was also able to explain what behaviors of adopting the technology users had in more than one or various settings.

Moreover they state that TAM presupposes that there are certain factors that make it possible to predict or explain the behaviors of individuals in using or accepting the technology, two of the most decisive factors being the Perceived Ease of Use (PEOU) and Perceived

Usefulness (PU). The first is defined as "the degree to which the prospective user expects the target system to be free of effort" (Davis et.al 1989, p. 985). That is, this concept refers to how much individuals will expect the technology that they might use to require little or no effort, considering how capable the users perceive themselves to be. As an example, the PEOU of Blackboard will reveal the extent to which the instructor perceives its use to be easy. The second factor, PU, refers to the individual's "subjective probability that using a specific application system will increase his or her job performance within an organizational context" (Davis, et al., 1989, p.985). In other words, how much an instructor believes Blackboard will be useful in facilitating his/her work in teaching reflects the PU of Blackboard. Thus, the PEOU and PU are found to be influential in determining technology adoption behaviors.

Also, the TAM framework holds that users will have positive attitudes about the technological tool if they find it handy and this would further enhance the intention to use it later on. Thusly said, when teachers and professors view Blackboard as utile, their attitudes about it will be positive and this in turn will have them intend to use Blackboard in the future.

Furthermore, TAM presupposes that factors such as the perceptions of the usefulness (PU) and ease of use (PEOU) of Blackboard are what affect the instructors' attitudes towards the use of this database. This means that faculty members would develop positive attitudes toward the use of Blackboard if they perceive it to be useful and easy to use.

Fathema and Sutton (2013) conducted a study that aimed to point out the patterns of attitudes that instructors would have towards Blackboard as well as the aspects which would affect these attitudes. The classification of the various attitudes that faculty members would have was done by using the TAM framework since it is widely used in indicating user attitude towards any particular technology.

Perceived ease of use of Blackboard (PEOU). Upon reviewing the results of the survey done, faculty members were shown to view Blackboard as essentially helpful and easy especially in making the teaching process more effective. Several aspects that Blackboard has which draws attention to it use include "ease of distributing documents, user friendliness, confidentiality, and accessibility for document retrieval" (Fathema and Sutton, 2013). Blackboard was also found to be clear and well functional by the instructors and these are what affected their perception of the ease in its use. One of the members who took the survey remarked that Blackboard could be used by anyone whose skills in computer and internet were basic, stating that assignments and projects that would be uploaded were made simple and fast.

Perceived usefulness of Blackboard (PU). The results of the survey showed that using Blackboard avoids the waste of time and facilitates the teaching practice. There were handy features about Blackboard that members who took the survey named and they included calculating grades, assigning materials to read or quizzes, and communicating with all students at the same time as in chat rooms or through discussion board. According to one of the respondents, the use of Excel, emailing and the likes were useful in reducing time consumption (Fathema & Sutton, 2013)

Attitude toward using Blackboard (ATT). The results of the survey showed that teachers and professors regarded Blackboard with a positive attitude which was due in part to the perceived ease of the system. (Fathema & Sutton, 2013)

Behavioral Intention (BI). The perceived usefulness of Blackboard and the attitude towards using it are factors that cause the variation in the behavioral intentions of teachers and professors. The different faculty members will use Blackboard with varying degrees depending on their ability and this shows that BI is not discrete but can take continuous values.

Those who see Blackboard as handy have positive attitudes about this tool and their behavioral intention to make use of it later will only progress and they would make the most of Blackboard. By contrast, members who only make use of a few of the features that Blackboard provides like uploading or grading generally means that they do not have as high of a positive attitude and their intentions to use Blackboard optimally disappear. Finally, instructors avoid using Blackboard if they harbor negative feelings about it and would rather make use of other online tools or websites with no intentions of future use of Blackboard. (Fathema & Sutton, 2013)

2.5 SUMMARY OF LITERATURE REVIEW

We have found in our literature review (discussed by: Al Ansari (2006), Black et al. (2007), Vovides et al. (2007), Numprasertchai and Poovarawan (2008), Swain and Panda (2009), Kwache (2012), Bhatti and Hanif (2013), Nafsaniath and Kyra (2013), Kirkwood and Price (2014), Shelton (2014)) the following four categories of ICT usage Tools:

1) **Software:** University faculties mainly use image editing programs to insert pictures in their presentations like Photoshop or basic Microsoft Picture Manager. Sometimes, instructors need video editing tools to crop sections from a downloaded video like movie maker and real player.Nowadays spreadsheets are so essential in university faculty daily life. Instructors use it to solve mathematical equations, calculate their grades and chart them properly. Microsoft Excel is considered one of the best tools representing spreadsheets. Watching a video sometimes can be more instructional than a text. So instructors need to download videos and present them in their classes. Best website to download videos is considered YOUTUBE. So faculties are obliged to have software that downloads videos from YOUTUBE. What is the benefit of any information if it's not saved in a document? One of the most used tool for documentation is Microsoft Word and Adobe PDF. Thus, instructors should be familiar in using them.
2) **Hardware:** Personal Computers, Tablets and Cellphones are the means for using ICT and they should be accompanied with other equipment that facilitates the implementation of ICT like scanners for acquiring an image, printers for documenting an information, digital cameras for conferencing and getting pictures and computer networks to link the systems to each other.

3) **Communication:** The most effective communication means nowadays is instant messaging and instructors use them to communicate with their students on real time bases, for example using WhatsApp application.

   Moreover, in the same context instructors perform video conferencing using Skype or similar applications to communicate with other instructors. Facebook page nowadays is considered the best social networking channel for instructors to post their discussions and circulate their comments regarding their course material. Moreover, the most professional way of communication is still considered the Email system that is used by instructors to contact with overseas education and research organizations, to communicate with other instructors, students and management and to collaborate with partner university instructors. This Email system must be accompanied with Mailing list that helps the faculty to group message any target groups like senior students or even university Alumni. Every university must have its official website to share its material and instructors must know the content of this website. Moreover, Learning Management System (LMS) is the most effective tool that most universities implement to create a channel through which instructors post their material, assignments and grades. The known LMS programs in the market are Blackboard, Moodle, WebCT, Canvas and Classroom Management (that's implemented and used in Haigazian University). Moreover, some instructors use wikis and blogs to enlarge their online presence through posting their articles and CVs. Finally, the most traditional means of communication, the telephone, is still used by instructors to communicate with any member of university.

4) **Information Management and Gathering Technologies:** Student Information System (SIS) is online database program for faculty courses grading and registrations (Like Haigazian University's Portal) and it holds all the information account the university courses and students enrolled.

   The fastest way for an instructor to gather information is through Internet Browsers and mainly instructors use it to search information about: publications, higher education opportunities, job vacancies and conferences.

   Another way of reliable information gathering is online databases that can be in the form of: e-Databases / e-Articles / e-Journals; and the most used databases are: EBSCO, Wiley, SAGE, and EMERALD.

We also have found in our literature review (discussed by: Poda (2003), Al Ansari (2006), Numprasertchai and Poovarawan (2008), Usluel, Askar and Bas (2008), Swain and Panda (2009), Oye et al. (2011), Bhatti and Hanif (2013), Fathema and Sutton (2013)) the necessity to have the following key Attributes of ICT in Universities:

1) **Speedy and Updated Equipment:** Fast Internet Connection for downloading and browsing processes and updated machinery equipment.

2) **Accessibility:** Computers offered in offices, followed by Internet labs and librariesconnected to internal and external resources and databases.

3) **ICT being easy to use:** ICT used without any additional effort (free of effort)

4) **Basic Training of ICT provided for:** Once any instructor enrolls in any university he/she must undergo a basic training of ICT and must have proper help materials and guidelines that facilitate his/her ICT usage.

Moreover, based on research studies needs assessments and my own needs assessments derived from my experiences from the field, we should add that successful ICT usage requires the following Continuous Quality Management (CQM) attributes: (as discussed by: Bates (2000), Augustus et al. (2005), Kwache and Yusuf (2005), Al Ansari (2006), Stensaker (2006), Swain and Panda (2009), Bhatti and Hanif (2009; 2013), Oye et al. (2011), Hue and Jalil (2013), Fathema and Sutton (2013), Marcelo, Yot, and Mayor (2015))

1) **Leadership involvement on deanery and head of department levels** in ICT quality management and improvement activities. ICT must be part of the University's strategic objectives and plans and there should be encouragement of ICT usage in teaching and learning.

2) **ICT continuous needs assessment / analysis and provision of solutions by ICT professional staff or department**: Forming discussion forums and focus groups to discuss the problems of ICT; conducting training needs assessment surveys, which will identify gaps in IT use skills among the faculty; designing special websites, so that instructors can put their comments and feedbacks on the services of the respective ICT; providing quick solution helpdesk for existing or for changing challenges and difficulties.

3) **ICT continuous upgrading activities by ICT professional staff or department:** Adopting ICT international standards to keep pace with the changes of technology; identifying and preparing plans for upgrading the IT infrastructure of the university, including its libraries and to bring to a level compatible with the requirements of intensive ICT based teaching, learning and research**;** further improving the access to electronic information resources, whether by fee or for free, required by the faculty for teaching and research is vital.

4) **ICT continuous trainings and workshops by ICT professional staff or department:** Organizing continuous, periodic and relevant training to the instructors; developing and training of ICT experts and professional staff who use tools and speak a language that explains the technical aspects of ICT in a way that academic staff understand; developing formal and differential training packages based on the results of the training needs analysis to improve ICT competencies.

5) **ICT continuous awareness campaigns by ICT professional staff or department:** Conducting internal marketing of ICT in the university; creating a coordination with human resources management activities to integrate ICT in yearly contracts renewals policy; creating a coordination with the university library to provide the information about the latest search engines and reputed e-databases.

CHAPTER THREE

RESEARCH FRAMEWORK AND METHODOLOGY

3.1 RESEARCH QUESTIONS

Based on literature review and our theoretical model, our research questions are as follows:

STUDY I

1. Whether there is a relationship between ICT attributes and Perceived Usefulness (PU) attributes
2. Whether there is a relationship between ICT attributes and Perceived Ease of Use (PEOU) attributes
3. Whether there is a relationship between CQM attributes and Perceived Usefulness (PU) attributes
4. Whether there is a relationship between CQM attributes and Perceived Ease of Use (PEOU) attributes

STUDY II

1. Whether there is a relationship between increased Perceived Usefulness (PU) attributes and More Frequent Usage of ICT tools.
2. Whether there is a relationship between increased Perceived Ease of Use (PEOU) attributes and More Frequent Usage of ICT tools.

3.2 HYPOTHESES

STUDY 1

First set of hypotheses: ICT attributes relate positively with Perceived Usefulness (PU) attributes

Hypothesis 1.1: Speedy and Updated ICT Equipment relate positively with Productivity

Hypothesis 1.2: Accessible ICT relate positively with Productivity

Hypothesis 1.3: ICT being easy to use relate positively with Productivity

Hypothesis 1.4: Basic Training of ICT provided relate positively with Productivity

Hypothesis 1.5: Speedy and Updated ICT Equipment relate positively with Effectiveness

Hypothesis 1.6: Accessible ICT relate positively with Effectiveness

Hypothesis 1.7: ICT being easy to use relate positively with Effectiveness

Hypothesis 1.8: Basic Training of ICT provided relate positively with Effectiveness

Second set of hypotheses: ICT attributes relate positively with Perceived Ease of Use (PEOU) attributes

Hypothesis 2.1: Speedy and Updated ICT Equipment relate positively with Easy Operation of ICT

Hypothesis 2.2: Accessible ICT relate positively with Easy Operation of ICT

Hypothesis 2.3: ICT being easy to use relate positively with Easy Operation of ICT

Hypothesis 2.4: Basic Training of ICT provided relate positively with Easy Operation of ICT

Hypothesis 2.5: Speedy and Updated ICT Equipment relate positively with Easiness of What Wanted to be done

Hypothesis 2.6: Accessible ICT relate positively with Easiness of What Wanted to be done

Hypothesis 2.7: ICT being easy to use relate positively with Easiness of What Wanted to be done

Hypothesis 2.8: Basic Training of ICT provided relate positively with Easiness of What Wanted to be done

Third set of hypotheses: CQM attributes relate positively with Perceived Usefulness (PU) attributes

Hypothesis 3.1: Leadership involvement on deanery and head of department levels relate positively with Productivity

Hypothesis 3.2: ICT continuous needs assessment/analysis and provision of solutions by ICT professional staff or department relate positively with Productivity

Hypothesis 3.3: ICT continuous upgrading activities by ICT professional staff or department relate positively with Productivity

Hypothesis 3.4: ICT continuous trainings and workshops by ICT professional staff or department relate positively with Productivity

Hypothesis 3.5: ICT continuous awareness campaigns by ICT professional staff or department relate positively with Productivity

Hypothesis 3.6: Leadership involvement on deanery and head of department levels relate positively with Effectiveness

Hypothesis 3.7: ICT continuous needs assessment/analysis and provision of solutions by ICT professional staff or department relate positively with Effectiveness

Hypothesis 3.8: ICT continuous upgrading activities by ICT professional staff or department relate positively with Effectiveness

Hypothesis 3.9: ICT continuous trainings and workshops by ICT professional staff or department relate positively with Effectiveness

Hypothesis 3.10: ICT continuous awareness campaigns by ICT professional staff or department relate positively with Effectiveness

Fourth set of hypotheses: CQM attributes relate positively with Perceived Ease of Use (PEOU) attributes

Hypothesis 4.1: Leadership involvement on deanery and head of department levels relate positively with Easy Operation of ICT

Hypothesis 4.2: ICT continuous needs assessment/analysis and provision of solutions by ICT professional staff or department relate positively with Easy Operation of ICT

Hypothesis 4.3: ICT continuous upgrading activities by ICT professional staff or department relate positively with Easy Operation of ICT

Hypothesis 4.4: ICT continuous trainings and workshops by ICT professional staff or department relate positively with Easy Operation of ICT

Hypothesis 4.5: ICT continuous awareness campaigns by ICT professional staff or department relate positively with Easy Operation of ICT

Hypothesis 4.6: Leadership involvement on deanery and head of department levels relate positively with Easiness of What Wanted to be done

Hypothesis 4.7: ICT continuous needs assessment/analysis and provision of solutions by ICT professional staff or department relate positively with Easiness of What Wanted to be done

Hypothesis 4.8: ICT continuous upgrading activities by ICT professional staff or department relate positively with Easiness of What Wanted to be done

Hypothesis 4.9: ICT continuous trainings and workshops by ICT professional staff or department relate positively with Easiness of What Wanted to be done

Hypothesis 4.10: ICT continuous awareness campaigns by ICT professional staff or department relate positively with Easiness of What Wanted to be done

STUDY 2

Fifth set of hypotheses: Increased Perceived Usefulness (PU) attributes relate positively with More Frequent Usage of ICT tools.

Hypothesis 5.1: Increased Productivity relate positively with More Frequent Usage of ICT tools

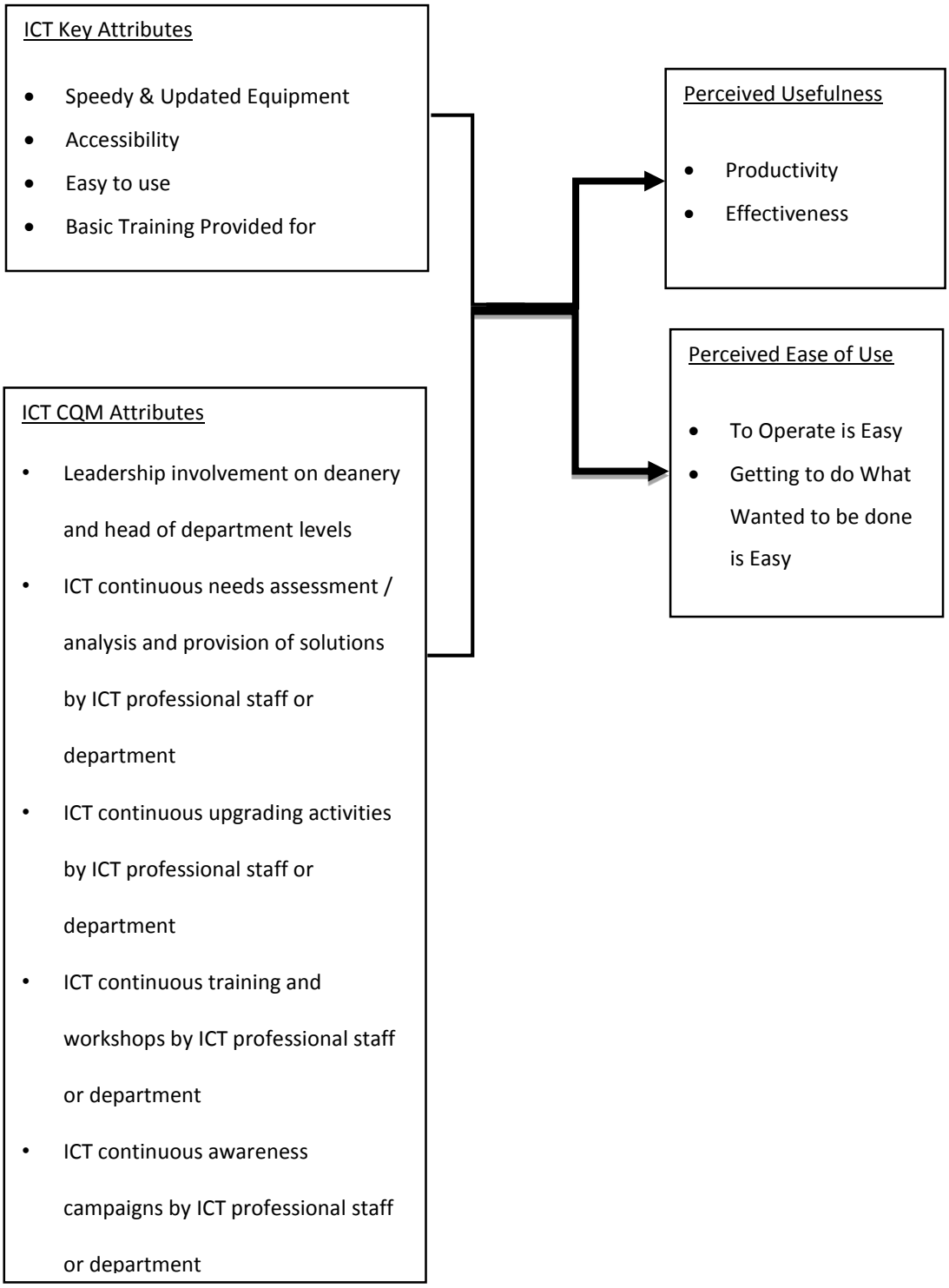
Hypothesis 5.2: Increased Effectiveness relate positively with More Frequent Usage of ICT tools

Sixth set of hypotheses: Increased Perceived Ease of Use (PEOU) attributes relate positively with More Frequent Usage of ICT tools.

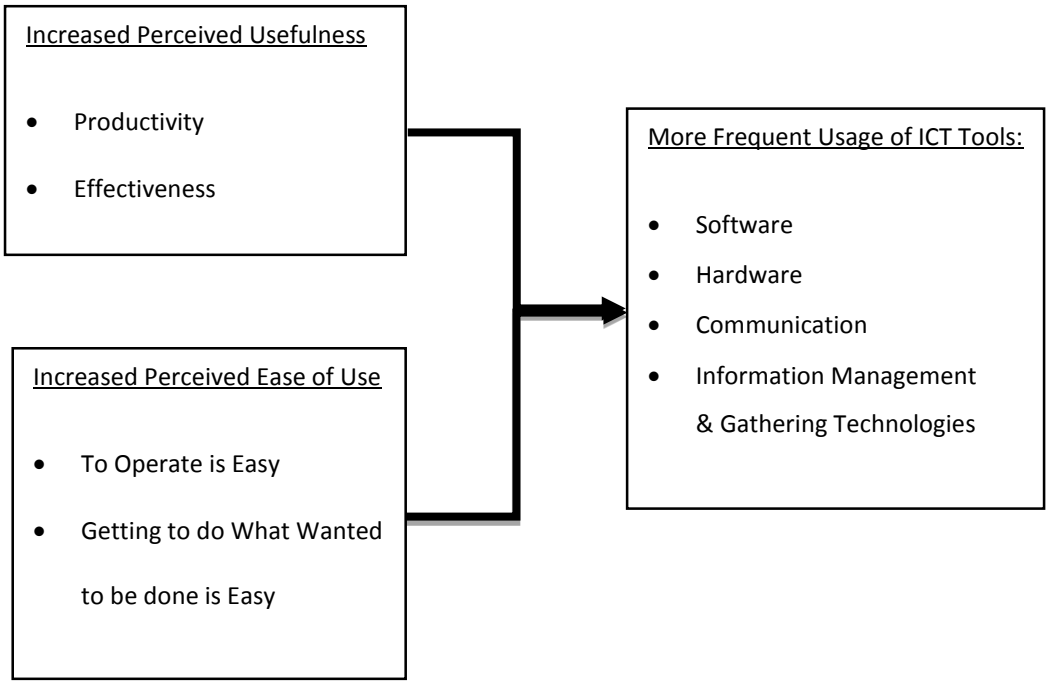
Hypothesis 6.1: Increased Easy Operation of ICT relate positively with More Frequent Usage of ICT tools

Hypothesis 6.2: Increased Easiness of What Wanted to be done relate positively with More Frequent Usage of ICT tools

3.3 MODEL CHARTED: STUDY 1



3.4 MODEL CHARTED: STUDY 2



3.5 METHODOLOGY

3.5.1. Instrument

The instrument used in this study is a survey questionnaire composed of 30 questions developed by the researcher based on related literature. The questionnaire has been administered through a pilot study to a random sample of 10 participants to check the clarity of the questions.

The questionnaire proved to be clear and easily understood by the sample.

Respondents have to first identify the type of the university they are teaching in and then, their Gender (Male or Female), Age (Ranges of ages) and Rank (Professor, Associate Professor, Assistant Professor and Lecturer). Second, they will specify if their university have the Key ICT Attributes and ICT Continuous Quality Management Attributes. Third, they will specify if they are using the ICT tools (Software, Hardware, Communication and Information Management & Gathering Technologies) more frequently in their teaching, learning and research activities. The answers of the second and third parts will be measured based on a five-point Likert type scale ranging from “Strongly Disagree” to “Strongly Agree” as follows:

Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1	2	3	4	5

Respondents will choose the best answer that best shows their level of agreement and applicability of the questions to their situation.

The questionnaire begins with demographics since they do add to the research in a significant way.

Which university you teach as a full-timer?
☐AUB ☐LAU ☐HU ☐NDU ☐USEK ☐USJ ☐ BALAMAND

What is you gender?
☐Male ☐Female

What is your age?
☐30 – 39 ☐40 – 49 ☐50 – 59 ☐60 – 69 ☐70 +

What is your Rank?
☐Professor ☐Associate Professor ☐Assistant Professor ☐Lecturer/Instructor

Then, respondents will have a small definition about the ICT:

ICT Stands for "Information and Communication Technologies". It is a broad term that encompasses Information Technologies (such as Telecommunication, Hardware and Software), as well as Information Systems (which also include the Data, People and Procedures).

Survey Questionnaire	No. of Item	Total No. of Items
The Key ICT Attributes		**9**
Speedy & Updated Equipment	1,2,4	
Accessibility	3,5,6	
Easy to use	7	
Basic Training Provided for	8,9	

Survey Questionnaire	No. of Item	Total No. of Items
The ICT Continuous Quality Management (CQM) Attributes		**12**
Leadership involvement on deanery and head of department levels	10,11,21	
ICT continuous needs assessment / analysis and provision of solutions by ICT professional staff or department	12,13,14,15	
ICT continuous upgrading activities by ICT professional staff or department	16,17	
ICT continuous training and workshops by ICT professional staff or department	18,19	
ICT continuous awareness campaigns by ICT professional staff or department	20	
Perceived Usefulness (PU)	22,23	**2**
Using ICT increases my productivity	22	
Using ICT increases my effectiveness	23	
Perceived Ease of Use (PEOU)	24,25	**2**
Learning to operate ICT is easy for me	24	
I find it easy to get the ICT to do what I want to do	25	
ICT Software, Hardware, Communication and Information Management and Gathering tools more frequently used in teaching, learning and research activities.	26	**1**
Total No. of Items		**26**

3.5.2 Sample Size

Since Multiple Regression analysis is to be used for testing the hypotheses, the number of observations to each independent variable should not be below five to avoid the risk of over fitting, i.e. making the results specific to the sample, thus lacking generalizability (Bartlett, Kotrlikand Higgins, 2001)

In this study, **13** variables were used. Hence the corresponding number of observations on the basis of 5:1 ratio is 11 x 5 = 65.

Moreover, since factor analysis is to be used to detect the structure of variables, a researcher cannot factor analyze a sample of fewer than 50 observations and preferably the sample size should be 100 or larger to provide an adequate basis for the calculation of the correlations between variables. As Hair, Black, Babin, Anderson, and Tatham (2006) recommend, we should have at least five times as many observations as the number of independent variables.

Therefore 130 is defined to be appropriate sample size for carrying out both multiple regression and factor analysis. However, 20% is added to count for non-responses making the sample size 156. For simplicity of calculations, the sample size was rounded to 160 instructors.

