Evaluation of the Use of Information and Communication Technology in Departmental Registration of Students in Tertiary Institutions in Plateau State

Manji Wapshak Kumdi
Department of Business Administration and Management
School of Administration and Business Studies
Plateau State Polytechnic, Barkin Ladi
mwapshak@yahoo.co.uk

Mang, Niri Job
Department of Banking and Finance
Faculty of Management Sciences
University of Jos, Jos

Abstract
Most tertiary institutions in Plateau state recognize the benefits of ICT in records management. As such, they have invested heavily in ICT infrastructures, personnel and buildings. In spite of these humongous investment, departmental registration: the registration/documentation of both new and returning students in most tertiary institutions in plateau state are still done manually, with huge amounts of files and paper work. Therefore, this study aims to evaluate whether there is any significant relationship between information and communication technology and departmental registration/documentation in tertiary institutions in plateau state; and to determine whether ICT has reduce paper work in departmental registration/documentation in tertiary institutions in the state. It is hypothesized that there is no significant relationship between information and communication technology and departmental registration/documentation of students in tertiary institutions in plateau state. To achieve these objectives, a questionnaire was designed and administered to 148 level coordinators in seven tertiary institutions in Plateau state. The chi-square test of independence was used to test the relationship between ICT and registration/documentation of students at the departmental level. It was discovered that there is significant relationship between information and communication technology and departmental registration/documentation of students in tertiary institutions in plateau state. It was recommended that tertiary institutions in Plateau State should digitize all their departmental registration and documentation processes.

Key Words*: Departmental, Documentation, ICT, Institutions, Registration, Tertiary*

Introduction

Record keeping is quite an important aspect of school management in all educational institutions of learning across countries of the world (Adesua & Adu, 2009). Records and record keeping is the life wire of any organization (Egwunyenga, 2006, cited in Osakwe, 2012). It occupies a strategic position in the efficient and effective management of institutions of learning (Egwunyenga, 2009). According to Olagboye (2004) it would be very difficult to plan and administer any organization such as school effectively if records are not kept and managed properly.

The University of Melbourne (2001) defines records management as the capturing and maintaining of accurate, complete, reliable and useable documentation of activities of an

organization in order to meet legal, evidential, accountability and social/cultural requirements. School records are documents, books, diskettes and files which contain information on what goes on in the school (academic and non-academic activities), school personnel, students as well as other school resources such as instructional materials (Olagboye, 2004).

The purpose of record keeping for effective school management is to ensure that accurate and proper records are kept of student achievement and growth, school activities and matters that will promote school efficiency and effectiveness (Akanbi, 1999). Record keeping otherwise known as storage of information is important functions of both the administration and teaching staff of a school.

These records serve the purpose of referring to the past and a signpost to the future. However, on a closer look at Nigeria tertiary institutions, one finds that records are not properly kept. Nwagwu (1995) observes that Nigeria does not have a developed record keeping culture in the educational system. But records should be adequately stored and preserved for easy reference and retrieval. Alegbeleye (1993) sees records and information management as an all embracing activity which includes form control, correspondence control reports management and control activities, file management records inventory and appraisal records retention and disposition, archives management and control and reprography.

Record keeping and management ought to be taken as a vital responsibility by school authorities because of the indispensable role records play in the effective day-to-day running of the school. In order to make decisions on both short and long term policies, school authorities rely on information that are on records. However, most school authorities do not have a good culture of record keeping. The few records that are kept are usually not properly stored, thus creating the problem of retrieval to users when needed. The few school authorities that have adopted the electronic record-keeping practice in the record management system of their institutions have risen above such problems of storage and retrieval, as ICT affords the opportunity to have a quick and easy view of all the records on school activities (Osakwe, 2012).

Registration and documentation of students (both new and returning students) is an important aspect of record keeping. This is because the integrity of all records depends on the quality and quantity of the data at the point of registration. If a record is poorly captured at registration point it means that the usefulness of that record later is already compromise ab initio.

The process of documentation in most school is usually two-fold: the registration and documentation by the academic department of the institution and the departmental registration and documentation at the departmental level. The departmental registration is done to know the number of students enrolled into a particular course or department in a given year and to ensure that the students admitted in the department possess the minimum entry requirement of the departments. To get the necessary information, students are issued forms to record their personal bio data, detailing their qualification for the course which they are admitted. In the process, certificates and other documents are photocopied and attached to the bio data forms which are filed in file jackets.

In those days, the files were just few as there were just few students. However, with the astronomical increase in student's population, these files now run into thousands, occupying

huge spaces in the offices and posing serious challenges when it comes to access and retrieval. Use of ICTs in registration and documentation could be a more efficient, less laborious and more accurate way of doing same old job. The question that remains is why are our schools' administrators reluctant to adopt computerization of departmental registration despite the obvious benefits that could be derived from it.

Statement of the Problem

It is no longer possible nowadays to conceive of education without information and communications technology (ICT). One can go even further by pointing out that education is increasingly being defined by ICT. Much has been achieved in recent years in developing the ICT infrastructure in most tertiary institutions. This infrastructural development has required significant levels of investment, primarily by the State but also by different schools and institutions.