The hypotheses will be tested using Regression Analysis and Factor Analysis, and the answers will be analyzed using the Statistical Package for the Social Sciences (SPSS). Factor Analysis will be used to identify the relationships among the variables and to understand the group of the variables used in the survey. Regression Analysis will be used to identify which among the independent variables do affect the dependent variables. Moreover, Descriptive Statistics will be included.

The Hypotheses will be tested in two studies.

Study 1: will show the relation of ICT attributes and CQM attributes with Perceived Usefulness (PU) attributes and Perceived Ease of Use (PEOU) attributes.

Study 2: will show the relation of increased Perceived Usefulness (PU) attributes and increased Perceived Ease of Use (PEOU) attributes with more frequent usage of ICT tools.

3.5.3 Sample Selection

The sample includes private university full time instructors from the League of Lebanese Universities (LLU). The number of universities chosen is 7: American University of Beirut (AUB), Lebanese American University (LAU), Notre Dame University (NDU), Haigazian University (HU), Universite St. Esprit de Kaslik (USEK), St. Joseph University (USJ) and University of Balamand. The reason for the choice of universities is the following: they all have clear descriptions of the qualifications of their instructors.

3.5.4. Survey Administration

The survey administration period was three weeks during which the questionnaires we sent through emails and reminder emails and frequent phone calls were made.

3.5.5. Ethical Considerations

During the administration of the survey, certain ethical issues were taken into consideration. Among these were the respondents' right to anonymity and the right to confidentiality of shared information. The respondents were not required to disclose detailed personal information. Moreover, the data collected from the survey was promised to remain strictly confidential and to be reported in the thesis anonymously. Finally, the right to inform and voluntary consent were addressed by clarifying the purpose of the survey questionnaire which was explained as exploring the Factors That Influence Information Communication Technology Usage by Private University Instructors in Lebanon.

CHAPTER FOUR

STATISTICAL ANALYSES

4.1 DESCRIPTIVE STATISTICS

217 survey questionnaire were filled out by 217 respondents who were full time faculty members from seven of the League of Lebanese Universities. But 169 of responses were used in SPSS because of data incompleteness and inaccuracy.

To facilitate the display and interpretation of data descriptive statistics were computed from the responses obtained.

University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	AUB	40	23.7	23.7	23.7
	LAU	27	16.0	16.0	39.6
	HU	29	17.2	17.2	56.8
	NDU	19	11.2	11.2	68.0
	BALAMAND	32	18.9	18.9	87.0
	USEK	20	11.8	11.8	98.8
	USJ	2	1.2	1.2	100.0
	Total	169	100.0	100.0	

As seen from the table above 23.7% of the population were from AUB, 16% from LAU, 17.2% from HU, 11.2% from NDU, 18.9% from BALAMAND, 11.8% from USEK and 1.2% from USJ.

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	94	55.6	55.6	55.6
	Female	75	44.4	44.4	100.0
	Total	169	100.0	100.0	

As for the Gender of the Full-Time Faculty members, 55.6 % of the respondents were Males and 44.4 % were Females.

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30-39	80	47.3	47.3	47.3
	40-49	47	27.8	27.8	75.1
	50-59	33	19.5	19.5	94.7
	60-69	9	5.3	5.3	100.0
	Total	169	100.0	100.0	

As for the Age of the Full-Time Faculty members, 47.3% of the respondents were between 30-39 years old, 27.8% of the respondents were between 40-49 years old, 19.5% of the respondents were between 50-59 and 5.3% of the respondents were between 60-69 years old.

Rank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lecturer/instructor	64	37.9	37.9	37.9
	Assistant Prof	56	33.1	33.1	71.0
	Associate Prof	35	20.7	20.7	91.7
	Prof	14	8.3	8.3	100.0
	Total	169	100.0	100.0	

As for the Rank of the Full-Time Faculty members, 37.9% of the respondents were Lecturers/ Instructors, 33.1% of the respondents were Assistant Professors, 20.7% of the respondents were Associate Professors and 8.3% of the respondents were Professors.

STUDY 1

Descriptive Statistics for ICT Key Attributes

	N	Minimum	Maximum	Mean	Std. Deviation
Fast Internet	169	1	5	3.56	1.005
Fast Computer	169	1	5	3.72	.879
Technological Equipment in Office	169	1	5	3.33	1.027
Technological Equipment Updated	169	1	5	3.47	.976
Connected to Internal Resources	169	1	5	3.95	.918
Connected to External Resources	169	1	5	3.70	1.015
ICT is Easy to Use	169	1	5	3.72	.879
I have Received Basic Training to Use ICT	169	1	5	3.37	1.028
Help Material and Guidelines	169	1	5	3.39	.995
Valid N (listwise)	169				

Among the ICT Key attributes Connection to Internal Resources has the highest mean 3.95 with Standard deviation of 0.918, while Existence of Technological equipment in the offices has the lowest mean 3.33 with standard deviation of 1.027.

Descriptive Statistics for CQM Attributes

	N	Minimum	Maximum	Mean	Std. Deviation
Dean Encouragement	169	1	5	3.70	.967
Dean Includes ICT in Strategic Objectives	169	1	5	3.40	.908
Discuss ICT Problems in Special Forums	169	1	5	2.91	1.031
Technical Training Needs Assessment Surveys	169	1	5	3.30	1.028
Websites Where to put Feedbacks	169	1	5	2.66	1.035
Quick Solution Help Desk for Changing Difficulties	169	1	5	3.49	1.007
Continuous Upgrade of ICT Standards	169	1	5	3.39	.958
Continuous Upgrade to be Compatible with the Requirements	169	1	5	3.47	1.000
Continuous Training or Workshops	169	1	5	2.99	1.009
Understandable Language by ICT Staff	169	1	5	3.45	.938
Continuous awareness and Internal Marketing	169	1	5	3.05	.940
Use of ICT is a Requirement in my Yearly Contract Renewal	169	1	5	2.75	1.090
Valid N (listwise)	169				

Among the CQM Key attributes Dean Encouragement in using ICT has the highest mean 3.70 with Standard deviation of 0.967, while websites to put faculty their feedbacks has the lowest mean 2.66 with standard deviation of 1.035.

Descriptive Statistics for Dependent Variables (PU and PEOU)

	N	Minimum	Maximum	Mean	Std. Deviation
Using ICT increases my productivity	169	1	5	4.10	.911
Using ICT increases my effectiveness	169	1	5	4.13	.923
Learning to operate ICT is easy for me	169	1	5	3.88	.878
I find it easy to get the ICT to do what I want to do	169	1	5	3.77	.893
Valid N (listwise)	169				

Among the Dependent Variables Perceived Usefulness operationalized as Productivity and Effectiveness and Perceived Ease of Use operationalized as Easy Operation in using ICT, Effectiveness has the highest mean 4.10 with Standard deviation of 0.911, while Getting What Wanted to be done has the lowest mean 3.77 with standard deviation of 0.893.

STUDY 2

Descriptive Statistics of Dependent Variables (More Frequent ICT Usage Tools)

	N	Minimum	Maximum	Mean	Std. Deviation
Software	169	1	5	3.95	.962
Hardware	169	1	5	4.02	.855
Communication	169	1	5	3.76	.973
Info Mang. & Gath.	169	1	5	3.80	.990
Valid N (listwise)	169				

Among the Dependent Variables of More Frequent ICT Usage tools Hardware has the highest mean 4.02 with Standard deviation of 0.855, while Communication tools have the lowest mean 3.76 with standard deviation of 0.973.

4.2 RELIABILITY TESTS

Cronbach's alpha (α), also known as the coefficient of reliability, was used to estimate the internal consistency of the scale, since it is most commonly used when we have multiple Likert questions in a questionnaire that form a scale and we wish to determine if the scale is reliable. Cronbach's alpha measures the extent to which a set of items are related to each other. Hence, Cronbach's alpha increases as the inter-correlations among the items increase. The generally agreed upon lower limit for Cronbach's alpha is 0.70.

The Cronbach's alpha for all the variables of this study were computed using SPSS Version 20. First, the reliability of all the independent variables was tested. The case Processing Summary and the Reliability Statistics of the 21 independent variables for Study 1 and 4 independent variables for Study 2 are shown respectively in the tables below.

The "Corrected Item-Total Correlation" displays the correlation between a given item and the sum score of other items assessing how well one item's score is internally consistent with composite scores from all other items. De Vaus (2004) suggests that any item-total correlation less than 0.30 is weak for item-analysis purposes and the item should be removed from the study.

The "Cronbach's Alpha if item Deleted" displays Cronbach's alpha that would result if a given item is deleted. Like the item-total correlation, it determines which item from among a set of items contribute to the total alpha. As long as the value for the "Cronbach's Alpha if item Deleted" is lower than Cronbach's alpha, there is no tendency to remove the item.

STUDY 1

Case Processing Summary

		N	%
Cases	Valid	169	100.0
	Excluded[a]	0	.0
	Total	169	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.943	21

The Cronbach's alpha is 0.943 for Study 1, which indicates a high level of internal consistency for our scale.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Fast Internet	.582	.941
Fast Computer	.608	.941
Technological Equipment in Office	.484	.943
Technological Equipment Updated	.662	.940
Connected to Internal Resources	.601	.941
Connected to External Resources	.636	.940
ICT is Easy to Use	.702	.940
I have Received Basic Training to Use ICT	.592	.941
Help Material and Guidelines	.748	.939
Dean Encouragement	.677	.940
Dean Includes ICT in Strategic Objectives	.754	.939
Discuss ICT Problems in Special Forums	.638	.940
Technical Training Needs Assessment Surveys	.620	.941
Websites Where to put Feedbacks	.571	.941

Quick Solution Help Desk for Changing Difficulties	.662	.940
Continuous Upgrade of ICT Standards	.722	.939
Continuous Upgrade to be Compatible with the Requirements	.741	.939
Continuous Training or Workshops	.735	.939
Understandable Language by ICT Staff	.677	.940
Continuous awareness and Internal Marketing	.680	.940
Use of ICT is a Requirement in my Yearly Contract Renewal	.490	.943

Since all the corrected item-total correlation of ICT Key attributes and CQM attributes are above 0.30 and since the removal of any item results in a lower Cronbach's alpha, none of the items are removed from this study.

STUDY 2

Case Processing Summary

		N	%
Cases	Valid	169	100.0
	Excluded[a]	0	.0
	Total	169	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.920	4

The Cronbach's alpha is 0.920 for Study 2, which indicates a high level of internal consistency for our scale.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Using ICT increases my productivity	.861	.880
Using ICT increases my effectiveness	.836	.889
Learning to operate ICT is easy for me	.789	.905
I find it easy to get the ICT to do what I want to do	.779	.908

Since all the corrected item-total correlation of Perceived Usefulness attributes and Perceived Ease of Use attributes are above 0.30 and since the removal of any item results in a lower Cronbach's alpha, none of the items are removed from this study.

4.3 FACTOR ANALYSIS

Hair et al. (2006) stated, “Factor analysis is an interdependence technique whose primary purpose is to define the underlying structure among the variables in the analysis”. Factor analysis provides the tools for analyzing the structure of interrelationships among a large number of variables by defining sets of variables that are highly correlated, known as factors.

In this study, exploratory factor analysis was used to test construct validity, that is, the extent to which a measure or set of measures correctly represents the concept of the study.

To determine the appropriateness if factor analysis the entire correlation matrix was examined using Bartlett Test of Sphericity and Kaiser-Myer-Olkin Measure of Sampling Adequacy (KMO MSA).

The Bartlett Test of Sphericity test the overall significance of all correlations within a correlation matrix. It examines the hypothesis that the variables are uncorrelated in the population, that is, the population correlation matrix is an identity matrix; each variable correlates perfectly with itself (r=1) but has no correlation with the other variables (r=0).
If the Bartlett’s Test of sphericity is significant, that is, less than alpha (0.05) the null hypothesis (the correlation matrix is an identify matrix) will be rejected and factor analysis can be conducted on the study.

Kaiser-Myer-Olkin Measure of Sampling Adequacy (KMO MSA) is used to quantify the degree of inter-correlations among the variables. The KMO MSA ranges from 0 to 1 reaching 1 when each variable s perfectly predicted without error by the other variables. The researcher should always have a measure of sampling adequacy above 0.50 before proceeding with the factor analysis.

Communality is the total amount of variance an original variable shares with all other variables included in the analysis. It is the estimate of the variable's shared variance among the variables as represented by the derived factors. The size of the communality is a useful index for assessing how much variance in a particular variable is accounted for by the factor solution. Higher communality values indicate that a large amount of the variance in a variable have been extracted by the factors analysis. Small communalities show that a substantial portion of the variable's variance s not accounted for by the factors. The factor should explain at least half of each original variable's variance, so the communality for each variable should be 0.50 or higher.

STUDY 1

Factor Analysis was performed on the ICT Key Attributes and CQM attributes

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.919
Bartlett's Test of Sphericity	Approx. Chi-Square	2251.852
	df	210
	Sig.	.000

The KMO for ICT and CQM attributes is greater than 0.50 and the Bartlett's Test of Sphericity is 0.000 which is less than 0.05 so it is significant. Based on the test's results it is satisfactory to proceed with the factor analysis on ICT and CQM attributes.

The Communalities of the variables for ICT and CQM attributes are shown below. "I have Received Basic Training to Use ICT" and" Technical Training Needs Assessment Surveys" of the variables are removed from the factor analysis since all of them have a communality less than 0.50.

Communalities

	Initial	Extraction
Fast Internet	1.000	.586
Fast Computer	1.000	.676
Technological Equipment in Office	1.000	.709
Technological Equipment Updated	1.000	.741
Connected to Internal Resources	1.000	.670
Connected to External Resources	1.000	.711
ICT is Easy to Use	1.000	.658
I have Received Basic Training to Use ICT	1.000	.444
Help Material and Guidelines	1.000	.637
Dean Encouragement	1.000	.666
Dean Includes ICT in Strategic Objectives	1.000	.646
Discuss ICT Problems in Special Forums	1.000	.548
Technical Training Needs Assessment Surveys	1.000	.441
Websites Where to put Feedbacks	1.000	.586
Quick Solution Help Desk for Changing Difficulties	1.000	.520
Continuous Upgrade of ICT Standards	1.000	.596
Continuous Upgrade to be Compatible with the Requirements	1.000	.616
Continuous Training or Workshops	1.000	.724
Understandable Language by ICT Staff	1.000	.582
Continuous awareness and Internal Marketing	1.000	.687
Use of ICT is a Requirement in my Yearly Contract Renewal	1.000	.605

Extraction Method: Principal Component Analysis.

The latent root criterion was used to define the number of factors extracted. The rationale is that any individual factor should account for the variance of at least one variable and since with component analysis each variable contributes a value of 1 to the total eigenvalue only the factors having latent roots or eigenvalue greater than 1 are considered significant.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.998	47.611	47.611	9.998	47.611	47.611	5.208	24.798	24.798
2	1.831	8.721	56.331	1.831	8.721	56.331	4.893	23.300	48.098
3	1.220	5.810	62.141	1.220	5.810	62.141	2.949	14.044	62.141
4	.968	4.609	66.750						
5	.762	3.628	70.379						
6	.714	3.400	73.779						
7	.651	3.102	76.881						
8	.604	2.878	79.759						
9	.538	2.560	82.318						
10	.501	2.384	84.703						
11	.491	2.339	87.041						
12	.431	2.054	89.096						
13	.393	1.873	90.969						
14	.339	1.614	92.583						
15	.300	1.430	94.014						
16	.277	1.317	95.331						
17	.245	1.166	96.497						
18	.224	1.066	97.563						
19	.193	.919	98.481						
20	.170	.809	99.290						
21	.149	.710	100.000						

Extraction Method: Principal Component Analysis.

With the reference to the above "Total Variance Explained" table and based on the latent root criterion, three factors are extracted for the ICT key and CQM attributes for 62.141% of the total variance.

The rotated component matrix makes the interpretation of the factor analysis easier showing the factor loadings of the variables on the extracted components. The factor loadings represent the correlation of each variable and the factor. Loadings indicate the degree of correspondence between the variable and the factor, with higher loadings making the variable representative of the factor. Factor loadings interpret the role each variable plays in defining each factor. Factor loadings of 0.50 and above are necessary for practical significance.

Rotated Component Matrix[a]

	Component		
	1	2	3
Fast Internet	.134	.448	.606
Fast Computer	.160	.380	.711
Technological Equipment in Office	.261	.022	.801
Technological Equipment Updated	.264	.332	.749
Connected to Internal Resources	.042	.738	.351
Connected to External Resources	.086	.780	.309
ICT is Easy to Use	.227	.649	.431
I have Received Basic Training to Use ICT	.532	.390	.098
Help Material and Guidelines	.524	.572	.190
Dean Encouragement	.379	.721	.046
Dean Includes ICT in Strategic Objectives	.536	.569	.187
Discuss ICT Problems in Special Forums	.670	.256	.183
Technical Training Needs Assessment Surveys	.475	.395	.244
Websites Where to put Feedbacks	.740	.086	.178
Quick Solution Help Desk for Changing Difficulties	.492	.502	.160
Continuous Upgrade of ICT Standards	.474	.565	.230
Continuous Upgrade to be Compatible with the Requirements	.484	.553	.276
Continuous Training or Workshops	.747	.400	.082
Understandable Language by ICT Staff	.591	.473	.090
Continuous awareness and Internal Marketing	.781	.211	.182
Use of ICT is a Requirement in my Yearly Contract Renewal	.734	-.083	.245

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 10 iterations.

Based on an in-depth understanding and analysis of literature, the three factors are identified as:

Factor 1 as Continuous Awareness and Comprehensive Training of ICT.

Factor 2 as Dean Level Facilitating Strategy for Accessible and Continuously Upgraded ICT Standards.

Factor 3 as Existence of Updated Technology.

STUDY 2

Factor Analysis was performed on the Perceived Usefulness (PU) attributes and Perceived Ease of Use (PEOU) attributes:

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.763
Bartlett's Test of Sphericity	Approx. Chi-Square	590.288
	df	6
	Sig.	.000

The KMO for PU and PEOU attributes is greater than 0.50 and the Bartlett's Test of Sphericity is 0.000 which is less than 0.05 so it is significant. Based on the test's results it is satisfactory to proceed with the factor analysis on PU and PEOU attributes.

The Communalities of the variables for PU and PEOU attributes are shown below. All communalities are greater than 0.50 therefore none of the variables are removed from the factor analysis.

Communalities

	Initial	Extraction
Using ICT increases my productivity	1.000	.857
Using ICT increases my effectiveness	1.000	.831
Learning to operate ICT is easy for me	1.000	.775
I find it easy to get the ICT to do what I want to do	1.000	.764

Extraction Method: Principal Component Analysis.

With reference to the "Total Variance Explained" table below and based on latent root criterion, one factor is extracted, accounting for 80.068 % of total variance.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.227	80.668	80.668	3.227	80.668	80.668
2	.471	11.773	92.441			
3	.215	5.386	97.827			
4	.087	2.173	100.000			

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Again, based on an in-depth understanding and analysis of literature, the only factor summarizes the following concept:

Factor 1 as ICT Is Useful and Easy To Operate.

4.4 REGRESSION ANALYSES

Due to small number of independent variables, ***Regression with Enter Method*** was used. This is an appropriate analysis when dealing with a small set of predictors and when the researcher does not know which independent variables will create the best prediction equation. Each predictor is assessed as though it were entered after all the other independent variables were entered, and assessed by what it offers to the prediction of the dependent variable that is different from the predictions offered by the other variables entered into the model.

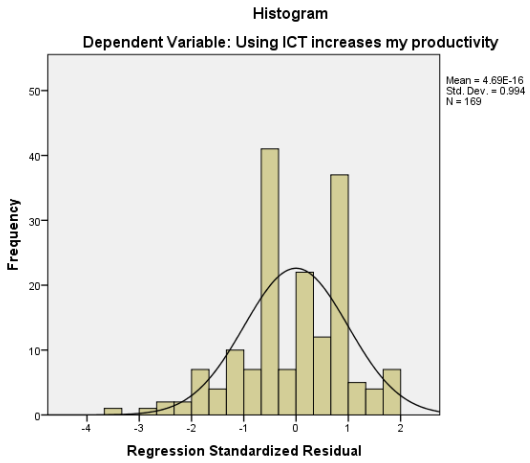
Before performing the regression analysis, we test the assumption of Normality of the Error Term Distribution. The Histogram of standardized residuals allows visual check for a distribution approximating normal distribution and the Normal P-P Plot of Regression Standardized Residual compares the observed standardized residuals against expected standardized residuals from the normal distribution. For a normal distribution, the residual line closely follows the straight diagonal line of the normal distribution.

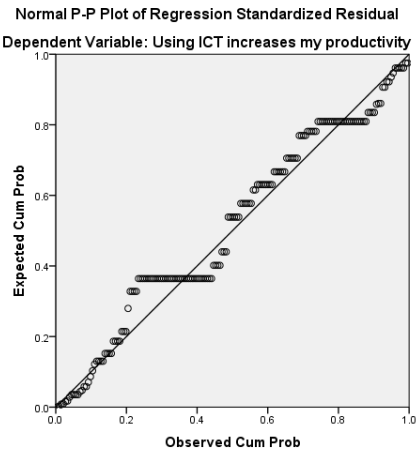
The ANOVA table shows the goodness of fit of the model, that is, how significantly the regression model predicts the outcome variable.

The coefficient for the independent variable show how much the dependent variable changes when the independent variable changes by one unit.

STUDY 1

Speedy and Updated ICT regressed against Productivity.





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Fast Computer, Fast Internet[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.450[a]	.203	.193	.818

a. Predictors: (Constant), Fast Computer, Fast Internet

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 20.3 % of the total variance of increase in productivity is explained by Fast Computer and Fast Internet.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.242	2	14.121	21.109	.000[b]
	Residual	111.048	166	.669		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), Fast Computer, Fast Internet

The Probability of F statistics (21.109) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

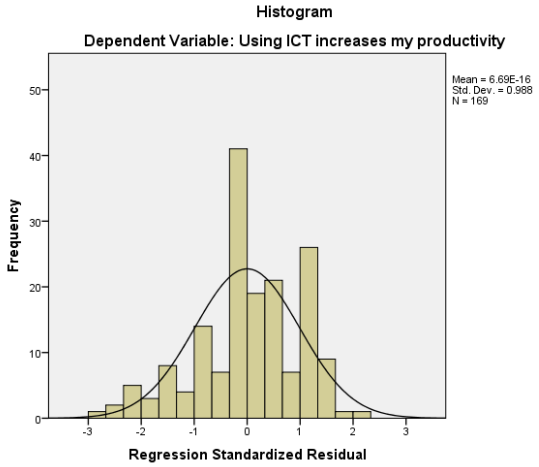
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.510	.287		8.748	.000
	Fast Internet	.363	.077	.401	4.710	.000
	Fast Computer	.080	.088	.078	.913	.362

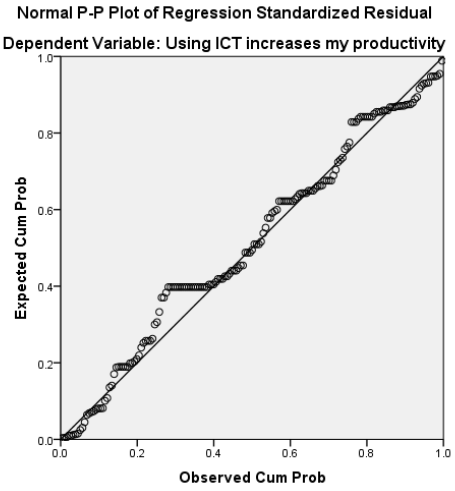
a. Dependent Variable: Using ICT increases my productivity

We can represent the regression equation:
Productivity = 2.510 + 0.363 (Fast Internet)

Since the significance of the t-values for the constant and coefficient Fast Internet are 0.000 that are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Fast Internet and Productivity.

Accessibility regressed against Productivity





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.512[a]	.262	.244	.792

a. Predictors: (Constant), Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 26.2 % of the total variance of increase in productivity is explained by connection to external resources, connection to internal resources, presence of Technological Equipment in offices and being updated.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.511	4	9.128	14.565	.000[b]
	Residual	102.779	164	.627		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources

The Probability of F statistics (14.565) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.012	.299		6.721	.000
	Technological Equipment in Office	.044	.074	.049	.586	.559
	Technological Equipment Updated	.014	.085	.015	.159	.874
	Connected to Internal Resources	.310	.105	.313	2.959	.004
	Connected to External Resources	.181	.095	.202	1.896	.060

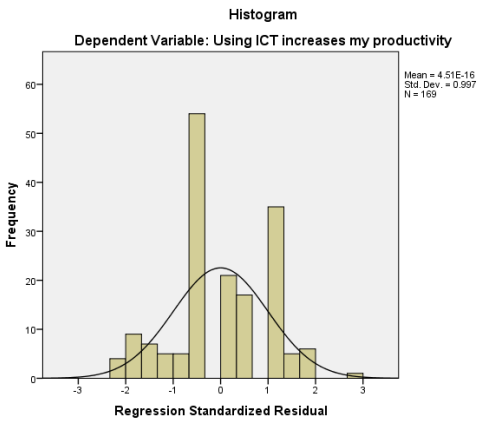
a. Dependent Variable: Using ICT increases my productivity

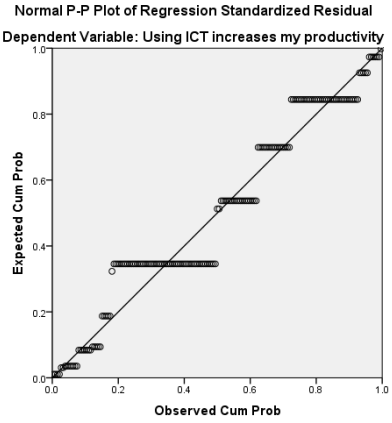
We can represent the regression equation:

Productivity = 2.012 + 0.310 (Connected to Internal Resources)

Since the significance of the t-values for the constant and coefficient Connected to Internal Resources are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Connection to Internal Resources and Productivity.

ICT is being Easy to Use regressed against Productivity





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	ICT is Easy to Use[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.630[a]	.397	.393	.709

a. Predictors: (Constant), ICT is Easy to Use

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 39.7 % of the total variance of increase in productivity is explained by ICT being easy to use.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.252	1	55.252	109.796	.000[b]
	Residual	84.038	167	.503		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), ICT is Easy to Use

The Probability of F statistics (109.796) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

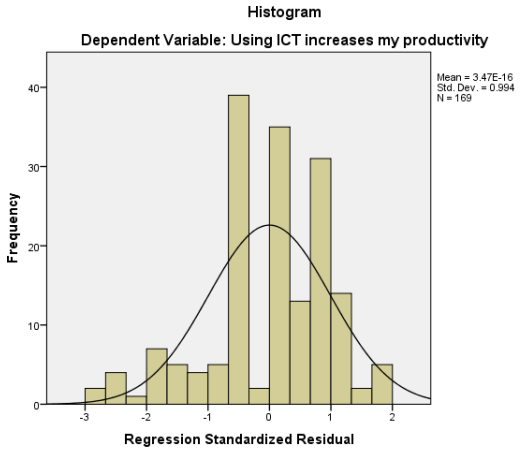
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.674	.238		7.032	.000
	ICT is Easy to Use	.652	.062	.630	10.478	.000

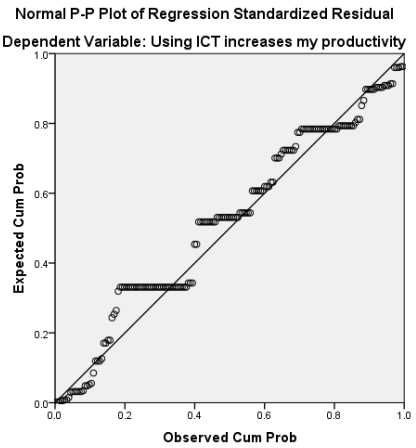
a. Dependent Variable: Using ICT increases my productivity

We can represent the regression equation:
Productivity = 1.674 + 0.652 (ICT is easy to use)

Since the significance of the t-values for the constant and coefficient ICT is easy to use are 0.000 which is lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between ICT being easy to use and Productivity.

Basic Training provided for regressed against Productivity





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Help Material and Guidelines, I have Received Basic Training to Use ICT[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.450[a]	.202	.193	.818

a. Predictors: (Constant), Help Material and Guidelines, I have Received Basic Training to Use ICT

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 20.2 % of the total variance of increase in productivity is explained by providing help material and guidelines and providing Basic Training to Use ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.191	2	14.096	21.061	.000[b]
	Residual	111.099	166	.669		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), Help Material and Guidelines, I have Received Basic Training to Use ICT

The Probability of F statistics (21.061) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

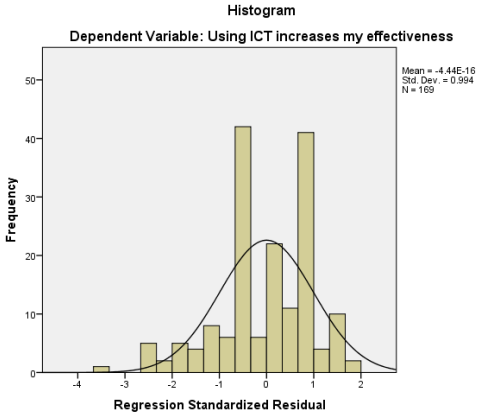
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.674	.243		11.001	.000
	I have Received Basic Training to Use ICT	.027	.078	.030	.340	.735
	Help Material and Guidelines	.394	.081	.431	4.878	.000

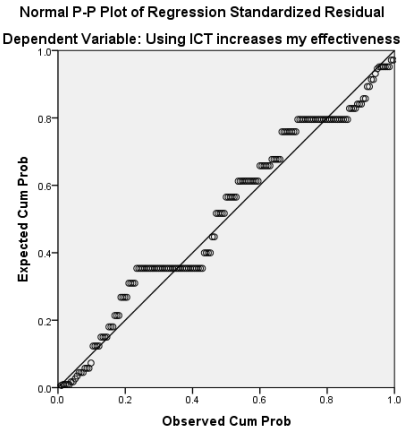
a. Dependent Variable: Using ICT increases my productivity

We can represent the regression equation:
Productivity = 2.674 + 0.394 (Help Material and Guidelines)

Since the significance of the t-values for the constant and coefficient Help Material and Guidelines provided for faculty are 0.000 which is lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Help Material and Guidelines provided for faculty and Productivity.

Speedy and updated ICT regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Fast Computer, Fast Internet[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.442[a]	.195	.185	.833

a. Predictors: (Constant), Fast Computer, Fast Internet

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 19.5 % of the total variance of increase in effectiveness is explained by Fast computer and Fast Internet connection.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.939	2	13.970	20.130	.000[b]
	Residual	115.197	166	.694		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), Fast Computer, Fast Internet

The Probability of F statistics (20.130) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

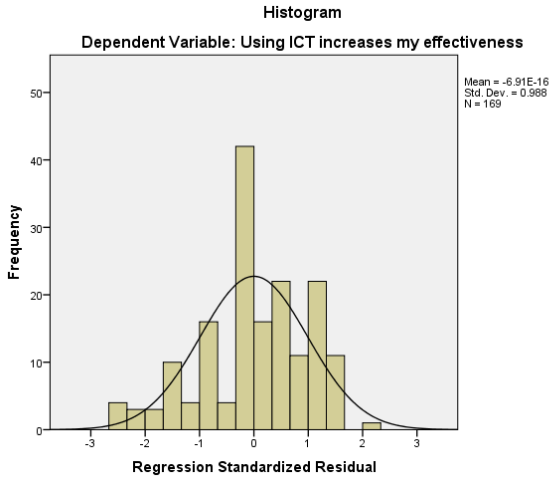
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.516	.292		8.611	.000
	Fast Internet	.348	.079	.379	4.432	.000
	Fast Computer	.101	.090	.096	1.128	.261

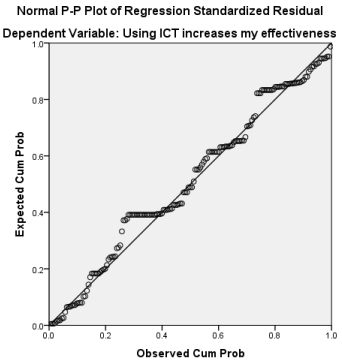
a. Dependent Variable: Using ICT increases my effectiveness

We can represent the regression equation:
Effectiveness = 2.516 + 0.348 (Fast Internet)

Since the significance of the t-values for the constant and coefficient Fast Internet are 0.000 which is lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Fast Internet Connection and Effectiveness.

Accessibility regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.508[a]	.258	.240	.805

a. Predictors: (Constant), Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 25.8 % of the total variance of increase in effectiveness is explained by connection to external resources, connection to internal resources, presence of Technological Equipment in offices and being updated

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.983	4	9.246	14.284	.000[b]
	Residual	106.153	164	.647		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources

The Probability of F statistics (14.284) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

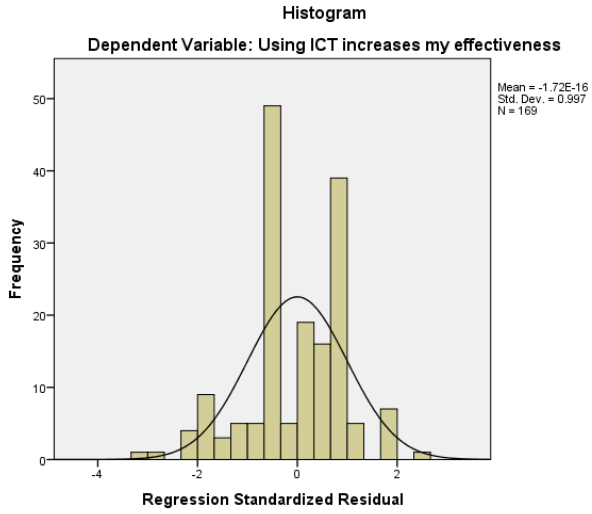
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.040	.304		6.708	.000
	Technological Equipment in Office	.036	.076	.040	.477	.634
	Technological Equipment Updated	.005	.086	.005	.058	.954
	Connected to Internal Resources	.341	.107	.340	3.201	.002
	Connected to External Resources	.163	.097	.179	1.681	.095

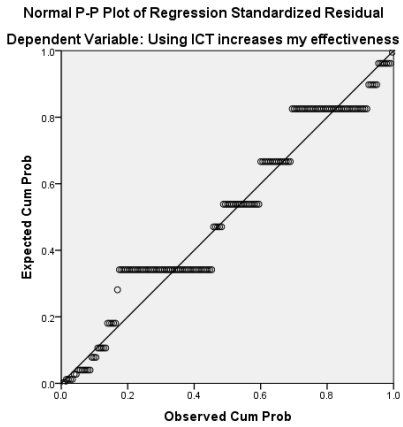
a. Dependent Variable: Using ICT increases my effectiveness

We can represent the regression equation:
Effectiveness = 2.040 + 0.002 (Connected to Internal Resources)

Since the significance of the t-values for the constant and coefficient Fast Internet are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Connection to Internal Resources and Effectiveness.

ICT being easy to use regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	ICT is Easy to Use[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.595[a]	.354	.350	.744

a. Predictors: (Constant), ICT is Easy to Use

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 35.4 % of the total variance of increase in effectiveness is explained by ICT being Easy to Use.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.644	1	50.644	91.442	.000[b]
	Residual	92.492	167	.554		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), ICT is Easy to Use

The Probability of F statistics (91.442) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

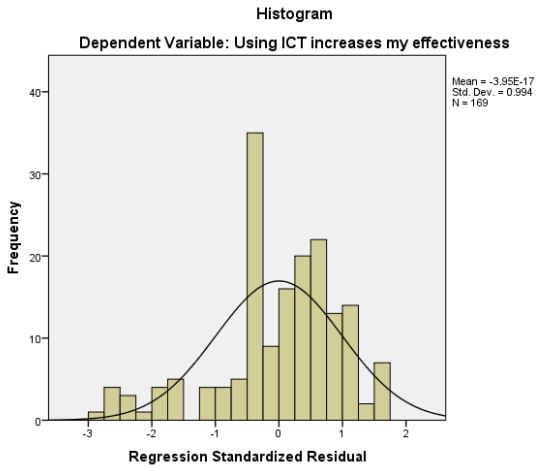
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.806	.250		7.236	.000
	ICT is Easy to Use	.624	.065	.595	9.563	.000

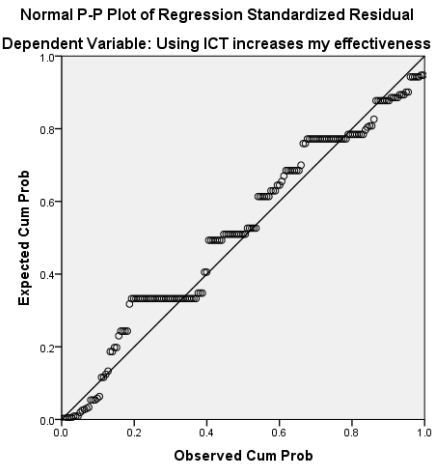
a. Dependent Variable: Using ICT increases my effectiveness

We can represent the regression equation:
Effectiveness = 1.806 + 0.624 (ICT is Easy to use)

Since the significance of the t-values for the constant and coefficient ICT is Easy to Use are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between ICT is Easy to Use and Effectiveness.

Basic Training Provided for Faculty regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Help Material and Guidelines, I have Received Basic Training to Use ICT[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.406[a]	.165	.155	.849

a. Predictors: (Constant), Help Material and Guidelines, I have Received Basic Training to Use ICT

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 16.5 % of the total variance of increase in effectiveness is explained by providing help material and guidelines and providing Basic Training to Use ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.567	2	11.783	16.359	.000[b]
	Residual	119.570	166	.720		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), Help Material and Guidelines, I have Received Basic Training to Use ICT

The Probability of F statistics (16.359) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

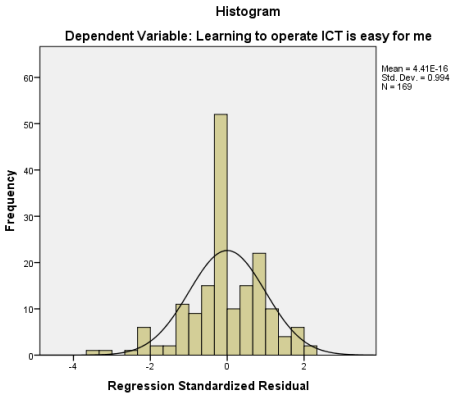
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.815	.252		11.162	.000
	I have Received Basic Training to Use ICT	.035	.081	.039	.434	.665
	Help Material and Guidelines	.353	.084	.380	4.209	.000

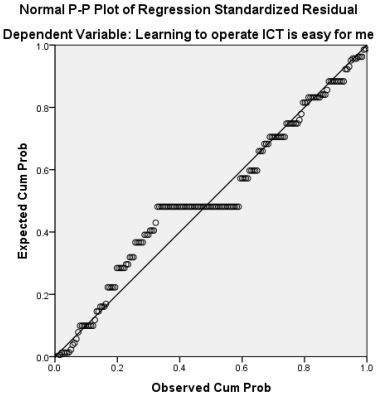
a. Dependent Variable: Using ICT increases my effectiveness

We can represent the regression equation:
Effectiveness = 2.815 + 0.353 (Help Material and Guidelines)

Since the significance of the t-values for the constant and coefficient Help Material and Guidelines provide for Faculty are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Help Material and Guidelines provide for Faculty and Effectiveness.

Speedy and Updated ICT regressed against Easy operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Fast Computer, Fast Internet[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.407[a]	.166	.156	.807

a. Predictors: (Constant), Fast Computer, Fast Internet

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 16.6 % of the total variance of increase in Easy operation of ICT is explained by Fast Computer and Fast Internet connection.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.512	2	10.756	16.513	.000[b]
	Residual	108.122	166	.651		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), Fast Computer, Fast Internet

The Probability of F statistics (16.513) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.351	.283		8.304	.000
	Fast Internet	.237	.076	.271	3.113	.002
	Fast Computer	.185	.087	.185	2.129	.035

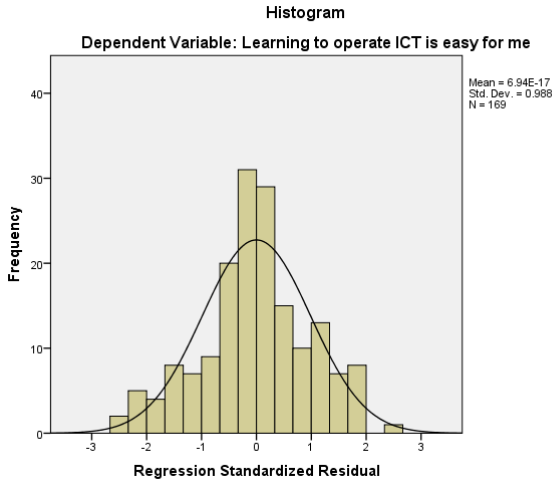
a. Dependent Variable: Learning to operate ICT is easy for me

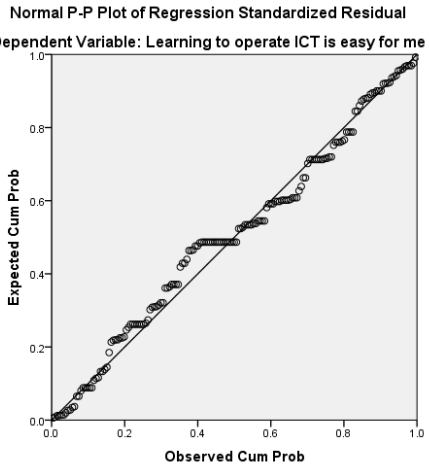
We can represent the regression equation:

Easy operation of ICT = 2.351 + 0.237 (Fast Internet) + 0.185 (Fast Computer)

Since the significance of the t-values for the constant, coefficient Fast Internet Connection, and coefficient Fast computer are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Fast Internet Connection, Fast Computer and easy operation of ICT.

Accessibility regressed against Easy Operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.520[a]	.271	.253	.759

a. Predictors: (Constant), Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 27.1 % of the total variance of increase in Easy operation of ICT is explained by connection to external resources, connection to internal resources, presence of Technological Equipment in offices and being updated

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.078	4	8.770	15.210	.000[b]
	Residual	94.555	164	.577		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources

The Probability of F statistics (15.210) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.830	.287		6.376	.000
	Technological Equipment in Office	.110	.071	.129	1.545	.124
	Technological Equipment Updated	-.020	.082	-.022	-.245	.807
	Connected to Internal Resources	.225	.101	.235	2.232	.027
	Connected to External Resources	.234	.091	.270	2.556	.012

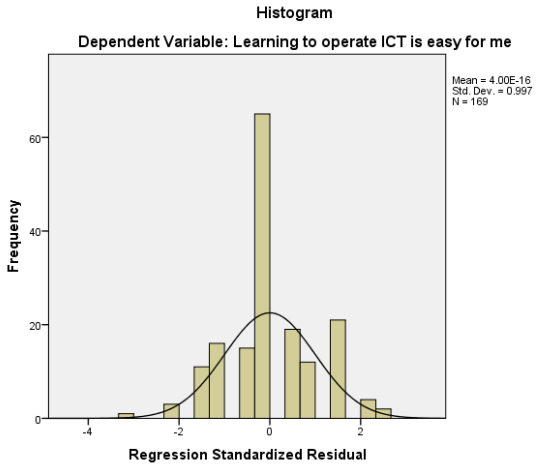
a. Dependent Variable: Learning to operate ICT is easy for me

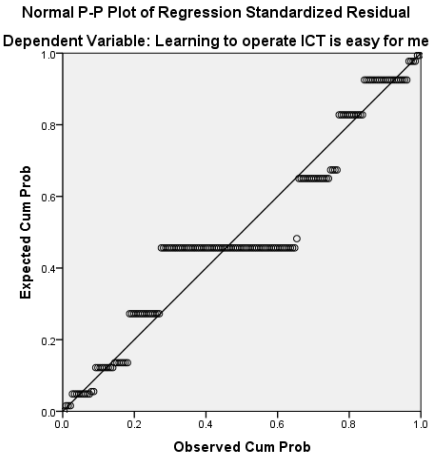
We can represent the regression equation:

Easy operation of ICT = 1.830 + 0.225 (Connected to Internal Resources) + 0.234 (Connected to External Resources)

Since the significance of the t-values for the constant, coefficient Connected to Internal Resources, and coefficient Connected to External Resources are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Connection to Internal and External Resources and Easy Operation of ICT.

ICT being Easy to Use regressed against Easy Operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	ICT is Easy to Use[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.681[a]	.464	.461	.645

a. Predictors: (Constant), ICT is Easy to Use

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 46.4 % of the total variance of increase in Easy operation of ICT is explained by ICT being Easy to use.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60.196	1	60.196	144.776	.000[b]
	Residual	69.437	167	.416		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), ICT is Easy to Use

The Probability of F statistics (144.776) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.348	.216		6.233	.000
	ICT is Easy to Use	.681	.057	.681	12.032	.000

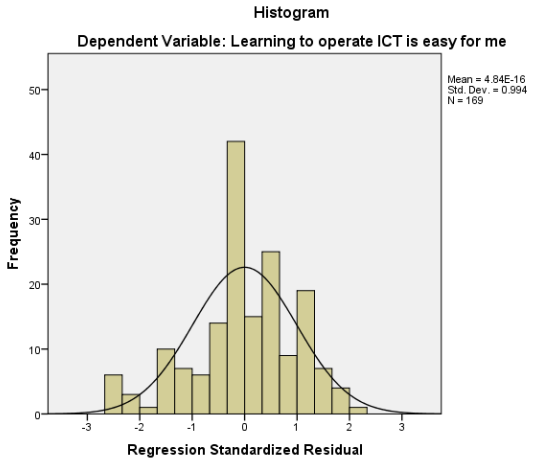
a. Dependent Variable: Learning to operate ICT is easy for me

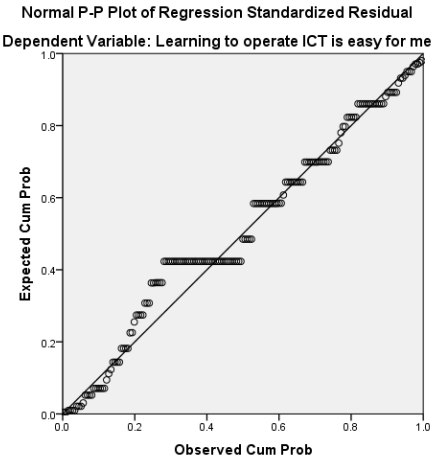
We can represent the regression equation:

Easy operation of ICT = 1.348 + 0.681 (ICT is Easy to Use)

Since the significance of the t-values for the constant and coefficient ICT being easy to use are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between ICT being easy to use and Easy Operation of ICT.

Basic Training Provided for Regressed against Easy Operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Help Material and Guidelines, I have Received Basic Training to Use ICT[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.462[a]	.214	.204	.784

a. Predictors: (Constant), Help Material and Guidelines, I have Received Basic Training to Use ICT

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 21.4 % of the total variance of increase in Easy operation of ICT is explained by providing Help Materials and Guidelines and receiving basic training to use ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.680	2	13.840	22.534	.000[b]
	Residual	101.953	166	.614		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), Help Material and Guidelines, I have Received Basic Training to Use ICT

The Probability of F statistics (22.534) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.393	.233		10.275	.000
	I have Received Basic Training to Use ICT	.122	.075	.143	1.626	.106
	Help Material and Guidelines	.318	.077	.360	4.106	.000

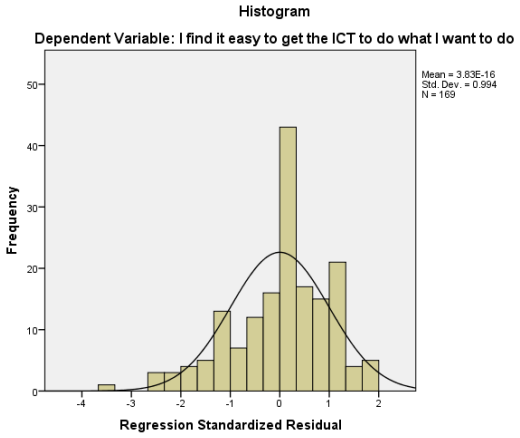
a. Dependent Variable: Learning to operate ICT is easy for me

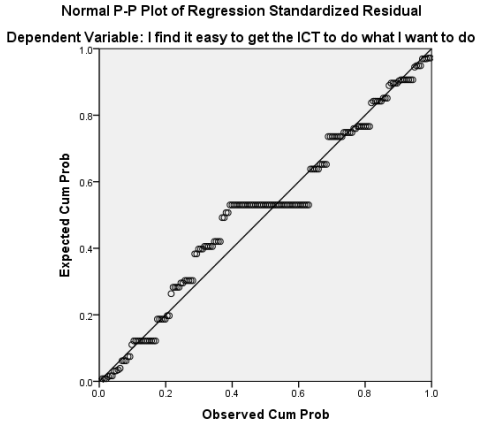
We can represent the regression equation:

Easy operation of ICT = 2.393+ 0.318 (Help Material and Guidelines)

Since the significance of the t-values for the constant and coefficient Help Material and Guidelines are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Help Material and Guidelines provided for faculty and Easy Operation of ICT.

Speedy and Updated ICT regressed against Easiness of what Wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Fast Computer, Fast Internet[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.445[a]	.198	.188	.805

a. Predictors: (Constant), Fast Computer, Fast Internet

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 19.8 % of the total variance of increase in Easiness of what wanted to be done is explained by Fast computer and Fast internet connection.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.536	2	13.268	20.495	.000[b]
	Residual	107.464	166	.647		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), Fast Computer, Fast Internet

The Probability of F statistics (20.495) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

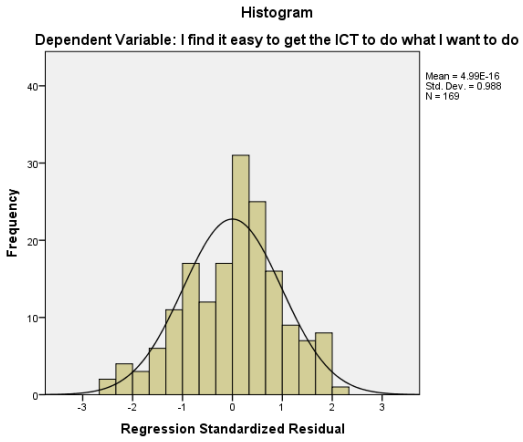
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.032	.282		7.201	.000
	Fast Internet	.223	.076	.251	2.942	.004
	Fast Computer	.254	.087	.250	2.926	.004

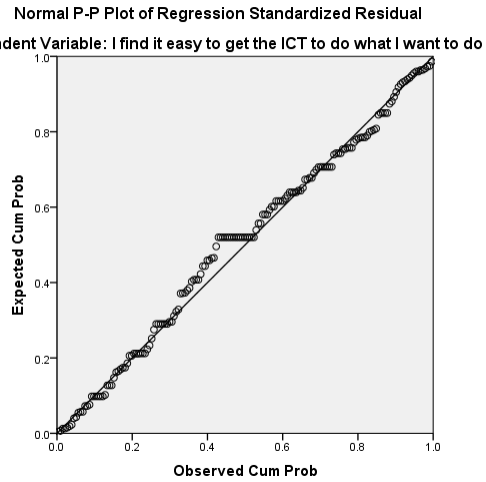
a. Dependent Variable: I find it easy to get the ICT to do what I want to do

We can represent the regression equation:

Easiness of what Wanted to be done = 2.032+ 0.223 (Fast Internet) + 0.254 (Fast Computer)
Since the significance of the t-values for the constant and coefficients Fast computer and Fast Internet connection are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Fast computer and Fast Internet connection and Easiness of what Wanted to be done

Accessibility regressed against Easiness of what wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.567[a]	.321	.305	.745

a. Predictors: (Constant), Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 32.1 % of the total variance of increase in Easiness of what wanted to be done is explained by office computers being connected to internal and external databases, offices having all the technological equipment and being updated.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.056	4	10.764	19.411	.000[b]
	Residual	90.944	164	.555		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), Connected to External Resources, Technological Equipment in Office, Technological Equipment Updated, Connected to Internal Resources

The Probability of F statistics (19.411) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.434	.282		5.094	.000
	Technological Equipment in Office	.114	.070	.131	1.629	.105
	Technological Equipment Updated	.069	.080	.075	.862	.390
	Connected to Internal Resources	.212	.099	.218	2.147	.033
	Connected to External Resources	.237	.090	.270	2.645	.009

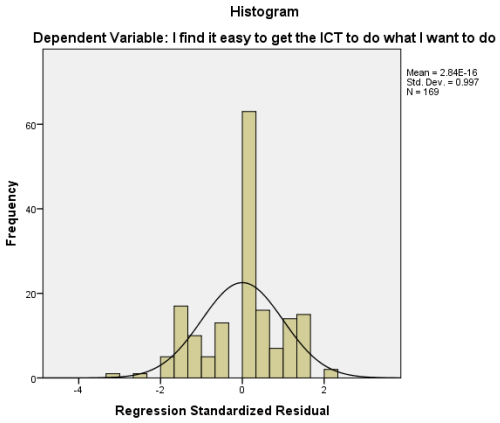
a. Dependent Variable: I find it easy to get the ICT to do what I want to do

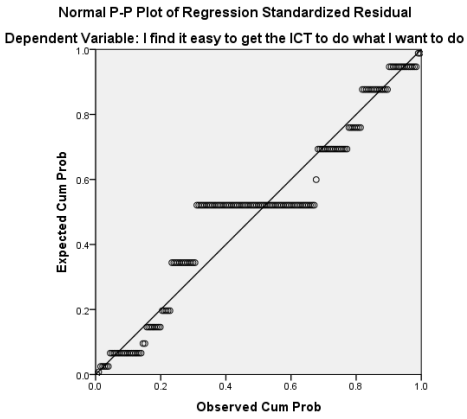
We can represent the regression equation:

Easiness of what Wanted to be done = 1.434 + 0.033 (connected to internal resources) + 0.009 (connected to external resources)

Since the significance of the t-values for the constant and coefficients connected to internal resources and connected to external resources are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between being connected to internal and external databases and Easiness of what Wanted to be done

ICT being Easy to Use regressed against Easiness what wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	ICT is Easy to Use[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698[a]	.488	.485	.641

a. Predictors: (Constant), ICT is Easy to Use

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 48.8 % of the total variance of increase in Easiness of what wanted to be done is explained by ICT being easy to use.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.361	1	65.361	159.026	.000[b]
	Residual	68.639	167	.411		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), ICT is Easy to Use

The Probability of F statistics (159.026) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.129	.215		5.252	.000
	ICT is Easy to Use	.709	.056	.698	12.611	.000

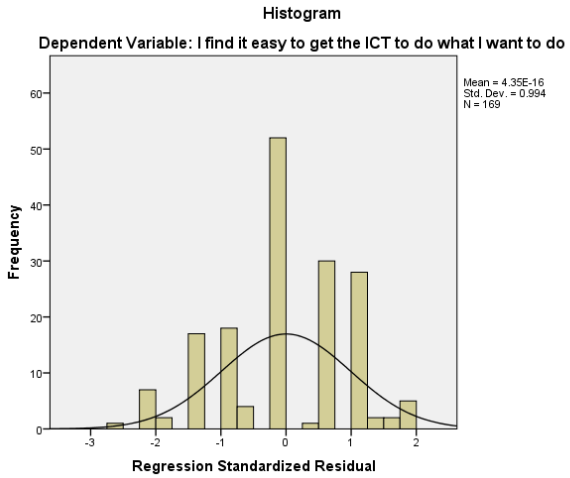
a. Dependent Variable: I find it easy to get the ICT to do what I want to do

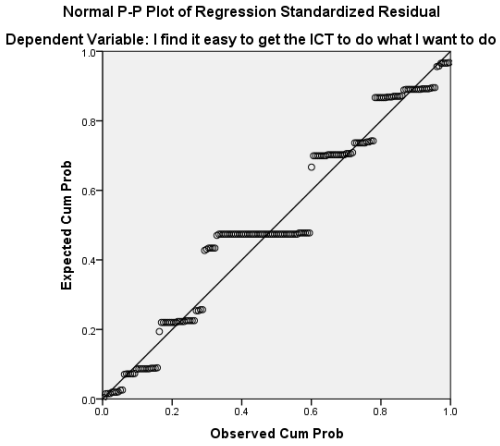
We can represent the regression equation:

Easiness of what wanted to be done = 1.129 + 0.709 (ICT is easy to use)

Since the significance of the t-values for the constant and coefficients ICT being easy to use are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between ICT being easy to use and Easiness of what Wanted to be done.

Basic Training regressed against Easiness of what wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Help Material and Guidelines, I have Received Basic Training to Use ICT[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.511[a]	.261	.252	.772

a. Predictors: (Constant), Help Material and Guidelines, I have Received Basic Training to Use ICT

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 26.1 % of the total variance of increase in Easiness of what wanted to be done is explained by providing Help Material and guidliness and receiving basic training of ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.965	2	17.482	29.303	.000[b]
	Residual	99.035	166	.597		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), Help Material and Guidelines, I have Received Basic Training to Use ICT

The Probability of F statistics (29.303) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.206	.230		9.612	.000
	I have Received Basic Training to Use ICT	.007	.074	.008	.092	.927
	Help Material and Guidelines	.454	.076	.506	5.953	.000

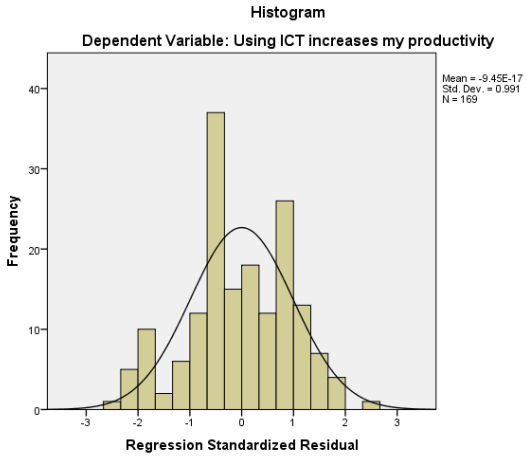
a. Dependent Variable: I find it easy to get the ICT to do what I want to do

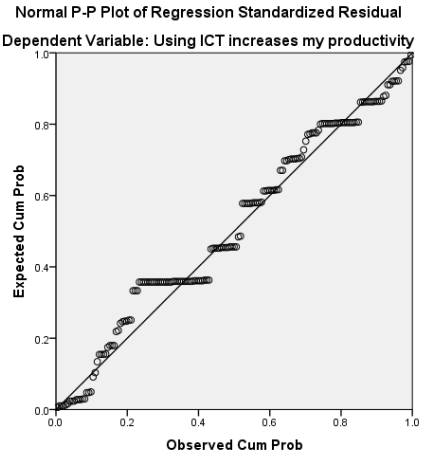
We can represent the regression equation:

Easiness of what wanted to be done = 2.206 + 0.454 (Help Material and Guidelines)

Since the significance of the t-values for the constant and coefficient ICT Help Material and Guidelines lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Providing ICT help material and guidelines and Easiness of what Wanted to be done.

Leadership regressed against Productivity





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.442[a]	.195	.181	.824

a. Predictors: (Constant), Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 19.5 % of the total variance of increase in Productivity is explained by ICT as a requirement in yearly contract renewal, Dean Encouragement and including ICT in strategic objective.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.217	3	9.072	13.357	.000[b]
	Residual	112.073	165	.679		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives

The Probability of F statistics (13.357) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.450	.276		8.864	.000
	Dean Encouragement	.261	.094	.277	2.783	.006
	Dean Includes ICT in Strategic Objectives	.198	.104	.198	1.905	.059
	Use of ICT is a Requirement in my Yearly Contract Renewal	.004	.064	.005	.063	.950

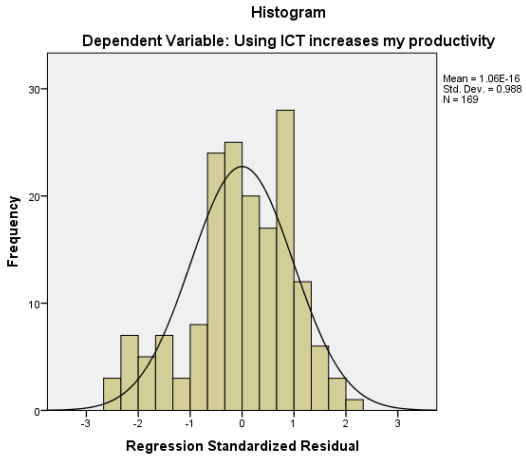
a. Dependent Variable: Using ICT increases my productivity

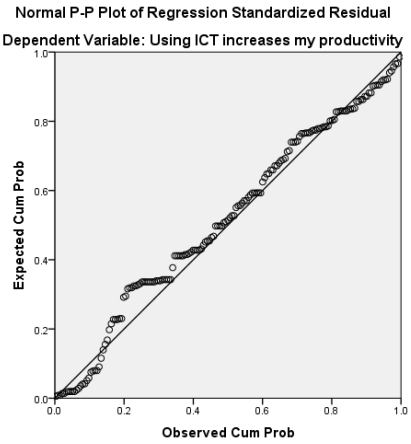
We can represent the regression equation:

Productivity = 2.450+ 0.261(Dean Encouragement)

Since the significance of the t-values for the constant and coefficient Dean Encouragement are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Dean Encouragement of using ICT and productivity.

ICT Continuous Needs Assessments regressed against Productivity





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.413[a]	.171	.150	.839

a. Predictors: (Constant), Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 17.1 % of the total variance of increase in Productivity is explained by quick solution help desk to changing difficulties, conducting technical training needs assessment surveys, websites to put feedbacks and discussion of ICT problems in special forums

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.766	4	5.941	8.435	.000[b]
	Residual	115.524	164	.704		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums

The Probability of F statistics (8.435) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.567	.278		9.234	.000
	Discuss ICT Problems in Special Forums	-.027	.082	-.031	-.334	.739
	Technical Training Needs Assessment Surveys	.195	.075	.220	2.586	.011
	Websites Where to put Feedbacks	.007	.075	.009	.099	.921
	Quick Solution Help Desk for Changing Difficulties	.272	.074	.301	3.695	.000

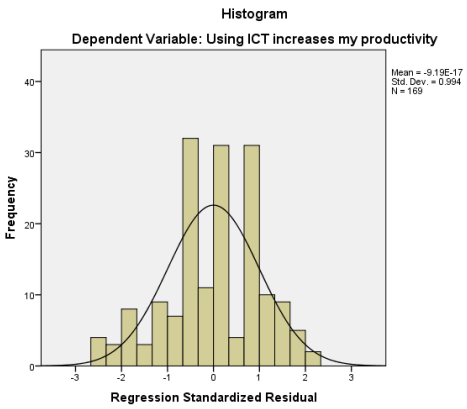
a. Dependent Variable: Using ICT increases my productivity

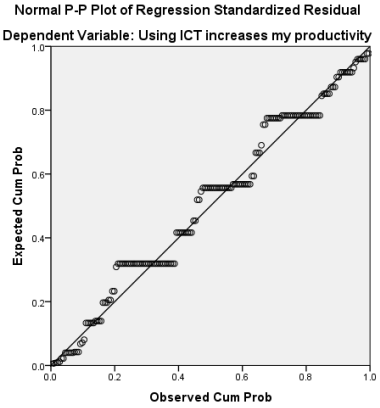
We can represent the regression equation:

Productivity = 2.567 + 0.195 (Technical Training Needs Assessment Surveys) + 0.074 (Quick Solution Help Desk for changing difficulties)

Since the significance of the t-values for the constant and coefficients Technical Training Needs Assessment Surveys and Quick Solution Help Desk for changing difficulties are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between coefficients Technical Training Needs Assessment Surveys and Quick Solution Help Desk for changing difficulties and Productivity.

ICT Continuous Upgrading regressed against Productivity





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.493[a]	.243	.234	.797

a. Predictors: (Constant), Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 24.3 % of the total variance of increase in Productivity is explained by ICT Continuous Upgrading.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.797	2	16.899	26.591	.000[b]
	Residual	105.493	166	.635		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards

The Probability of F statistics (26.591) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.420	.239		10.112	.000
	Continuous Upgrade of ICT Standards	.207	.095	.217	2.174	.031
	Continuous Upgrade to be Compatible with the Requirements	.282	.091	.310	3.097	.002

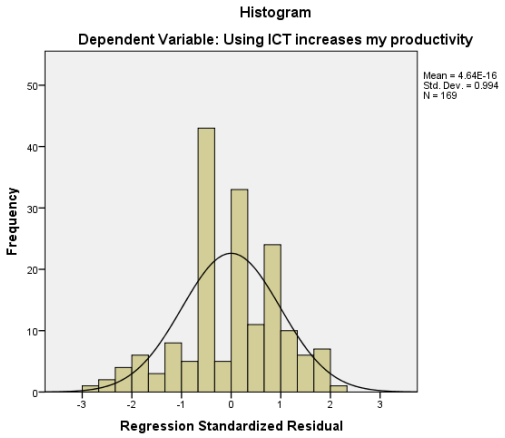
a. Dependent Variable: Using ICT increases my productivity

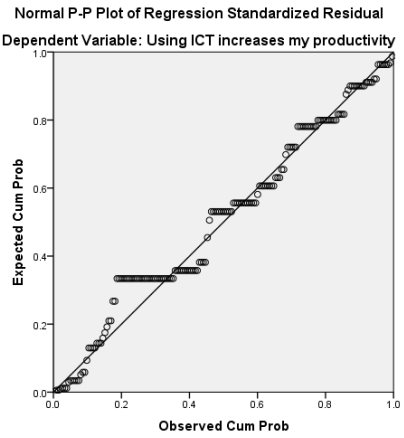
We can represent the regression equation:

Productivity = 2.420 + 0.207 (Continuous Upgrade of ICT Standards) + 0.282 (Continuous Upgrade to be Compatible with the Requirements)

Since the significance of the t-values for the constant and coefficients Continuous Upgrade of ICT Standards and Continuous Upgrade to be Compatible with the Requirements are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between coefficients Continuous Upgrade of ICT Standards and Continuous Upgrade to be Compatible with the Requirements and Productivity.

ICT Continuous Training and Workshops regressed against Productivity





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Understandable Language by ICT Staff, Continuous Training or Workshops[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.423[a]	.179	.169	.830

a. Predictors: (Constant), Understandable Language by ICT Staff, Continuous Training or Workshops

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 17.9 % of the total variance of increase in Productivity is explained by Understandable Language by ICT Staff and Continuous Training or Workshops

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.875	2	12.437	18.045	.000[b]
	Residual	114.415	166	.689		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), Understandable Language by ICT Staff, Continuous Training or Workshops

The Probability of F statistics (18.045) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.675	.246		10.881	.000
	Continuous Training or Workshops	.053	.091	.059	.580	.563
	Understandable Language by ICT Staff	.367	.098	.378	3.733	.000

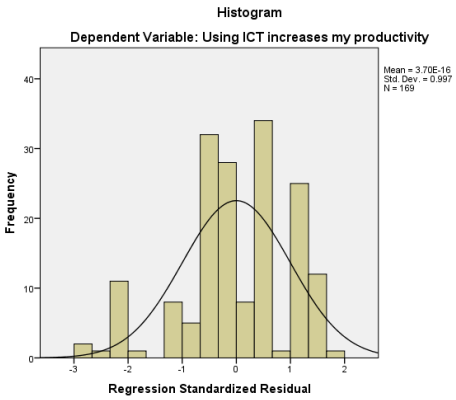
a. Dependent Variable: Using ICT increases my productivity

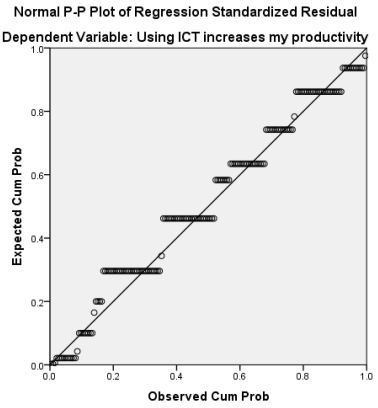
We can represent the regression equation:

Productivity = 2.675 + 0.367 (Understandable Language by ICT Staff)

Since the significance of the t-values for the constant and coefficient Understandable Language by ICT Staff are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between coefficient Understandable Language used by ICT Staff and Productivity.

ICT Continuous Awareness Campaign regressed against Productivity





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Continuous awareness and Internal Marketing[b]	.	Enter

a. Dependent Variable: Using ICT increases my productivity

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.383[a]	.147	.142	.844

a. Predictors: (Constant), Continuous awareness and Internal Marketing

b. Dependent Variable: Using ICT increases my productivity

In Regression model 1, 14.7 % of the total variance of increase in Productivity is explained by Continuous awareness and Internal Marketing

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.438	1	20.438	28.717	.000[b]
	Residual	118.852	167	.712		
	Total	139.290	168			

a. Dependent Variable: Using ICT increases my productivity

b. Predictors: (Constant), Continuous awareness and Internal Marketing

The Probability of F statistics (28.717) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.968	.221		13.424	.000
	Continuous awareness and Internal Marketing	.371	.069	.383	5.359	.000

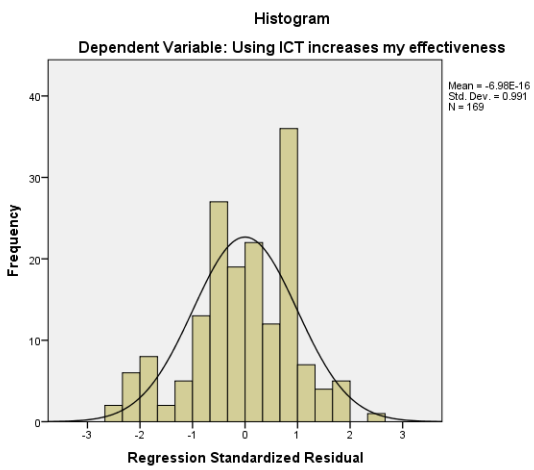
a. Dependent Variable: Using ICT increases my productivity

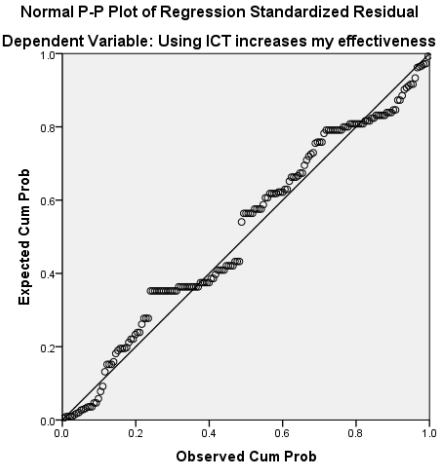
We can represent the regression equation:

Productivity = 2.968 + 0.371 (Continuous awareness and internal Marketing)

Since the significance of the t-values for the constant and coefficient Continuous awareness and internal Marketing are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous awareness and internal Marketing and Productivity.

Leadership regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.431[a]	.186	.171	.840

a. Predictors: (Constant), Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 18.6 % of the total variance of increase in Effectiveness is explained by Use of ICT as a Requirement in Faculty Yearly Contract Renewal, Dean Encouraging the use of ICT and Dean Including ICT usage in Strategic Objectives.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.627	3	8.876	12.570	.000[b]
	Residual	116.509	165	.706		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives

The Probability of F statistics (12.570) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.503	.282		8.884	.000
	Dean Encouragement	.328	.095	.344	3.437	.001
	Dean Includes ICT in Strategic Objectives	.100	.106	.099	.947	.345
	Use of ICT is a Requirement in my Yearly Contract Renewal	.025	.065	.030	.389	.697

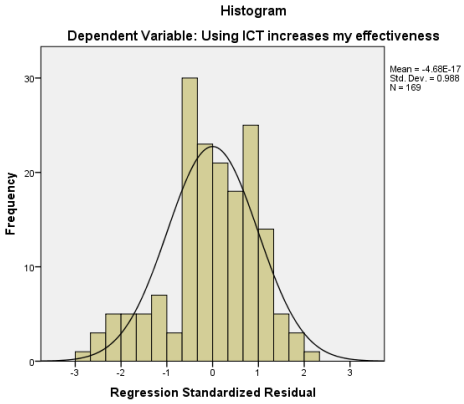
a. Dependent Variable: Using ICT increases my effectiveness

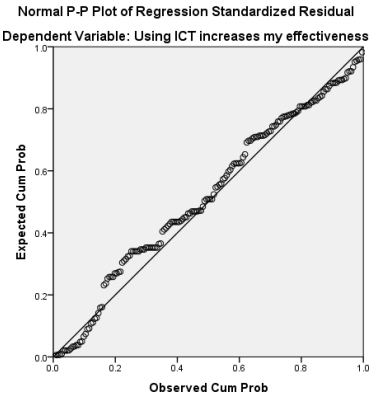
We can represent the regression equation:

Effectiveness = 2.503 + 0.328 (Dean Encouragement)

Since the significance of the t-values for the constant and coefficient Dean Encouragement for using ICT are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Dean Encouragement for using ICT and Effectiveness.

ICT Continuous Needs Assessments regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.397[a]	.158	.137	.857

a. Predictors: (Constant), Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 15.8 % of the total variance of increase in Effectiveness is explained by Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks and Discussion of ICT Problems in Special Forums.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.611	4	5.653	7.692	.000[b]
	Residual	120.525	164	.735		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums

The Probability of F statistics (7.692) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.709	.284		9.542	.000
	Discuss ICT Problems in Special Forums	-.087	.084	-.097	-1.042	.299
	Technical Training Needs Assessment Surveys	.272	.077	.303	3.539	.001
	Websites Where to put Feedbacks	-.014	.077	-.016	-.181	.856
	Quick Solution Help Desk for Changing Difficulties	.233	.075	.254	3.092	.002

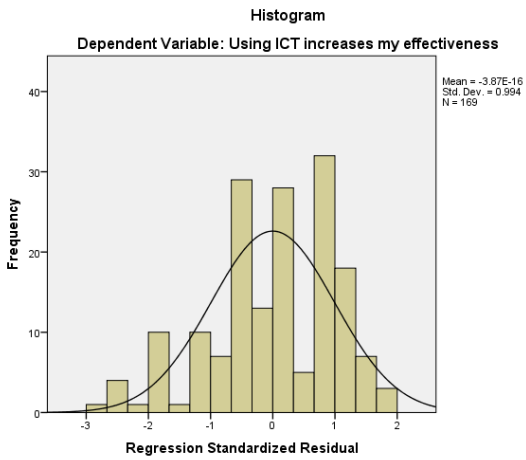
a. Dependent Variable: Using ICT increases my effectiveness

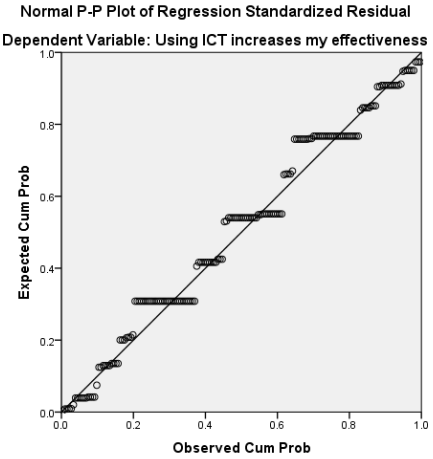
We can represent the regression equation:

Effectiveness = 2.709 + 0.272 (Technical Training Needs Assessment Surveys) + 0.233 (Quick Solution Help Desk for Changing Difficulties)

Since the significance of the t-values for the constants and coefficients Technical Training Needs Assessment Surveys and Quick Solution Help Desk for Changing Difficulties are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Technical Training Needs Assessment Surveys, Quick Solution Help Desk for Changing Difficulties of using ICT and Effectiveness.

ICT Continuous Upgrading regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.484[a]	.234	.225	.813

a. Predictors: (Constant), Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 23.4 % of the total variance of increase in Effectiveness is explained by Continuous Upgrading of ICT to be Compatible with the faculty Requirements and Continuous Upgrade of ICT Standards.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.528	2	16.764	25.389	.000[b]
	Residual	109.608	166	.660		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards

The Probability of F statistics (25.389) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.451	.244		10.047	.000
	Continuous Upgrade of ICT Standards	.235	.097	.244	2.429	.016
	Continuous Upgrade to be Compatible with the Requirements	.254	.093	.275	2.733	.007

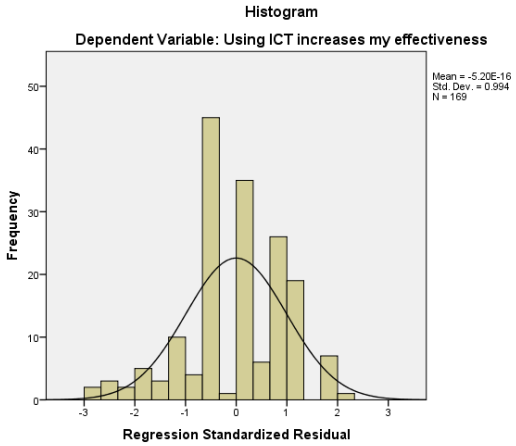
a. Dependent Variable: Using ICT increases my effectiveness

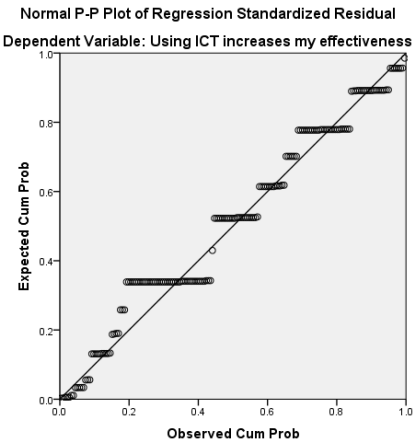
We can represent the regression equation:

Effectiveness = 2.451 + 0.254 (Continuous Upgrade to be Compatible with the Requirements)

Since the significance of the t-values for the constant and coefficient Continuous Upgrade to be Compatible with the Requirements of faculty are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous Upgrade to be Compatible with the Requirements of faculty and Effectiveness.

ICT Continuous Training and Workshops regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Understandable Language by ICT Staff, Continuous Training or Workshops[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.406[a]	.165	.155	.848

a. Predictors: (Constant), Understandable Language by ICT Staff, Continuous Training or Workshops

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 16.5% of the total variance of increase in Effectiveness is explained by Understandable Language by ICT Staff and Continuous Training or Workshops.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.635	2	11.818	16.416	.000[b]
	Residual	119.501	166	.720		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), Understandable Language by ICT Staff, Continuous Training or Workshops

The Probability of F statistics (16.416) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.749	.251		10.943	.000
	Continuous Training or Workshops	.004	.093	.005	.048	.962
	Understandable Language by ICT Staff	.396	.101	.403	3.943	.000

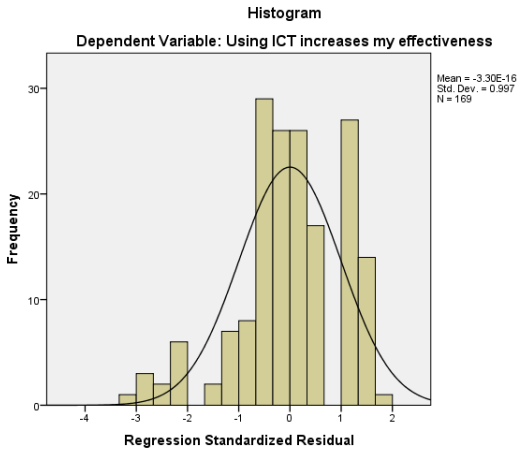
a. Dependent Variable: Using ICT increases my effectiveness

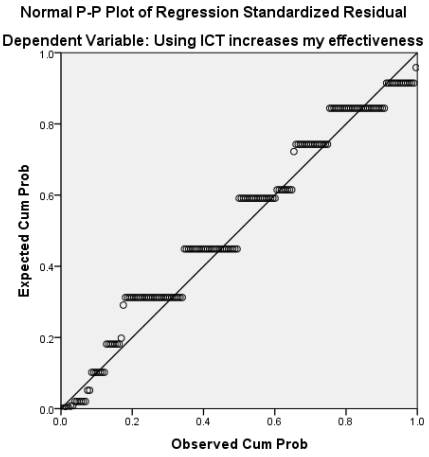
We can represent the regression equation:

Effectiveness = 2.749 + 0.396 (Understandable Language by ICT Staff)

Since the significance of the t-values for the constant and coefficient Understandable Language by ICT Staff are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Understandable Language by ICT Staff and Effectiveness.

ICT Continuous Awareness Campaign regressed against Effectiveness





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Continuous awareness and Internal Marketing[b]	.	Enter

a. Dependent Variable: Using ICT increases my effectiveness

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.321[a]	.103	.098	.877

a. Predictors: (Constant), Continuous awareness and Internal Marketing

b. Dependent Variable: Using ICT increases my effectiveness

In Regression model 1, 10.3 % of the total variance of increase in Effectiveness is explained by Continuous awareness and Internal Marketing of ICT

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.765	1	14.765	19.208	.000[b]
	Residual	128.371	167	.769		
	Total	143.136	168			

a. Dependent Variable: Using ICT increases my effectiveness

b. Predictors: (Constant), Continuous awareness and Internal Marketing

The Probability of F statistics (19.208) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.167	.230		13.785	.000
	Continuous awareness and Internal Marketing	.315	.072	.321	4.383	.000

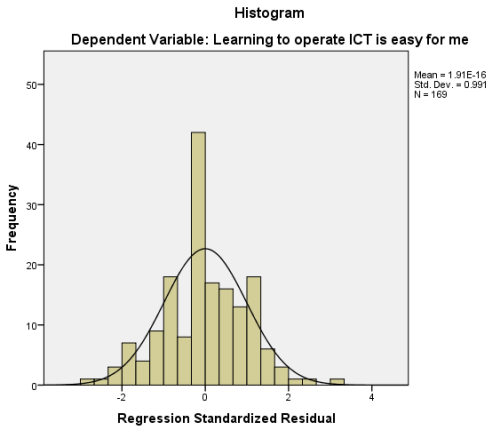
a. Dependent Variable: Using ICT increases my effectiveness

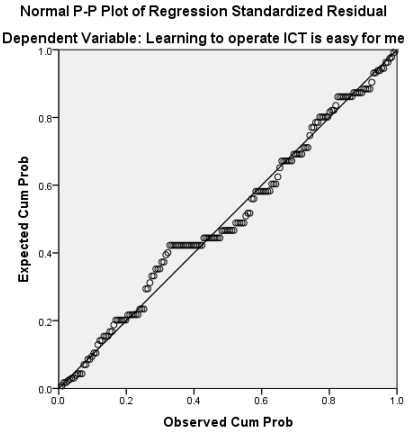
We can represent the regression equation:

Effectiveness = 3.167 + 0.315 (Continuous awareness and Internal Marketing)

Since the significance of the t-values for the constant and coefficient Continuous awareness and Internal Marketing are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous awareness and Internal Marketing of ICT and Effectiveness.

Leadership regressed against Easy Operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.473[a]	.224	.210	.781

a. Predictors: (Constant), Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 22.4 % of the total variance of increase in Easy Operation of ICT is explained by Use of ICT as a Requirement in Faculty Yearly Contract Renewal, Dean Encouraging the use of ICT and Dean Including ICT usage in Strategic Objectives.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.055	3	9.685	15.888	.000[b]
	Residual	100.578	165	.610		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives

The Probability of F statistics (15.888) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.151	.262		8.217	.000
	Dean Encouragement	.187	.089	.205	2.104	.037
	Dean Includes ICT in Strategic Objectives	.270	.099	.280	2.741	.007
	Use of ICT is a Requirement in my Yearly Contract Renewal	.043	.061	.054	.718	.474

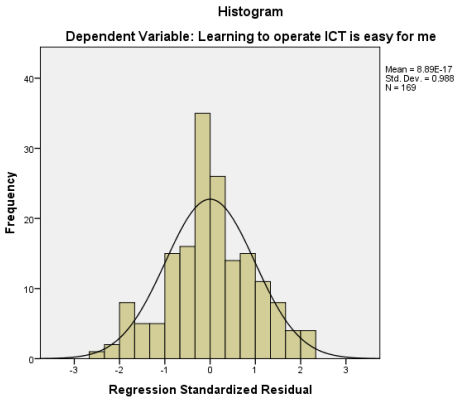
a. Dependent Variable: Learning to operate ICT is easy for me

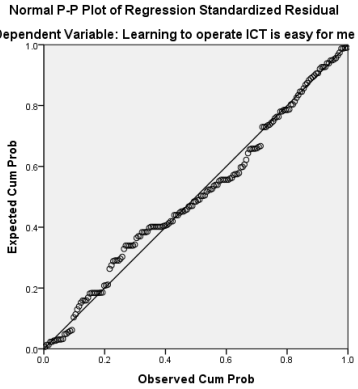
We can represent the regression equation:

Easy Operation of ICT = 2.151 + 0.187 (Dean Encouragement) + 0.270 (Dean Includes ICT in Strategic Objectives)

Since the significance of the t-values for the constant and coefficients Dean Encouragement and Dean Includes ICT in Strategic Objectives are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Dean Encouraging the ICT usage and Dean Including ICT in Strategic Objectives and Easy Operation of ICT.

ICT Continuous Needs Assessments regressed against Easy Operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.462[a]	.214	.194	.788

a. Predictors: (Constant), Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 21.4 % of the total variance of increase in Easy Operation of ICT is explained by Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks and Discussing ICT Problems in Special Forums.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.693	4	6.923	11.138	.000[b]
	Residual	101.940	164	.622		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums

The Probability of F statistics (11.138) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.271	.261		8.697	.000
	Discuss ICT Problems in Special Forums	.166	.077	.195	2.158	.032
	Technical Training Needs Assessment Surveys	.142	.071	.166	2.007	.046
	Websites Where to put Feedbacks	-.065	.071	-.076	-.910	.364
	Quick Solution Help Desk for Changing Difficulties	.238	.069	.273	3.442	.001

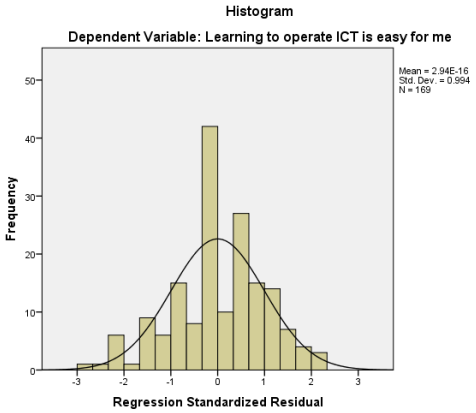
a. Dependent Variable: Learning to operate ICT is easy for me

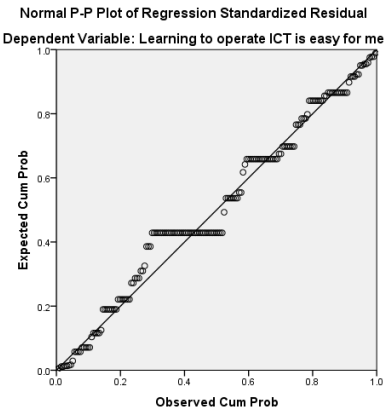
We can represent the regression equation:

Easy Operation of ICT = 2.271 + 0.166 (Discuss ICT Problems in Special Forums) + 0.142 (Technical Training Needs Assessment Surveys) + 0.238 (Quick Solution Help Desk for Changing Difficulties)

Since the significance of the t-values for the constant and coefficients Discuss ICT Problems in Special Forums, Technical Training Needs Assessment Surveys and Quick Solution Help Desk for Changing Difficulties are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Discussion of ICT problem in special forums, Technical Training needs Assessment surveys and Quick Solution Help Desk for Changing ICT usage Difficulties and Easy Operation of ICT.

ICT Continuous Upgrading regressed against Easy operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.476[a]	.227	.218	.777

a. Predictors: (Constant), Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 22.7 % of the total variance of increase in Easy Operation of ICT is explained by Continuous Upgrade to be Compatible with the Requirements and Continuous Upgrade of ICT Standards.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.417	2	14.708	24.363	.000[b]
	Residual	100.216	166	.604		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards

The Probability of F statistics (24.363) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.311	.233		9.904	.000
	Continuous Upgrade of ICT Standards	.211	.093	.230	2.281	.024
	Continuous Upgrade to be Compatible with the Requirements	.246	.089	.280	2.774	.006

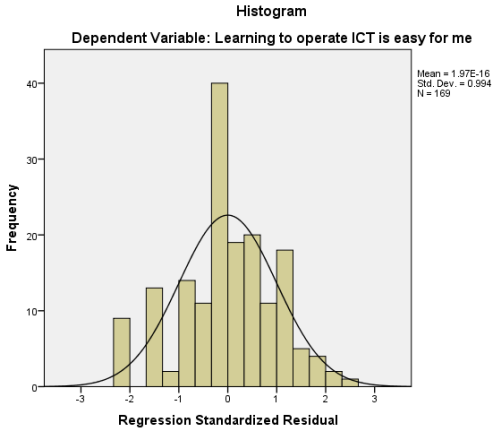
a. Dependent Variable: Learning to operate ICT is easy for me

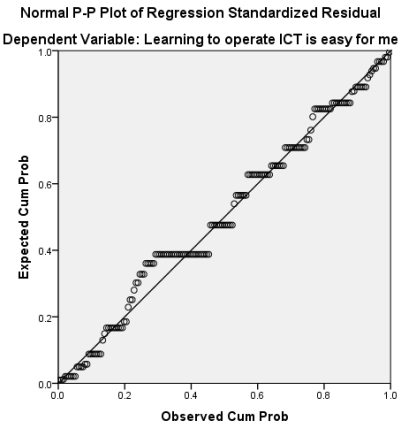
We can represent the regression equation:

Easy Operation of ICT = 2.311 + 0.211 (Continuous Upgrade of ICT Standards) + 0.246 (Continuous Upgrade to be Compatible with the Requirements)

Since the significance of the t-values for the constant and coefficients Continuous Upgrade of ICT Standards and Continuous Upgrade to be Compatible with the Requirements are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous Upgrade of ICT Standards, Continuous Upgrade of ICT to be Compatible with the Requirements of faculty and Easy Operation of ICT.

ICT Continuous Training and Workshops regressed against Easy operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Understandable Language by ICT Staff, Continuous Training or Workshops[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.483[a]	.233	.224	.774

a. Predictors: (Constant), Understandable Language by ICT Staff, Continuous Training or Workshops

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 22.4 % of the total variance of increase in Easy Operation of ICT is explained by Understandable Language by ICT Staff and Continuous Training or Workshops for ICT usage.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.198	2	15.099	25.207	.000[b]
	Residual	99.435	166	.599		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), Understandable Language by ICT Staff, Continuous Training or Workshops

The Probability of F statistics (25.207) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.332	.229		10.175	.000
	Continuous Training or Workshops	.174	.085	.200	2.041	.043
	Understandable Language by ICT Staff	.298	.092	.318	3.251	.001

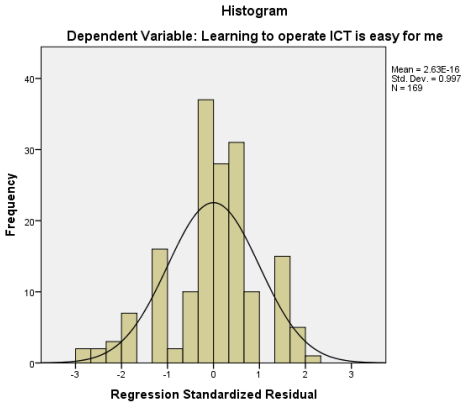
a. Dependent Variable: Learning to operate ICT is easy for me

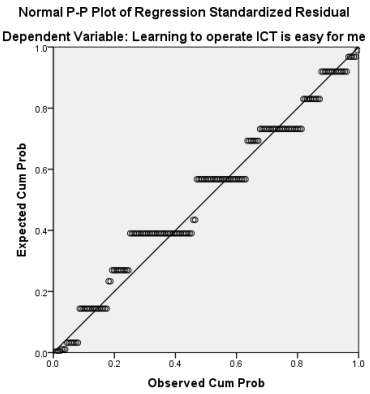
We can represent the regression equation:

Easy Operation of ICT = 2.332 + 0.174 (Continuous Training or Workshops) + 0.298 (Understandable Language by ICT Staff)

Since the significance of the t-values for the constant and coefficients Continuous Training or Workshops and Understandable Language used by ICT Staff are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous Training or Workshops of ICT usage, Understandable Language used by ICT Staff and Easy Operation of ICT.

ICT Continuous Awareness Campaign regressed against Easy operation of ICT





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Continuous awareness and Internal Marketing[b]	.	Enter

a. Dependent Variable: Learning to operate ICT is easy for me

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.390[a]	.152	.147	.811

a. Predictors: (Constant), Continuous awareness and Internal Marketing

b. Dependent Variable: Learning to operate ICT is easy for me

In Regression model 1, 15.2 % of the total variance of increase in Easy Operation of ICT is explained by Continuous awareness and Internal Marketing of ICT in university.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.681	1	19.681	29.892	.000[b]
	Residual	109.952	167	.658		
	Total	129.633	168			

a. Dependent Variable: Learning to operate ICT is easy for me

b. Predictors: (Constant), Continuous awareness and Internal Marketing

The Probability of F statistics (29.892) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.770	.213		13.027	.000
	Continuous awareness and Internal Marketing	.364	.067	.390	5.467	.000

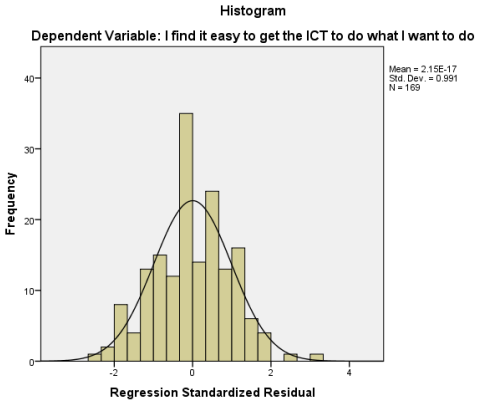
a. Dependent Variable: Learning to operate ICT is easy for me

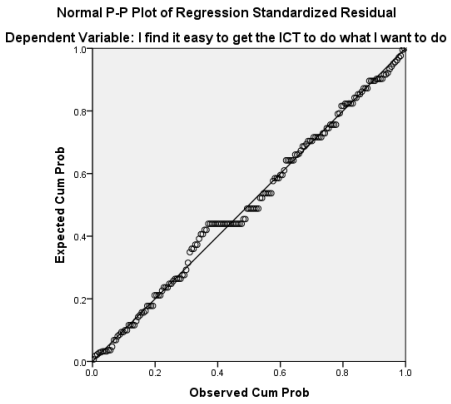
We can represent the regression equation:

Easy Operation of ICT = 2.770 + 0.364 (Continuous awareness and Internal Marketing)

Since the significance of the t-values for the constant and coefficient Continuous awareness and Internal Marketing are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous awareness and Internal Marketing of ICT and Easy Operation of ICT.

Leadership regressed against Easiness of What Wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.509[a]	.259	.245	.776

a. Predictors: (Constant), Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 25.9 % of the total variance of Easiness of what wanted to be done is explained by Use of ICT is a Requirement in Faculty Yearly Contract Renewal, Dean Encouragement and Dean Includes ICT in Strategic Objectives.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.693	3	11.564	19.214	.000[b]
	Residual	99.307	165	.602		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), Use of ICT is a Requirement in my Yearly Contract Renewal, Dean Encouragement, Dean Includes ICT in Strategic Objectives

The Probability of F statistics (19.214) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.873	.260		7.202	.000
	Dean Encouragement	.161	.088	.174	1.823	.070
	Dean Includes ICT in Strategic Objectives	.305	.098	.311	3.117	.002
	Use of ICT is a Requirement in my Yearly Contract Renewal	.095	.060	.116	1.579	.116

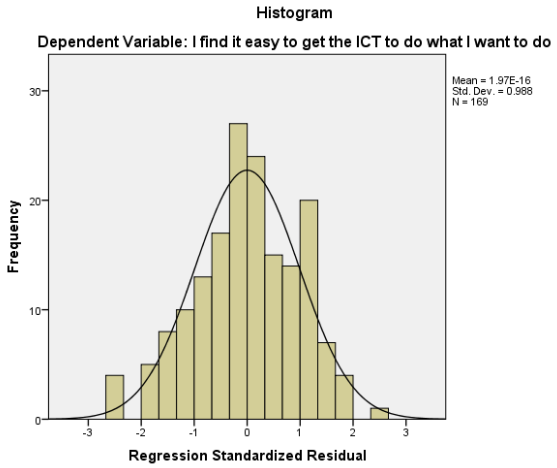
a. Dependent Variable: I find it easy to get the ICT to do what I want to do

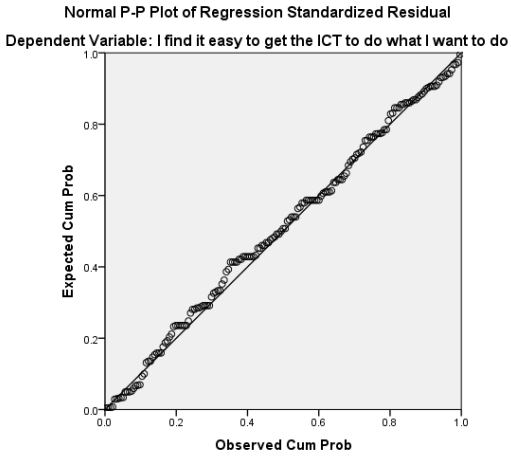
We can represent the regression equation:

Easiness of What Wanted to be done = 1.873 + 0.305 (Dean Includes ICT in Strategic Objectives)

Since the significance of the t-values for the constant and coefficient Dean Includes ICT in Strategic Objectives are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Dean Including ICT usage in Strategic Objectives and Easiness of What Wanted to be done.

ICT Continuous Needs Assessments regressed against Easiness of what wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.525[a]	.275	.258	.769

a. Predictors: (Constant), Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 27.5 % of the total variance of increase in Easiness of what wanted to be done is explained by Quick Solution Help Desk for Changing ICT Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discussion of ICT Problems in Special Forums.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.899	4	9.225	15.580	.000[b]
	Residual	97.101	164	.592		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), Quick Solution Help Desk for Changing Difficulties, Technical Training Needs Assessment Surveys, Websites Where to put Feedbacks, Discuss ICT Problems in Special Forums

The Probability of F statistics (15.580) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.833	.255		7.194	.000
	Discuss ICT Problems in Special Forums	.076	.075	.088	1.019	.309
	Technical Training Needs Assessment Surveys	.231	.069	.265	3.338	.001
	Websites Where to put Feedbacks	-.015	.069	-.018	-.219	.827
	Quick Solution Help Desk for Changing Difficulties	.284	.068	.321	4.210	.000

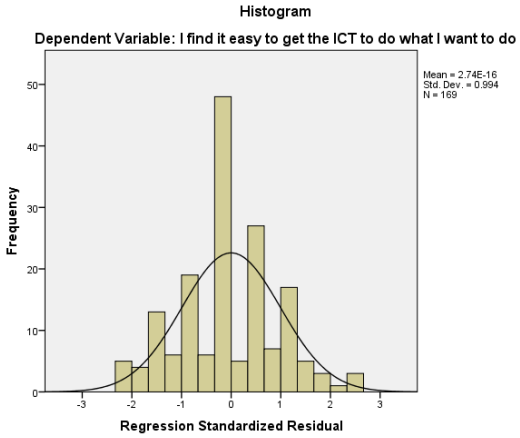
a. Dependent Variable: I find it easy to get the ICT to do what I want to do

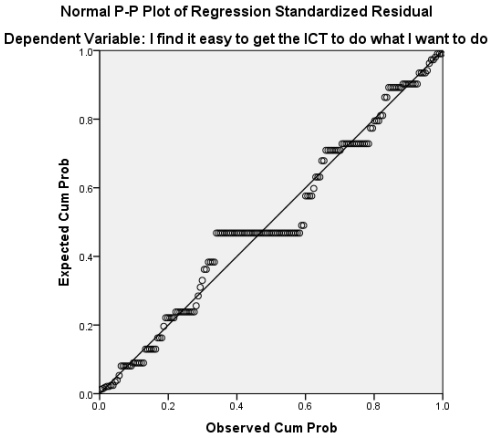
We can represent the regression equation:

Easiness of What Wanted to be done = 1.833 + 0.231 (Technical Training Needs Assessment Surveys) + 0.284 (Quick Solution Help Desk for Changing Difficulties)

Since the significance of the t-values for the constant and coefficients Technical Training Needs Assessment Surveys and Quick Solution Help Desk for Changing Difficulties are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Technical Training Needs Assessment Surveys, Quick Solution Help Desk for Changing ICT usage Difficulties and Easiness of What Wanted to be done.

ICT Continuous Upgrading regressed with Easiness of what wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.537[a]	.289	.280	.758

a. Predictors: (Constant), Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 28.9 % of the total variance of increase in Easiness of what wanted to be done is explained by Continuous Upgrade to be Compatible with the Requirements of faculty and Continuous Upgrading of ICT Standards.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.684	2	19.342	33.686	.000[b]
	Residual	95.316	166	.574		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), Continuous Upgrade to be Compatible with the Requirements, Continuous Upgrade of ICT Standards

The Probability of F statistics (33.686) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.976	.228		8.683	.000
	Continuous Upgrade of ICT Standards	.206	.090	.221	2.284	.024
	Continuous Upgrade to be Compatible with the Requirements	.315	.087	.353	3.640	.000

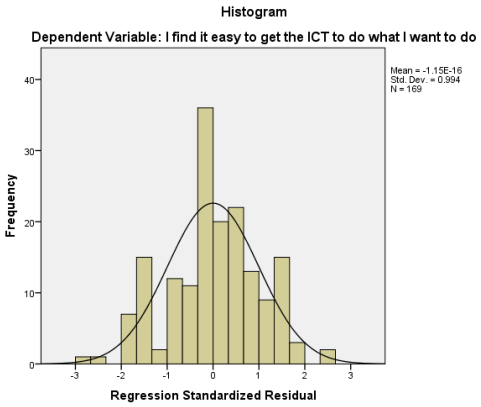
a. Dependent Variable: I find it easy to get the ICT to do what I want to do

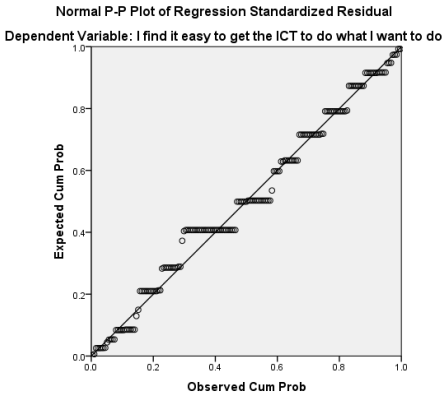
We can represent the regression equation:

Easiness of What Wanted to be done = 1.976 + 0.206 (Continuous Upgrade of ICT Standards) + 0.315 (Continuous Upgrade to be Compatible with the Requirements)

Since the significance of the t-values for the constant and coefficients Continuous Upgrade to be Compatible with the Requirements are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous Upgrade of ICT to be Compatible with the Requirements of faculty and Easiness of What Wanted to be done.

ICT Continuous Training and Workshops regressed against Easiness of what wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Understandable Language by ICT Staff, Continuous Training or Workshops[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588[a]	.346	.338	.726

a. Predictors: (Constant), Understandable Language by ICT Staff, Continuous Training or Workshops

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 34.6 % of the total variance of increase in Easiness of what wanted to be done is explained by Understandable Language used by ICT Staff and Continuous Training or Workshops of ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.402	2	23.201	43.966	.000[b]
	Residual	87.598	166	.528		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), Understandable Language by ICT Staff, Continuous Training or Workshops

The Probability of F statistics (43.966) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.833	.215		8.522	.000
	Continuous Training or Workshops	.175	.080	.198	2.186	.030
	Understandable Language by ICT Staff	.409	.086	.430	4.756	.000

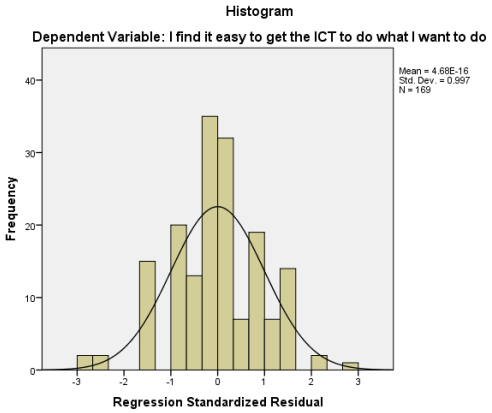
a. Dependent Variable: I find it easy to get the ICT to do what I want to do

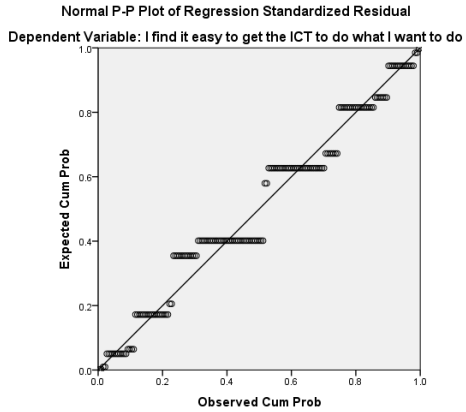
We can represent the regression equation:

Easiness of What Wanted to be done = 1.833 + 0.175 (Continuous Training or Workshops) + 0.409 (Understandable Language by ICT Staff)

Since the significance of the t-values for the constant and coefficients Continuous Training or Workshops and Understandable Language by ICT Staff are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous Training or Workshops of ICT to faculty, Understandable Language used by ICT Staff and Easiness of What Wanted to be done.

ICT Continuous Awareness Campaign regressed Against Easiness of what wanted to be done





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Continuous awareness and Internal Marketing[b]	.	Enter

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.475[a]	.226	.221	.788

a. Predictors: (Constant), Continuous awareness and Internal Marketing

b. Dependent Variable: I find it easy to get the ICT to do what I want to do

In Regression model 1, 22.6 % of the total variance of increase in Easiness of what wanted to be done is explained by Continuous awareness and Internal Marketing of ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.294	1	30.294	48.783	.000[b]
	Residual	103.706	167	.621		
	Total	134.000	168			

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

b. Predictors: (Constant), Continuous awareness and Internal Marketing

The Probability of F statistics (48.783) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.390	.207		11.574	.000
	Continuous awareness and Internal Marketing	.452	.065	.475	6.985	.000

a. Dependent Variable: I find it easy to get the ICT to do what I want to do

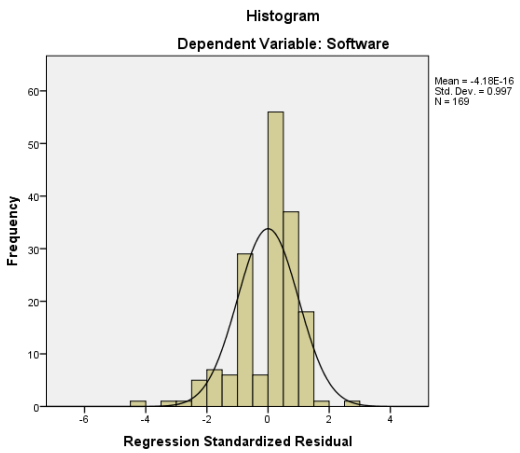
We can represent the regression equation:

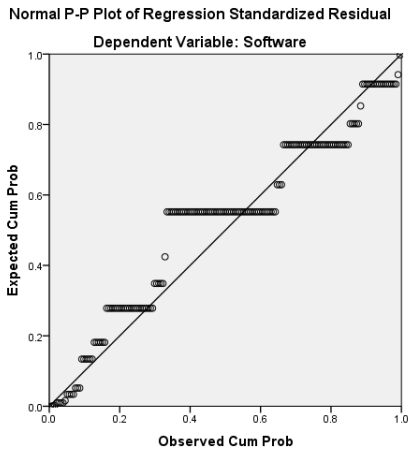
Easiness of What Wanted to be done = 2.390 + 0.452 (Continuous awareness and Internal Marketing)

Since the significance of the t-values for the constant and coefficient Continuous awareness and Internal Marketing are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Continuous awareness and Internal Marketing of ICT and Easiness of What Wanted to be done.

STUDY 2

Increased Productivity regressed against More Frequent Software Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Using ICT increases my productivity[b]	.	Enter

a. Dependent Variable: Software

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.549[a]	.301	.297	.807

a. Predictors: (Constant), Using ICT increases my productivity

b. Dependent Variable: Software

In Regression model 1, 30.1 % of the total variance of increase in frequency of Software usage is explained by Using ICT increases my productivity.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.876	1	46.876	71.988	.000[b]
	Residual	108.745	167	.651		
	Total	155.621	168			

a. Dependent Variable: Software

b. Predictors: (Constant), Using ICT increases my productivity

The Probability of F statistics (71.988) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.574	.287		5.481	.000
	Using ICT increases my productivity	.580	.068	.549	8.485	.000

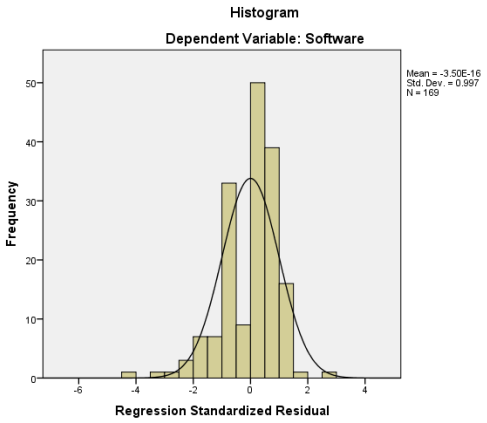
a. Dependent Variable: Software

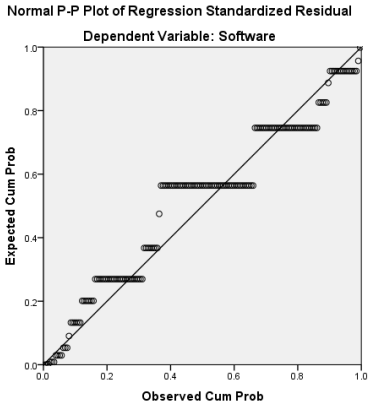
We can represent the regression equation:

More frequent Software usage = 1.574 + 0.580 (Using ICT increases my productivity)

Since the significance of the t-values for the constant and coefficient Using ICT increases my productivity are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Using ICT increases my productivity and more frequent Software usage.

Increased Effectiveness regressed against More Frequent Software Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Using ICT increases my effectiveness[b]	.	Enter

a. Dependent Variable: Software

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.583[a]	.340	.336	.784

a. Predictors: (Constant), Using ICT increases my effectiveness

b. Dependent Variable: Software

In Regression model 1, 34.0 % of the total variance of increase in frequency of Software usage is explained by Using ICT increases my effectiveness.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.930	1	52.930	86.077	.000[b]
	Residual	102.691	167	.615		
	Total	155.621	168			

a. Dependent Variable: Software

b. Predictors: (Constant), Using ICT increases my effectiveness

The Probability of F statistics (86.077) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.441	.277		5.196	.000
	Using ICT increases my effectiveness	.608	.066	.583	9.278	.000

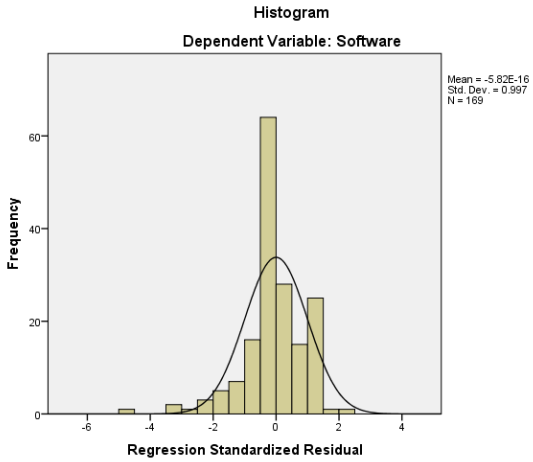
a. Dependent Variable: Software

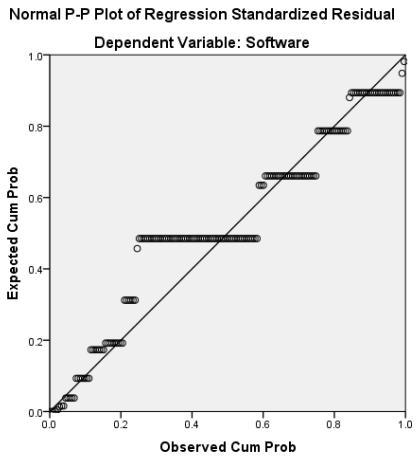
We can represent the regression equation:

More frequent Software usage = 1.441 + 0.608 (Using ICT increases my effectiveness)

Since the significance of the t-values for the constant and coefficient Using ICT increases my effectiveness are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Using ICT increases my effectiveness and more frequent Software usage.

Increased Easy operation of ICT regressed against More Frequent Software Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Learning to operate ICT is easy for me[b]	.	Enter

a. Dependent Variable: Software

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.592[a]	.350	.346	.778

a. Predictors: (Constant), Learning to operate ICT is easy for me

b. Dependent Variable: Software

In Regression model 1, 35.0 % of the total variance of increase in frequency of Software usage is explained by Learning to operate ICT is easy for me.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54.500	1	54.500	90.005	.000[b]
	Residual	101.122	167	.606		
	Total	155.621	168			

a. Dependent Variable: Software

b. Predictors: (Constant), Learning to operate ICT is easy for me

The Probability of F statistics (90.005) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.436	.272		5.280	.000
	Learning to operate ICT is easy for me	.648	.068	.592	9.487	.000

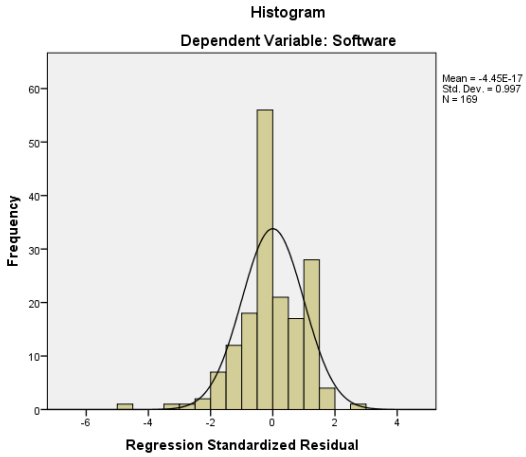
a. Dependent Variable: Software

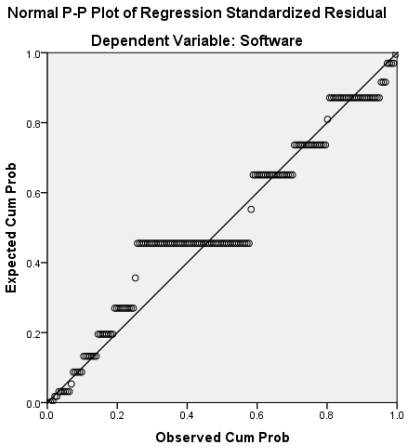
We can represent the regression equation:

More frequent Software usage = 1.436 + 0.608 (Learning to operate ICT is easy for me)

Since the significance of the t-values for the constant and coefficient Learning to operate ICT is easy for me are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Easy Operation of ICT and more frequent Software usage.

Increased Easiness of what wanted to be done regressed against More Frequent Software Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	I find it easy to get the ICT to do what I want to do[b]	.	Enter

a. Dependent Variable: Software

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.555[a]	.308	.304	.803

a. Predictors: (Constant), I find it easy to get the ICT to do what I want to do

b. Dependent Variable: Software

In Regression model 1, 30.8 % of the total variance of increase in frequency of Software usage is explained by Easiness of what wanted to be done.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.945	1	47.945	74.360	.000[b]
	Residual	107.676	167	.645		
	Total	155.621	168			

a. Dependent Variable: Software

b. Predictors: (Constant), I find it easy to get the ICT to do what I want to do

The Probability of F statistics (74.360) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.698	.269		6.321	.000
	I find it easy to get the ICT to do what I want to do	.598	.069	.555	8.623	.000

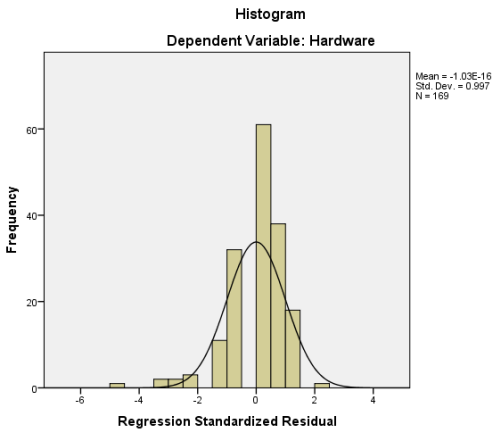
a. Dependent Variable: Software

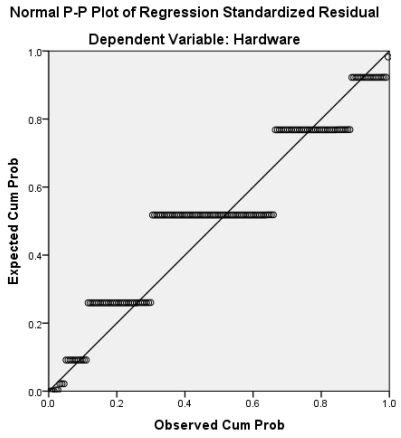
We can represent the regression equation:

More frequent Software usage = 1.698 + 0.598 (I find it easy to get the ICT to do what I want to do)

Since the significance of the t-values for the constant and coefficient I find it easy to get the ICT to do what I want to do are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Easiness of what wanted to be done and more frequent Software usage.

Increased Productivity regressed against More Frequent Hardware Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Using ICT increases my productivity[b]	.	Enter

a. Dependent Variable: Hardware

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.533[a]	.284	.279	.726

a. Predictors: (Constant), Using ICT increases my productivity

b. Dependent Variable: Hardware

In Regression model 1, 28.4 % of the total variance of increase in frequency of Hardware usage is explained by Using ICT increases my productivity.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.876	1	34.876	66.131	.000[b]
	Residual	88.071	167	.527		
	Total	122.947	168			

a. Dependent Variable: Hardware

b. Predictors: (Constant), Using ICT increases my productivity

The Probability of F statistics (66.131) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.966	.258		7.607	.000
	Using ICT increases my productivity	.500	.062	.533	8.132	.000

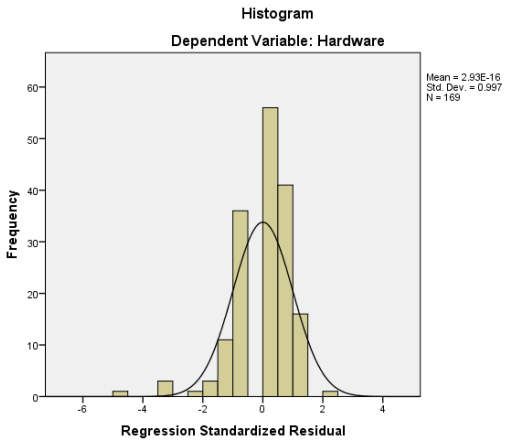
a. Dependent Variable: Hardware

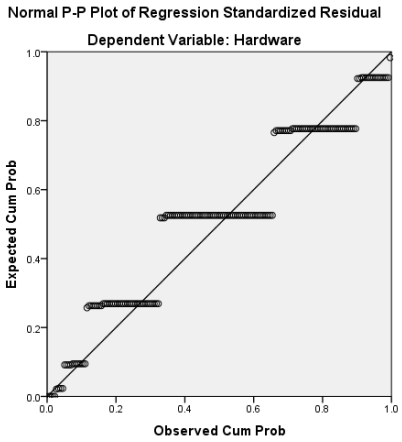
We can represent the regression equation:

More frequent Hardware usage = 1.966 + 0.500 (Using ICT increases my productivity)

Since the significance of the t-values for the constant and coefficient Using ICT increases my productivity are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Using ICT increases my productivity and More Frequent Hardware Usage.

Increased Effectiveness regressed against More Frequent Hardware Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Using ICT increases my effectiveness[b]	.	Enter

a. Dependent Variable: Hardware

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.532[a]	.283	.279	.726

a. Predictors: (Constant), Using ICT increases my effectiveness

b. Dependent Variable: Hardware

In Regression model 1, 28.3 % of the total variance of increase in frequency of Hardware usage is explained by Using ICT increases my Effectiveness.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.832	1	34.832	66.015	.000[b]
	Residual	88.115	167	.528		
	Total	122.947	168			

a. Dependent Variable: Hardware

b. Predictors: (Constant), Using ICT increases my effectiveness

The Probability of F statistics (66.015) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.980	.257		7.708	.000
	Using ICT increases my effectiveness	.493	.061	.532	8.125	.000

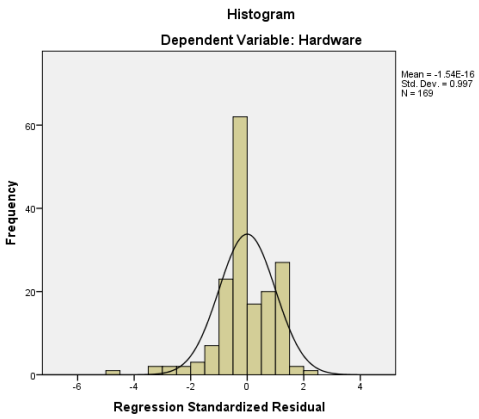
a. Dependent Variable: Hardware

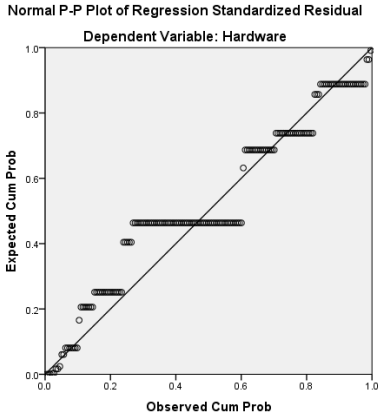
We can represent the regression equation:

More frequent Hardware usage = 1.980 + 0.493 (Using ICT increases my effectiveness)

Since the significance of the t-values for the constant and coefficient Using ICT increases my effectiveness are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Using ICT increases my Effectiveness and More Frequent Hardware Usage.

Increased Easy Operation of ICT regressed against More Frequent Hardware Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Learning to operate ICT is easy for me[b]	.	Enter

a. Dependent Variable: Hardware

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.454[a]	.206	.202	.764

a. Predictors: (Constant), Learning to operate ICT is easy for me

b. Dependent Variable: Hardware

In Regression model 1, 20.6 % of the total variance of increase in frequency of Hardware usage is explained by Easy Operation of ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.376	1	25.376	43.434	.000[b]
	Residual	97.571	167	.584		
	Total	122.947	168			

a. Dependent Variable: Hardware

b. Predictors: (Constant), Learning to operate ICT is easy for me

The Probability of F statistics (43.434) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.300	.267		8.611	.000
	Learning to operate ICT is easy for me	.442	.067	.454	6.590	.000

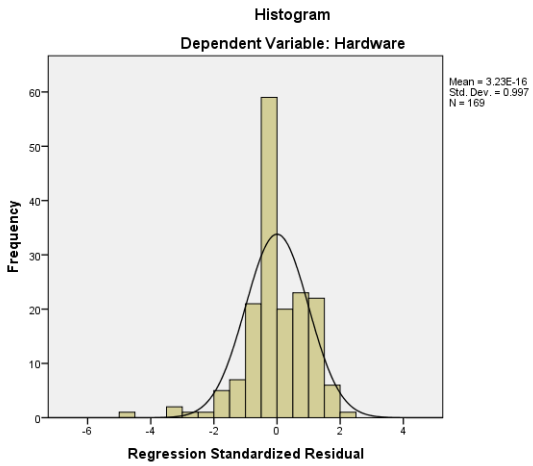
a. Dependent Variable: Hardware

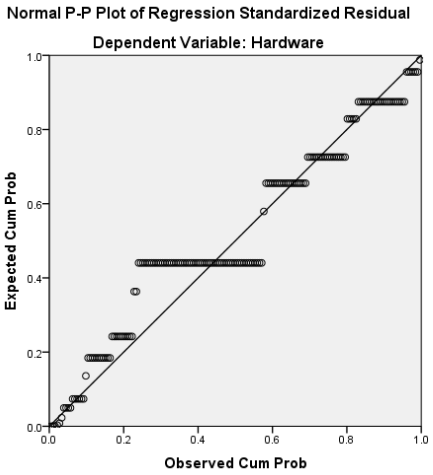
We can represent the regression equation:

More frequent Hardware usage = 2.300 + 0.442 (Learning to operate ICT is easy for me)

Since the significance of the t-values for the constant and coefficient Learning to operate ICT is easy for me are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Easy Operation of ICT and More Frequent Hardware Usage.

Increased Easiness of What Wanted to be done regressed against More Frequent Hardware Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	I find it easy to get the ICT to do what I want to do[b]	.	Enter

a. Dependent Variable: Hardware

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.442[a]	.195	.190	.770

a. Predictors: (Constant), I find it easy to get the ICT to do what I want to do

b. Dependent Variable: Hardware

In Regression model 1, 19.5 % of the total variance of increase in frequency of Hardware usage is explained by Easiness of what wanted to be done.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.985	1	23.985	40.476	.000[b]
	Residual	98.962	167	.593		
	Total	122.947	168			

a. Dependent Variable: Hardware

b. Predictors: (Constant), I find it easy to get the ICT to do what I want to do

The Probability of F statistics (40.476) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.423	.258		9.408	.000
	I find it easy to get the ICT to do what I want to do	.423	.067	.442	6.362	.000

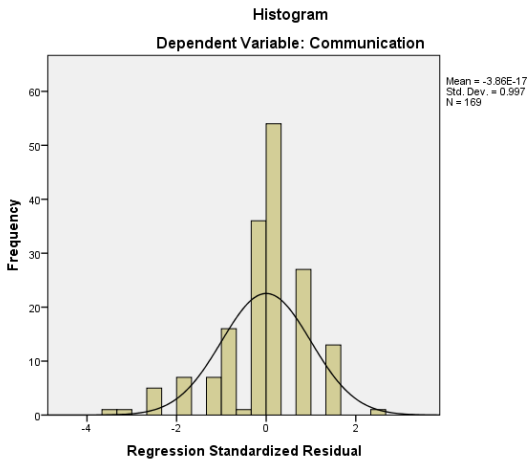
a. Dependent Variable: Hardware

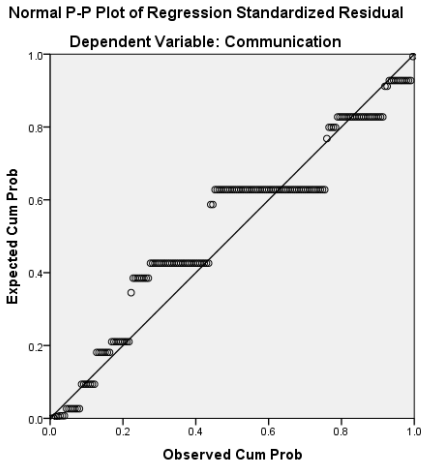
We can represent the regression equation:

More frequent Hardware usage = 2.300 + 0.442 (I find it easy to get the ICT to do what I want to do)

Since the significance of the t-values for the constant and I find it easy to get the ICT to do what I want to do are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Easiness of what wanted to be done and More Frequent Hardware Usage.

Increased Productivity regressed against More Frequent Communication Tool Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Using ICT increases my productivity[b]	.	Enter

a. Dependent Variable: Communication

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.424[a]	.180	.175	.884

a. Predictors: (Constant), Using ICT increases my productivity

b. Dependent Variable: Communication

In Regression model 1, 17.5 % of the total variance of increase in frequency of Communication tool usage is explained by Using ICT increases my productivity.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.607	1	28.607	36.623	.000[b]
	Residual	130.446	167	.781		
	Total	159.053	168			

a. Dependent Variable: Communication

b. Predictors: (Constant), Using ICT increases my productivity

The Probability of F statistics (36.623) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.899	.315		6.038	.000
	Using ICT increases my productivity	.453	.075	.424	6.052	.000

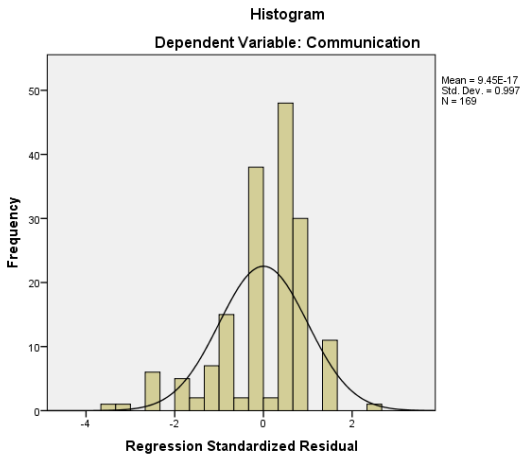
a. Dependent Variable: Communication

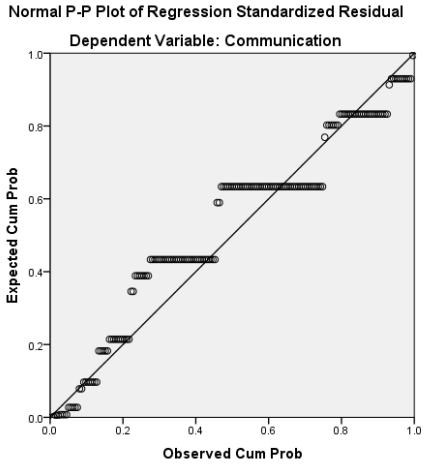
We can represent the regression equation:

More frequent Communication Tool = 1.899 + 0.453 (Using ICT increases my productivity)

Since the significance of the t-values for the constant and Using ICT increases my productivity are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Using ICT increases my productivity and More Frequent Communicating Tool Usage.

Increased Effectiveness regressed against More Frequent Communication Tool Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Using ICT increases my effectiveness[b]	.	Enter

a. Dependent Variable: Communication

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.426[a]	.182	.177	.883

a. Predictors: (Constant), Using ICT increases my effectiveness

b. Dependent Variable: Communication

In Regression model 1, 18.2 % of the total variance of increase in frequency of Communication tool usage is explained by Using ICT increases my Using ICT increases my effectiveness.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.919	1	28.919	37.111	.000[b]
	Residual	130.135	167	.779		
	Total	159.053	168			

a. Dependent Variable: Communication

b. Predictors: (Constant), Using ICT increases my effectiveness

The Probability of F statistics (37.111) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.901	.312		6.089	.000
	Using ICT increases my effectiveness	.449	.074	.426	6.092	.000

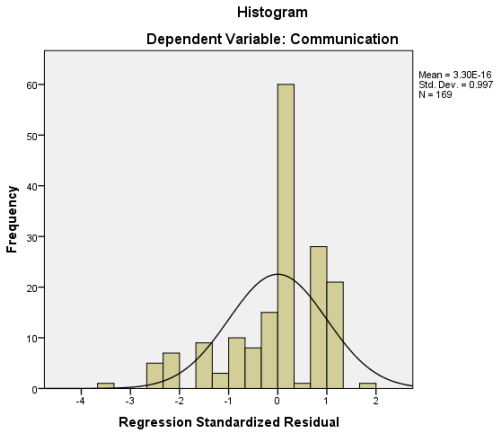
a. Dependent Variable: Communication

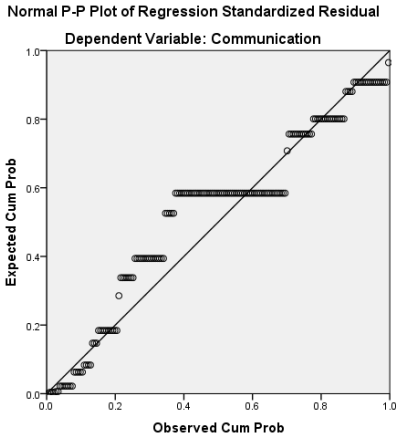
We can represent the regression equation:

More frequent Communication Tool usage = 1.901 + 0.449 (Using ICT increases my effectiveness

Since the significance of the t-values for the constant and Using ICT increases my effectiveness are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Using ICT increases my effectiveness and More Frequent Communicating Tool Usage.

Increased Easy Operation of ICT regressed against More Frequent Communication Tool Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Learning to operate ICT is easy for me[b]	.	Enter

a. Dependent Variable: Communication

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.391[a]	.153	.148	.898

a. Predictors: (Constant), Learning to operate ICT is easy for me

b. Dependent Variable: Communication

In Regression model 1, 15.3 % of the total variance of increase in frequency of Communication tool usage is explained by Easy Operation of ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.319	1	24.319	30.143	.000[b]
	Residual	134.734	167	.807		
	Total	159.053	168			

a. Dependent Variable: Communication

b. Predictors: (Constant), Learning to operate ICT is easy for me

The Probability of F statistics (30.143) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.076	.314		6.614	.000
	Learning to operate ICT is easy for me	.433	.079	.391	5.490	.000

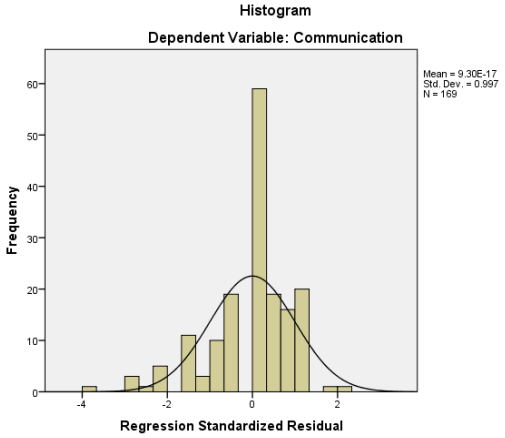
a. Dependent Variable: Communication

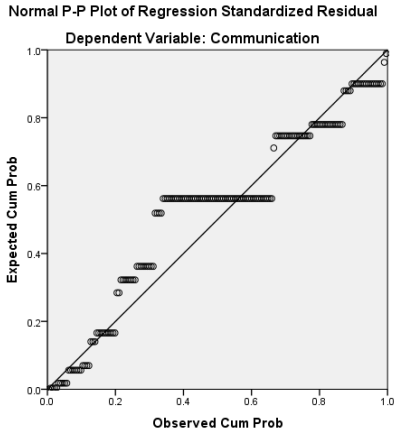
We can represent the regression equation:

More frequent Communication Tool usage = 2.076 + 0.449 (Learning to operate ICT is easy for me)

Since the significance of the t-values for the constant and Learning to operate ICT is easy for me are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Easy Operation of ICT and More Frequent Communicating Tool Usage.

Increased Easiness of What Wanted to be done regressed against More Frequent Communication Tool Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	I find it easy to get the ICT to do what I want to do[b]	.	Enter

a. Dependent Variable: Communication

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.415[a]	.172	.167	.888

a. Predictors: (Constant), I find it easy to get the ICT to do what I want to do

b. Dependent Variable: Communication

In Regression model 1, 17.2 % of the total variance of increase in frequency of Communication tool usage is explained by Easiness of what wanted to be done.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.350	1	27.350	34.680	.000[b]
	Residual	131.703	167	.789		
	Total	159.053	168			

a. Dependent Variable: Communication

b. Predictors: (Constant), I find it easy to get the ICT to do what I want to do

The Probability of F statistics (34.680) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.055	.297		6.915	.000
	I find it easy to get the ICT to do what I want to do	.452	.077	.415	5.889	.000

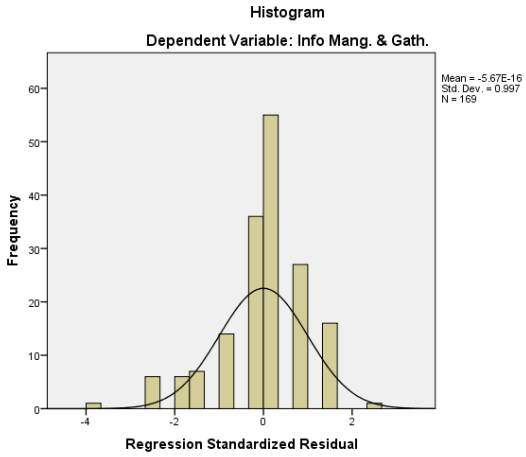
a. Dependent Variable: Communication

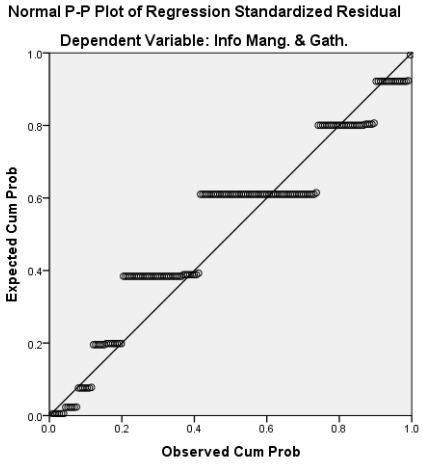
We can represent the regression equation:

More frequent Communication Tool usage = 2.076 + 0.449 (I find it easy to get the ICT to do what I want to do)

Since the significance of the t-values for the constant I find it easy to get the ICT to do what I want to do are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Easiness of what wanted to be done and More Frequent Communicating Tool Usage.

Increased Productivity regressed against More Frequent Information Management and Gathering Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Using ICT increases my productivity[b]	.	Enter

a. Dependent Variable: Info Mang. & Gath.

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.464[a]	.216	.211	.879

a. Predictors: (Constant), Using ICT increases my productivity

b. Dependent Variable: Info Mang. & Gath.

In Regression model 1, 21.6 % of the total variance of increase in frequency of Information Management and Gathering Tool usage is explained by Using ICT increases my productivity.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.500	1	35.500	45.938	.000[b]
	Residual	129.056	167	.773		
	Total	164.556	168			

a. Dependent Variable: Info Mang. & Gath.

b. Predictors: (Constant), Using ICT increases my productivity

The Probability of F statistics (45.938) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.735	.313		5.545	.000
	Using ICT increases my productivity	.505	.074	.464	6.778	.000

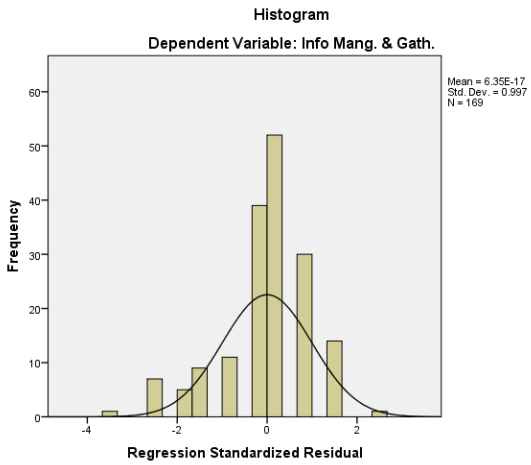
a. Dependent Variable: Info Mang. & Gath.

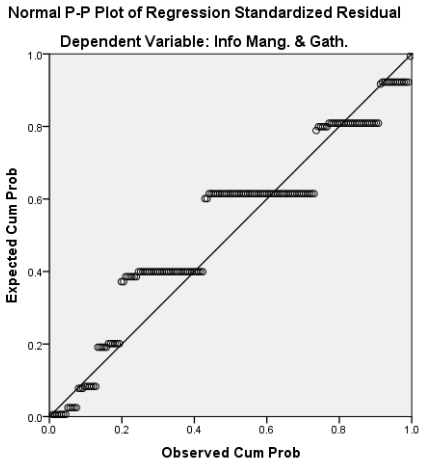
We can represent the regression equation:

More frequent Information Management and Gathering Tool usage = 1.735 + 0.505 (Using ICT increases my productivity)

Since the significance of the t-values for the constant Using ICT increases my productivity are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Using ICT increases my productivity and More frequent Information Management and Gathering Tool usage.

Increased Effectiveness regressed against More Frequent Information Management and Gathering Tool Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Using ICT increases my effectiveness[b]	.	Enter

a. Dependent Variable: Info Mang. & Gath.

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.452[a]	.204	.199	.886

a. Predictors: (Constant), Using ICT increases my effectiveness

b. Dependent Variable: Info Mang. & Gath.

In Regression model 1, 20.4 % of the total variance of increase in frequency of Information Management and Gathering Tool usage is explained by Using ICT increases my effectiveness.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.548	1	33.548	42.764	.000[b]
	Residual	131.008	167	.784		
	Total	164.556	168			

a. Dependent Variable: Info Mang. & Gath.

b. Predictors: (Constant), Using ICT increases my effectiveness

The Probability of F statistics (42.764) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.805	.313		5.763	.000
	Using ICT increases my effectiveness	.484	.074	.452	6.539	.000

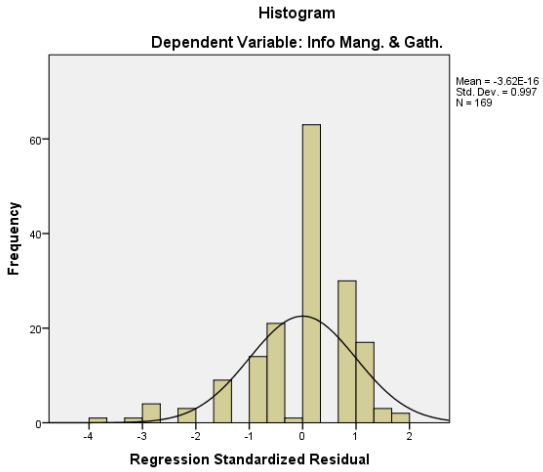
a. Dependent Variable: Info Mang. & Gath.

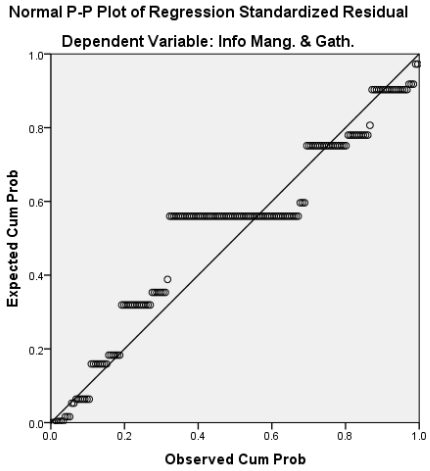
We can represent the regression equation:

More frequent Information Management and Gathering Tool usage = 1.805 + 0.484 (Using ICT increases my effectiveness)

Since the significance of the t-values for the constant Using ICT increases my effectiveness are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Using ICT increases my effectiveness and More frequent Information Management and Gathering Tool usage.

Increased Easy Operation of ICT regressed against more frequent Information Management and Gathering Tool Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Learning to operate ICT is easy for me[b]	.	Enter

a. Dependent Variable: Info Mang. & Gath.

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.480[a]	.230	.226	.871

a. Predictors: (Constant), Learning to operate ICT is easy for me

b. Dependent Variable: Info Mang. & Gath.

In Regression model 1, 23.0 % of the total variance of increase in frequency of Information Management and Gathering Tool usage is explained by Easy Operation of ICT.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.901	1	37.901	49.974	.000[b]
	Residual	126.655	167	.758		
	Total	164.556	168			

a. Dependent Variable: Info Mang. & Gath.

b. Predictors: (Constant), Learning to operate ICT is easy for me

The Probability of F statistics (49.974) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.706	.304		5.605	.000
	Learning to operate ICT is easy for me	.541	.076	.480	7.069	.000

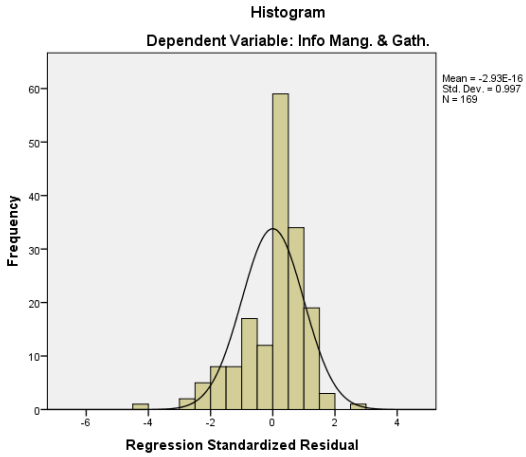
a. Dependent Variable: Info Mang. & Gath.

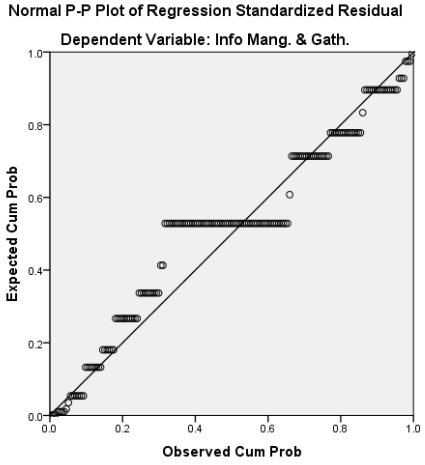
We can represent the regression equation:

More frequent Information Management and Gathering Tool usage = 1.706 + 0.541 (Learning to operate ICT is easy for me)

Since the significance of the t-values for the constant Learning to operate ICT is easy for me are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Easy Operation of ICT and More frequent Information Management and Gathering Tool usage.

Increased Easiness of What Wanted to be done regressed against More Frequent Information Management and Gathering Tool Usage





The Histogram shows a bell-shaped curve and the normal plot of the residuals shows the points close to the diagonal line.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	I find it easy to get the ICT to do what I want to do[b]	.	Enter

a. Dependent Variable: Info Mang. & Gath.

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.528[a]	.279	.274	.843

a. Predictors: (Constant), I find it easy to get the ICT to do what I want to do

b. Dependent Variable: Info Mang. & Gath.

In Regression model 1, 27.9 % of the total variance of increase in frequency of Information Management and Gathering Tool usage is explained by Easiness of What Wanted to be done.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.852	1	45.852	64.507	.000[b]
	Residual	118.704	167	.711		
	Total	164.556	168			

a. Dependent Variable: Info Mang. & Gath.

b. Predictors: (Constant), I find it easy to get the ICT to do what I want to do

The Probability of F statistics (64.507) for the regression model 1 is 0.000 which is less than 0.05 hence we accept the alternative hypothesis that there is statistically significant relationship between the independent variables and the dependent variables, that is, regression model 1 is statistically significant in predicting the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.600	.282		5.672	.000
	I find it easy to get the ICT to do what I want to do	.585	.073	.528	8.032	.000

a. Dependent Variable: Info Mang. & Gath.

We can represent the regression equation:

More frequent Information Management and Gathering Tool usage = 1.600 + 0.585 (I find it easy to get the ICT to do what I want to do)

Since the significance of the t-values for the constant I find it easy to get the ICT to do what I want to do are lower than 0.05 and since they have a positive value, we conclude that there is a statistically significant positive linear relationship between Easiness of What Wanted to be done and More frequent Information Management and Gathering Tool usage.

4.5 INDEPENDENT T-SAMPLES T TEST

The independent-samples t-test, also called the student's t-test, is an inferential statistical test that determines whether the rei a statistically significant difference between the means of two independent groups.

The assumption of equal variances is tested by Levene's Test for Equality of Variances. If the significance for Leven's test is greater than 0.05 then the two group variances can be treated as equal, and the test of equality of means proceeds with the assumption of equal variance between the 2 groups. If the significance for Leven's test is equal or below 0.05, the assumption of homogeneity of the variance is rejected and the "Equality Variances Not assumed" is used to test the equality of means. In both cases, the basic criterion for statistical significant difference between the two population means is a "2-taledsiginificane" less than 0.05, where we reject the null hypothesis that two population means are not equal.

First, the independent t-test was performed on the Gender of the independent variables to see whether Perceived Usefulness (PU) and Perceived Ease of use (PEOU) differ between genders.

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Using ICT increases my productivity	Male	94	4.01	.967	.100
	Female	76	4.21	.822	.094
Using ICT increases my effectiveness	Male	94	4.03	.978	.101
	Female	76	4.25	.835	.096
Learning to operate ICT is easy for me	Male	94	3.82	.950	.098
	Female	76	3.93	.806	.092
I find it easy to get the ICT to do what I want to do	Male	94	3.67	.943	.097
	Female	76	3.89	.810	.093

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Using ICT increases my productivity	Equal variances assumed	.530	.468	-1.432	168	.154	-.200	.140	-.476	.076
	Equal variances not assumed			-1.457	167.569	.147	-.200	.137	-.471	.071
Using ICT increases my effectiveness	Equal variances assumed	.515	.474	-1.542	168	.125	-.218	.141	-.497	.061
	Equal variances not assumed			-1.568	167.483	.119	-.218	.139	-.493	.056
Learning to operate ICT is easy for me	Equal variances assumed	4.590	.034	-.840	168	.402	-.115	.137	-.386	.155
	Equal variances not assumed			-.854	167.599	.394	-.115	.135	-.381	.151
I find it easy to get the ICT to do what I want to do	Equal variances assumed	7.074	.009	-1.642	168	.102	-.225	.137	-.494	.045
	Equal variances not assumed			-1.669	167.381	.097	-.225	.135	-.490	.041

Based on the Leven's Test for Equality of Variances and hence the t-test for the Equality of the means, we conclude the following:

- Process of Using ICT increases my productivity is not different between Male and Female fulltime faculty members.
- Process of using ICT increases my effectiveness is not different between Male and Female fulltime faculty members.
- Process of Learning to operate ICT is easy is not different in Male and Female fulltime faculty members.
- Process of Finding ICT easy to do what I want to do is not different in Male and Female fulltime faculty members.

4.6 ONE-WAY ANOVA

The following section covers steps for testing the difference between four Rank groups (Instructor/Lecturer, Assistant Professor, Associate Professor, and Professor) and their perception on Usefulness and Ease of Use of ICT using the SPSS ANOVA procedures found in the Compare Means analyses. Specifically, we demonstrate procedures for running a One-Way ANOVA, obtaining the LSD post hoc test, and producing a chart that plots the group means. These analyses will allow us to determine which group means are significantly different from one or more other group means.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Using ICT increases my productivity	Between Groups	3.480	3	1.160	1.418	.239
	Within Groups	135.820	166	.818		
	Total	139.300	169			
Using ICT increases my effectiveness	Between Groups	4.530	3	1.510	1.808	.148
	Within Groups	138.623	166	.835		
	Total	143.153	169			
Learning to operate ICT is easy for me	Between Groups	7.287	3	2.429	3.204	.025
	Within Groups	125.866	166	.758		
	Total	133.153	169			
I find it easy to get the ICT to do what I want to do	Between Groups	4.493	3	1.498	1.919	.128
	Within Groups	129.560	166	.780		
	Total	134.053	169			

The ratio of F statistics (3.204) is 0.025 that is less than 0.05 hence there is sufficient evidence that there are statistically significant differences among the 4 Ranks of faculty members (Instructor/Lecturer, Assistant Professor, Associate Professor, and Professor) in Perceiving Easy operation of ICT is.

Multiple Comparisons

Dependent Variable: Learning to operate ICT is easy for me

LSD

(I) Rank	(J) Rank	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Lecturer/instructor	Assistant Prof	.252	.158	.112	-.06	.56
	Associate Prof	.452*	.181	.014	.09	.81
	Prof	.609*	.254	.018	.11	1.11
Assistant Prof	Lecturer/instructor	-.252	.158	.112	-.56	.06
	Associate Prof	.200	.186	.283	-.17	.57
	Prof	.357	.257	.167	-.15	.87
Associate Prof	Lecturer/instructor	-.452*	.181	.014	-.81	-.09
	Assistant Prof	-.200	.186	.283	-.57	.17
	Prof	.157	.272	.565	-.38	.70
Prof	Lecturer/instructor	-.609*	.254	.018	-1.11	-.11
	Assistant Prof	-.357	.257	.167	-.87	.15
	Associate Prof	-.157	.272	.565	-.70	.38

*. The mean difference is significant at the 0.05 level.

Based on the LSD post hoc test, we conclude the followings:

- Process of Perceiving Easy operation of ICT is different between Lecturer/Instructor and Associate Professor Full time Faculty members
- Process of Perceiving Easy operation of ICT is different between Lecturer/Instructor and Professor Full time Faculty members

Descriptives

Learning to operate ICT is easy for me

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Lecturer/instructor	64	4.11	.669	.084	3.94	4.28	2	5
Assistant Prof	56	3.86	.962	.128	3.60	4.11	1	5
Associate Prof	35	3.66	.938	.158	3.34	3.98	2	5
Prof	14	3.50	1.019	.272	2.91	4.09	1	5
Total	169	3.88	.878	.068	3.75	4.02	1	5

The Means shows that Lecturer/Instructor have higher perceived Easy operation of ICT than Associate professor and Professors.

The following section covers steps for testing the difference between four Age groups (30-39, 40-49, 50-59 and 60-69) and their perception on Usefulness and Ease of Use of ICT using the SPSS ANOVA procedures found in the Compare Means analyses. Specifically, we demonstrate procedures for running a One-Way ANOVA, obtaining the LSD post hoc test, and producing a chart that plots the group means. These analyses will allow us to determine which group means are significantly different from one or more other group means.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Learning to operate ICT is easy for me	Between Groups	15.254	3	5.085	7.335	.000
	Within Groups	114.380	165	.693		
	Total	129.633	168			
Using ICT increases my productivity	Between Groups	14.751	3	4.917	6.515	.000
	Within Groups	124.539	165	.755		
	Total	139.290	168			
Using ICT increases my effectiveness	Between Groups	13.890	3	4.630	5.911	.001
	Within Groups	129.246	165	.783		
	Total	143.136	168			
I find it easy to get the ICT to do what I want to do	Between Groups	17.792	3	5.931	8.421	.000
	Within Groups	116.208	165	.704		
	Total	134.000	168			

The ratios of F statistics are all less than 0.05 hence there is sufficient evidence that there are statistically significant differences among the four Age groups (30-39, 40-49, 50-59 and 60-69) in Perceiving Easy operation of ICT, Perceiving ICT increases my productivity, Perceiving Using ICT increases my effectiveness and Perceiving ICT doing what wanted to be done.

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Learning to operate ICT is easy for me	30-39	80	4.18	.591	.066	4.04	4.31	3	5
	40-49	47	3.77	1.005	.147	3.47	4.06	1	5
	50-59	33	3.45	1.063	.185	3.08	3.83	1	5
	60-69	9	3.44	.726	.242	2.89	4.00	2	4
	Total	169	3.88	.878	.068	3.75	4.02	1	5
Using ICT increases my productivity	30-39	80	4.39	.606	.068	4.25	4.52	3	5
	40-49	47	3.96	1.062	.155	3.65	4.27	1	5
	50-59	33	3.64	1.168	.203	3.22	4.05	1	5
	60-69	9	4.00	.000	.000	4.00	4.00	4	4
	Total	169	4.10	.911	.070	3.96	4.24	1	5
Using ICT increases my effectiveness	30-39	80	4.41	.630	.070	4.27	4.55	3	5
	40-49	47	4.00	1.083	.158	3.68	4.32	1	5
	50-59	33	3.70	1.159	.202	3.29	4.11	1	5
	60-69	9	3.89	.333	.111	3.63	4.15	3	4
	Total	169	4.13	.923	.071	3.99	4.27	1	5
I find it easy to get the ICT to do what I want to do	30-39	80	4.09	.640	.072	3.95	4.23	3	5
	40-49	47	3.64	1.031	.150	3.34	3.94	1	5
	50-59	33	3.30	.984	.171	2.95	3.65	1	5
	60-69	9	3.33	.707	.236	2.79	3.88	2	4
	Total	169	3.77	.893	.069	3.63	3.90	1	5

The Means show that faculty aged from 30-39 have higher Perceiving Easy operation of ICT, Perceiving ICT increases productivity, Perceiving Using ICT increases effectiveness and Perceiving ICT doing what wanted to be done.

CHAPTER FIVE

SUMMARY OF FINDINGS

5.1 FINDINGS

As stated through the research questions, my first study aimed mainly to test whether ICT attributes and CQM attributes are positively contributing to Perceived Usefulness (PU) attributes and Perceived Ease of Use (PEOU) attributes. My second study aimed mainly to test whether Increased Perceived Usefulness (PU) attributes and Increased Perceived Ease of Use (PEOU) attributes are positively contributing to More Frequent ICT usage in software, hardware, communication tools, information management and gathering tools.

5.1.1 Findings from Regression Analyses

Study 1

Finding 1:

Fast Internet, Connection to Internal Resources, ICT being easy to use, and Presence of Help Material and Guidelines are statistically positively significant in predicting a perception of an increase in Productivity.

Presence of high speed internet and connection to internal resources, will save time to faculty members to gather their desired information from the web and with less efforts because of the presence of proper help material and guidelines. Hence, they will be more productive.

Finding 2:

Fast Internet, Connection to Internal Resources, ICT being easy to use, and Presence of Help Material and Guidelines are statistically positively significant in predicting a perception of an increase in Effectiveness.

As shown in the literature review effectiveness is directly affected by the presence of help material and proper guidelines accompanied with fast internet and connection to internal resources and databases that will increase the capability of the faculty member to use the ICT in the right way.

Finding 3:

Fast Internet, Fast Computer, Connection to Internal Resources, Connection to External Resources, ICT being easy to use, and Presence of Help Material and Guidelines are statistically positively significant in predicting a perception of an increase in Easy Operation of ICT.

With fast internet and fast computer the faculty member will feel more comfortable in connecting to internal and external resources and with the proper guidance the operation of ICT will be easier.

Finding 4:

Fast Internet, Fast Computer, Connection to Internal Resources, Connection to External Resources, ICT being easy to use, and Presence of Help Material and Guidelines are statistically positively significant in predicting a perception of an increase in Easiness of What Wanted to be done.

Fast computer connected to fast internet will improve the usage of internal and external resources and with helpful guidelines the accomplishment level of faculty members will increase.

Finding 5:

Dean Encouragement, Technical Training Needs Assessment Surveys, Quick Solution Helpdesk for Changing Difficulties, Continuous upgrade of ICT standards, Continuous Upgrade of ICT to be compatible with the faculty teaching requirements, Understandable language used by ICT Staff, and continuous awareness and internal marketing of ICT are statistically positively significant in predicting a perception of an increase in Productivity. Productivity will be improved by systematic needs appraisals that will close the gaps between current conditions and desired conditions or wants and along with interference of the dean the ICT standards will be upgraded in a way to be compatible with the teaching requirements of the faculty. Of course, the upgraded ICT should be conveyed properly within the universities and explained in understandable manner to the faculty.

Finding 6:

Dean Encouragement, Technical Training Needs Assessment Surveys, Quick Solution Helpdesk for Changing Difficulties, Continuous Upgrade of ICT to be compatible with the faculty teaching requirements, Understandable language used by ICT Staff, and continuous awareness and internal marketing of ICT are statistically positively significant in predicting a perception of an increase in Effectiveness.

Effectiveness of the faculty members will be increased when continuously ICT needs are identified and resolved quickly by the dean's encouragement to be compatible with faculties' demands and later conveyed continuously in understandable language.

Finding 7:

Dean Encouragement, Dean including ICT usage in strategic objectives, Discussing ICT problems in Special Forums, Technical Training Needs Assessment Surveys, Quick Solution Helpdesk for Changing Difficulties, Continuous Upgrade of ICT Standards, Continuous Upgrade of ICT to be compatible with the faculty teaching requirements, Continuous Trainings or workshops, Understandable language used by ICT Staff, and continuous awareness and internal marketing of ICT are statistically positively significant in predicting a perception of an increase in Easy Operation of ICT.

Easy operation of ICT is revealed when the dean creates facilitating strategy to continuously upgrade the ICT tools in a way compatible with faculty members teaching requirement after continuous needs assessments, and explained well by the ICT staff during continuous workshops and finally continuously shared with the faculty.

Finding 8:

Dean including ICT usage in strategic objectives, Technical Training Needs Assessment Surveys, Quick Solution Helpdesk for Changing Difficulties, Continuous Upgrade of ICT Standards, Continuous Upgrade of ICT to be compatible with the faculty teaching requirements, Continuous Trainings or workshops, Understandable language used by ICT

Staff, and continuous awareness and internal marketing of ICT are statistically positively significant in predicting a perception of an increase in Easiness of what wanted to be done. Faculty members will easily do what they wanted to do by ICT tool when the dean through organizational strategy includes conducting technical training needs assessment surveys, and providing quick solution helpdesk for changing difficulties, and urges the continuous upgrade of ICT tools to a level desired by faculty and later faculty members are continuously trained on the usage of ICT tools by ICT staff who use clear language and share the updates repeatedly in the universities.

STUDY 2

Finding 9:

Increased perception of Productivity, Effectiveness, Easy operation of ICT and Getting what wanted to be done are statistically positively significant in predicting an increase in frequency of Software Usage.

When faculty members perceive themselves more productive, more effective, finding ICT easy to use, and getting to do what wanted to be done, they will use software more frequently.

Finding 10:

Increased perception of Productivity, Effectiveness, Easy operation of ICT and Getting what wanted to be done are statistically positively significant in predicting an increase in frequency of Hardware Usage.

When faculty members perceive themselves more productive, more effective, finding ICT easy to use, and getting to do what wanted to be done, they will use hardware more frequently.

Finding 11:

Increased perception of Productivity, Effectiveness, Easy operation of ICT and Getting what wanted to be done are statistically positively significant in predicting an increase in frequency of Communication tools Usage.

When faculty members perceive themselves more productive, more effective, finding ICT easy to use, and getting to do what wanted to be done, they will use communication tools more frequently.

Finding 12:

Increased perception of Productivity, Effectiveness, Easy operation of ICT and Getting what wanted to be done are statistically positively significant in predicting an increase in frequency of Information Management and Gathering tools Usage.

When faculty members perceive themselves more productive, more effective, finding ICT easy to use, and getting to do what wanted to be done, they will use information management and gathering tools more frequently.

5.1.2 Summary of Significant Relationships

STUDY 1

Nb.	**Significant relationship between ICT Key Attributes and Productivity, Effectiveness, To Operate is Easy and Getting to do What Wanted to be done is Easy.**	Productivity	Effectiveness	To Operate is Easy	Getting to do What Wanted to be done is Easy
1	I have a fast Internet Connection	X	X	X	X
2	I have a fast computer			X	X
3	I have all the technological equipment in my office (printer, scanner, Camera etc…)				
4	The technological equipment in my office are updated				
5	Office computers, Internet labs and Libraries are connected to internal resources and databases	X	X	X	X
6	Office computers, Internet labs and Libraries are connected to external resources and databases			X	X
7	ICT is easy to use	X	X	X	X
8	I have received basic training to use ICT				
9	I have all the proper help material and guidelines that facilitate my ICT usage	X	X	X	X

STUDY 1

Nb.	**Significant relationship between ICT Continuous Quality Management Attributes and Productivity, Effectiveness, To Operate is Easy and Getting to do What Wanted to be done is Easy.**	Productivity	Effectiveness	To Operate is Easy	Getting to do What Wanted to be done is Easy
1	The Dean and/or the department head encourage me to use ICT in teaching/learning	X	X	X	
2	The Dean and/or the department head include ICT in strategic objectives			X	X
3	We continuously discuss our ICT problems in special forums or focus groups organized by ICT professional staff / department			X	
4	Technical training needs assessment surveys identifying gaps in ICT use skills among the faculty are continuously conducted by ICT professional staff / department	X	X	X	X
5	We have special websites where we put our feedbacks on the services of the respective ICT				
6	We have quick solution help desk (or other system) for changing difficulties	X	X	X	X
7	We have continuous upgrading of ICT standards by ICT staff / department	X		X	X
8	ICT infrastructure (software, hardware, e-libraries) is continuously upgraded to be compatible with the requirements of teaching, learning and research	X	X	X	X
9	We receive continuously training/workshops by ICT staff			X	X
10	In my training ICT professional staff speaks a language that explains the technical aspects of ICT in a way that I understand	X	X	X	X
11	ICT continuous awareness and internal marketing by ICT staff / department is conducted	X	X	X	X
12	Use of ICT is a requirement in my yearly contract renewal				

STUDY 2

Nb.	**Significant relationship between Productivity, Effectiveness, To Operate is Easy and Getting to do What Wanted to be done is Easy and More frequent Usage of Software, Hardware, Communication Tools, and Information Management and Gathering Tools.**	Software	Hardware	Communication Tools	Information Management and Gathering Tools
1	Using ICT increases my productivity	X	X	X	X
2	Using ICT increases my effectiveness	X	X	X	X
3	Learning to operate ICT is easy for me	X	X	X	X
4	I find it easy to get the ICT to do what I want to do	X	X	X	X

5.1.3 Finding from Independent Samples T-Test

Finding 13:

There is no difference in Perceived Productivity, Perceived Effectiveness, Perceived Easy Operation of ICT, and Perceived Easiness of what wanted to be done among the two Genders of Full time Faculty members.

5.1.4 Findings from One-Way ANOVA Test

Finding 14:

There is no difference in Perceived Productivity, Perceived Effectiveness, and Perceived Easiness of what wanted to be done among Lecturer/Instructor, Assistant Professor, Associate Professor and Professor ranked Full time Faculty members.

Finding 15:

There is difference in Perceived Easy Operation of ICT among Lecturer/Instructor, Associate Professor and Professor ranked Full time Faculty members.

Lecturer/Instructor ranked full time faculty member has higher perceived easy operation of ICT than associate professor ranked full time faculty member and professor ranked full time faculty member.

Finding 16:

There is a difference in Perceived Productivity among four age groups (30-39, 40-49, 50-59, and 60-69) Full time Faculty members.

Faculty aged from 30-39 have higher perceived productivity than other age groups. Thus younger faculty members have higher perceived productivity.

Finding 17:

There is a difference in Perceived Effectiveness among four age groups (30-39, 40-49, 50-59, and 60-69) Full time Faculty members.

Faculty aged from 30-39 have higher perceived effectiveness than other age groups. Thus younger faculty members have higher perceived effectiveness.

Finding 18:

There is a difference in Perceived Easy Operation of ICT among four age groups (30-39, 40-49, 50-59, and 60-69) Full time Faculty members.

Faculty aged from 30-39 have higher perceived easy operation of ICT than other age groups. Thus younger faculty members have higher perceived easy operation of ICT.

Finding 19:

There is a difference in Perceived Easiness of what wanted to be done among four age groups (30-39, 40-49, 50-59, and 60-69) Full time Faculty members.

Faculty aged from 30-39 have higher perceived easiness of what wanted to be done than other age groups. Thus younger faculty members have higher perceived easiness of what wanted to be done.

In the findings 16 to 19, we see that the younger age group of instructors perceive higher productivity and effectiveness; they also perceive easier operation of ICT and easier achievement of what they want to do. These findings are confirmed by researches who tie this occurrence to the widespread use of technology as of 2004 and the ability of the younger generation to have technological skills.

CHAPTER SIX

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

6.1 CONCLUSION AND LIMITATIONS

As stated before this study aimed at developing a comprehensive and thorough understanding of the factors that drive more frequent use of ICT by higher education instructors.

We used a model where attributes of ICT and organizational/social factors which we called Continuous Quality Management (CQM) were integrated.

We proceeded in doing two studies. In the study 1 we showed the positive influence of ICT and CQM on the instructors' Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of ICT. In study 2 we showed the positive relationship between increased PU and PEOU of the instructors and the actual more frequent usage of ICT tools.

We administered a survey research questionnaire to a sample of private university full time instructors from seven of the League of Lebanese Universities (LLU).

We feel confident that this study was able to reach its goal. However, a larger and more comprehensive sample of respondents from both private and public university instructors could probably shed more light on the subject highlighting particularly the specific characteristics of organizational/managerial approaches in private and public universities administrations.

Also, another aspect that could have been included in this study and bring perhaps additional understanding in the discussion of the subject, is comparing the perception of instructors from different academic fields, and brining this knowledge to the attention of universities' administrations.

6.2 RECOMMENDATIONS

Our data confirmed the hypotheses of our study: ICT and CQM attributes relate positively with Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) attributes, and perceived increased PU and PEOU attributes relate positively with more frequent usage of ICT tools.

Our respondents scored high in their attitudes towards ICT and they also scored high in the usage of ICT tools when they identified their universities possessing most of the ICT and CQM characteristics.

Therefore we recommend that not only the ICT and CQM attributes that prevail in the universities continue to prevail, but also the ones that still do not exist to occur such as: fast internet connection, presence of all the technological equipment in the offices, updated version of technological equipment, connection of office computers, internet labs and libraries to external resources and databases, receiving basic training to use the ICT tools, continuous discussion of ICT problems in special forums and focus groups, special websites to put feedbacks on the services of the ICT tools, and requirement of ICT usage in faculty's yearly contract renewal.

By adding these additional ICT features and CQM strategies the administrations of universities will be putting the use of ICT on stronger foundations.

Moreover, we recommend that Associate Professors and Professors be given additional support and training so that the operation of ICT becomes easier for them. The same attention should be given to the older age groups (older than 40 years old), so that they become more productive, effective and operate ICT more easily.

We have an overall additional recommendation regarding the design of the study. We recommend that in the future a similar study be conducted but include the perspectives of the students in the same universities, where their instructors were studied. The parallel perception of the students could also bring more understanding to the subject.

APPENDIX

Questionnaire Exploring

Factors That Influence Information Communication Technology Usage by Private University Instructors in Lebanon

Dear Participants,

As part of the fulfillment of the requirements of the MBA degree from **Haigazian University**, I am conducting a survey about Factors That Influence Information Communication Technology (ICT) Usage by Private University Instructors in Lebanon.

I would really appreciate and be grateful if you would take time to fill out the questionnaire available in this link: https://www.surveymonkey.com/s/shantestepan

Your frank responses will remain strictly confidential and the data from this survey will be reported in the thesis anonymously.

Your active participation will be an expression of your valuable sense of social responsibility that I definitely need.

The questionnaire consists of 29 statements, which describe the Information Communication Technology attributes and Continuous Quality Management attributes affecting ICT usage.

Please read through each of the following statements and fill in the check box that indicates your level of agreement with the implementation of these practices in your universities according to the following scale: Strongly Disagree – Disagree – Neutral – Agree – Strongly Agree

For clarification, please do not hesitate to contact me

At: Shantestepan@gmail.com

Thank you again for your valuable time and support,

Looking forward to hearing from you soon.

Sincerely,

Shant Estepan

MBA Candidate

The university you teach as a full-timer:
☐AUB ☐LAU ☐HU ☐NDU ☐USEK ☐USJ ☐BALAMAND

Your gender:
☐Male ☐Female

Your age:
☐30 – 39 ☐40 – 49 ☐50 – 59 ☐60 – 69 ☐70 +

Your rank:
☐Professor ☐Associate Professor ☐Assistant Professor ☐Lecturer/Instructor

ICT Stands for "Information and Communication Technologies". It is a broad term that encompasses Information Technologies (such as Telecommunication, Hardware and Software), as well as Information Systems (which also include the Data, People and Procedures).
Please Read the below statements carefully and specify your degree of agreement or disagreement with them.

Nb.	**Please specify if the ICT Key Attributes and ICT Continuous Quality Management Attributes of your University have the below characteristics.**	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I have a fast Internet Connection					
2	I have a fast computer					
3	I have all the technological equipment in my office (printer, scanner, Camera etc…)					
4	The technological equipment in my office are updated					
5	Office computers, Internet labs and Libraries are connected to internal resources and databases					
6	Office computers, Internet labs and Libraries are connected to external resources and databases					
7	ICT is easy to use					
8	I have received basic training to use ICT					
9	I have all the proper help material and guidelines that facilitate my ICT usage					
10	The Dean and/or the department head encourage me to use ICT in teaching/learning					
11	The Dean and/or the department head include ICT in strategic objectives					

Nb.	**Please specify if the ICT Key Attributes and ICT Continuous Quality Management Attributes of your University have the below characteristics.**	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
12	We continuously discuss our ICT problems in special forums or focus groups organized by ICT professional staff / department					
13	Technical training needs assessment surveys identifying gaps in ICT use skills among the faculty are continuously conducted by ICT professional staff / department					
14	We have special websites where we put our feedbacks on the services of the respective ICT					
15	We have quick solution help desk (or other system) for changing difficulties					
16	We have continuous upgrading of ICT standards by ICT staff / department					
17	ICT infrastructure (software, hardware, e-libraries) is continuously upgraded to be compatible with the requirements of teaching, learning and research					
18	We receive continuously training/workshops by ICT staff					
19	In my training ICT professional staff speaks a language that explains the technical aspects of ICT in a way that I understand					
20	ICT continuous awareness and internal marketing by ICT staff / department is conducted					
21	Use of ICT is a requirement in my yearly contract renewal					
22	Using ICT increases my productivity					
23	Using ICT increases my effectiveness					
24	Learning to operate ICT is easy for me					
25	I find it easy to get the ICT to do what I want to do					

26	**I'm using the following ICT tool more frequently in my teaching, learning and research activities.**	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	Software (multimedia editing programs, file downloading programs, spreadsheet programs and documenting programs)					
	Hardware (personal computers, laptops, smartphones, tablets, scanners, printers and digital cameras)					
	Communication (messaging applications, video conferencing applications, social networking applications, personal emails and online discussion blogs)					
	Information Management & Gathering Technologies (Learning Management Systems, Student Information Systems, Internet Browsers and E-Databases/e-Articles/e-Journals)					

REFERENCES

Legris, Paul, Ingham, John, Collerette, Pierre (2001). Why do people use informatin technology? A critical review of the technology acceptance model.

Nafsamiath, Fathema, Kyra Leigh, Sutton (2013). Factors Inflencing Faculty Members' Learning Management Systems Adoption Behavior: An Analysis Using The Tehcnology Acceptance Model.

Al- Zegaier, Hanadi "M.R", Barakat, Ali Al-Zu'bi, Hasan (2010). Information Technology Acceptance by University Lectures: Case Study at Applied Science Private University

Yasemin Kocak, Usluel, Askar, Petek, Bas, Turgay (2008). A structural Equation Model for ICT Usage in Higher Education

Al-Ansari, Husein (2006). Internet use by the fculty memebers of Kuwait University

Stensaker, Bjorn, Maasen, Peter, Borgan, Monika, Oftebro, Mette, Karseth, Berit (2006). Use, updating and intergrating of ICT in higher education: Linking purpose, people and pedagogy

Numprasertchai, Somchai, Poovarawan, Yuen (2007). Improving university performance through ICT based knowledge management system

Oye, N.D., Iahad, N.A, Rabin, Zairah Ab. (2011). A Model of ICT Acceptance and Use for Teachers in Higher Education Institutions

Swain, K. Dillip, Panda, K.C. (2009). Use of e-services by faculty members of business schools in a state of India: a study

Osseo-Asare, Augustus E., Longbottom, David, D. Murphy, William (2005). Leadership best practices for sustaining quality in UK higher education from the perspective of the EFQM Excellence Model

Oliver, Ron (2002). The role of ICT in higher education for the 21st century: ICT as a change agent for education

Kwache, Peter Zakawa (2007). The Imperatives of Information and Communication Technology for Teachers in Nigeria Higher Education

Eze, C. Sunday, Awa, O. Hart, Okoye, C. Joseph, Emecheta, C. Bartholomew, Anazodo, O. Rosemary (2012). Determinant factors of information communiation technology (ICT) adoption by government-owned universities in Nigeria A qualitative approach

Sharmea, Dhirendra, Singh, Vikram (2010). ICT Infrastructure and Human Resources Perforamce – Study of Unieristies in the Western Himalayan Region of India

Bures, Vladimir, Griffin, David, Hackett, Denisa, Krocity, Peter, Erik Kubricka (2011). Rethinking of Knowledge Management Introduction at Teaching Universities: The Framework Development

Marcelo, Carlos, Yot, Carmen, Mayor, Cristina (2015). University Teaching with Digital Technologies

Khoshneshin, Zohreh, Fazelian, Pouandokht, Khoshneshin, Mohammadreza, Khoshneshin (2015). The Impacts of Attitude on ICT Usage in Kharazmi University: A Case Study in Iran