According to Azemeti (2013) records management has become one of the most difficult tasks associated with educational service delivery. A personal visit to some tertiary institutions in plateau state by the researcher revealed that most student records are paper based and are stored on file cabinet drawers. Despite the huge benefit of ICT, especially in registration of both new and returning students, departmental registration and documentation in most tertiary institutions in plateau state are still done manually, with huge amounts of files and paper work. It is quite disappointing that after a humongous investment in ict infrastructures, personnel and building student academic files are still kept manually. According to the National Archives of Australia (2002, cited in Azemeti, 2013), student academic records must endure and remain trustworthy for a long time, sometimes permanently. If so, can we tentatively say that the registration and documentations of students at the departmental level in our tertiary institutions is enduring and trustworthy for a long time?

Research Questions

The research study has the following questions:

1. What is the relationship between information and communication technology and departmental registration/documentation in tertiary institutions in plateau state?
2. To what extent has ICT reduce paper work in documentation of student records in tertiary institutions in plateau state?

Research Objectives

The objectives of this study are twofold:

1. To evaluate the relationship between information and communication technology and departmental registration/documentation in tertiary institutions in plateau state
2. To examine the extent to which ICT has reduced paper work in departmental registration/documentation in tertiary institutions in plateau state

Hypothesis

The research paper has the following hypotheses:

H_0: there is no significant relationship between information and communication technology and departmental registration/documentation of students in tertiary institutions in plateau state

H_0: Information and Communication Technology has not significantly reduced paper work in tertiary institutions in Plateau State.

Scope of the Study

Information and communication technology is a very powerful tool in keeping a variety of records. However, the research is only interested in the digitization of registration and documentation of students records at the departmental level in tertiary institutions in plateau state from 2010 to 2017.

Literature Review and Conceptual Framework

The Concept of Records

Records according to Onwudebelu, Fasola, and Williams(2013) include all books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency as well as preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the informational value in them.

Documentary materials is a collective term for records, non-record materials, and personal papers that refers to all media containing recorded information, regardless of the nature of the media or the method(s) or circumstance(s) of recording. Regardless of physical form or characteristics means that the medium may be paper, film, disk, or other physical type or form; and that the method of recording may be manual, mechanical, photographic, electronic, or any other combination of these or other technologies (Onwudebelu, Fasola, and Williams, 2013).

Daramola (1995) classified records as follows:

a) Reference Records: Policy records which must be possessed by a school which contains Government policies, decisions of governing council, and procedures on funding and moral codes.

b) Administrative Records: Includes records of great visits, events, annual enrolment of students and records of personnel that have served and still serving in an organization.

c) Academic Records: Include records of curriculum issues, facilities and equipment for teaching and learning guidelines for the introduction of new academic programmes and students' academic records. Others include official correspondence and financial management records. The research is particularly interested in student academic records in tertiary institutions in plateau state.

The Concept of Information Communication Technology

According to Christensson (2010), Information and Communication Technologies (ICT) refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums.

Berce, Lanfranco and Vehovar (2008) explained ICT as "a mixture of hardware, software and communication facilities which includes both local and wide area Networks. Wang and Woo (2007) conceptualized ICT as hardware (such as computers, digital cameras), software (such as Excel, discussion forums) or both.

To Techopedia (an online technology encyclopedia) Information and communications technology (ICT) means all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems, and network-based control and monitoring functions.

Schipper and de Haan (2005) defined as the totality of the electronic means to collect, store, process and present information to the end-users in support of their activities, and consists of computer systems, data communication systems, knowledge systems, office systems and consumer electronics. Rather than simply IT, ICT shows the importance of communications integrated with computers

Agreeing with Schipper and de Haan (2005), Olatoye (2011) sees Information and Communication Technology (ICT) as the totality of methods and tools that are used in gathering, storing, processing and communicating information. Olatoye (2011) opines that it covers all the technologies used to distribute information to audience which include internet services provision, telecommunications equipment and services, media and broadcasting and other related information and communication activities.
Modern information and communication technologies have created a "global village," in which people can communicate with others across the world as if they were living next door. For this reason, ICT is often studied in the context of how modern communication technologies affect society.

From an educational perspective, Wang and Wool (2007) referred to ICT as the various resources and tools (software) presented on the computer and the process of using any information resources on the web, multimedia programs in CD-ROMs, learning objects, or other tools to enhance student learning.
Many researchers examine the ICT s with various variables at the class level (micro level), at a national level (macro-level), or at the local school level (meso-level) (Tondeur, Keer, Braak & Valcke, 2008). According to Altun, Kalayc, Ümmühan (2011) ICT can be examined at the state level, such as examining the –central- government ICT policies and its integration efforts; another one is at the institutional level, like the efforts of Higher Education Councils on the way of integrating ICT policies. The third one is the organizational level, like universities and schools do; finally, it can be at a faculty level, at a department level, or at an individual level indicating the integration of ICT into the instructional process. Thus, ICT integration can be studied at macro level as a system, or it can be studied at micro level. For this study, ICT is studied at the departmental level, because most students' records are kept at the departmental level.

Digitization of Documents Model
This model is developed to enhanced documentation of student's records. The worn out students' document data are extracted and digitized (Integritie, cited in Onwudebelu, Fasola, and Williams, 2013), then routed to an archive, database. ReadSoft scanner (cited in Onwudebelu, Fasola, and Williams, 2013) has a powerful recognition engines and image enhancement features to ensure quick, accuracy and prevent fraudulent manipulation, while reducing or eliminating the need for manual entry. It automates document processing functions previously done manually, cutting costs while speeding the flow and improving the accuracy of information where current students and ex-students will have their records transform into electronic forms and store in a database, including application program to interface the database for easy retrieval of records.

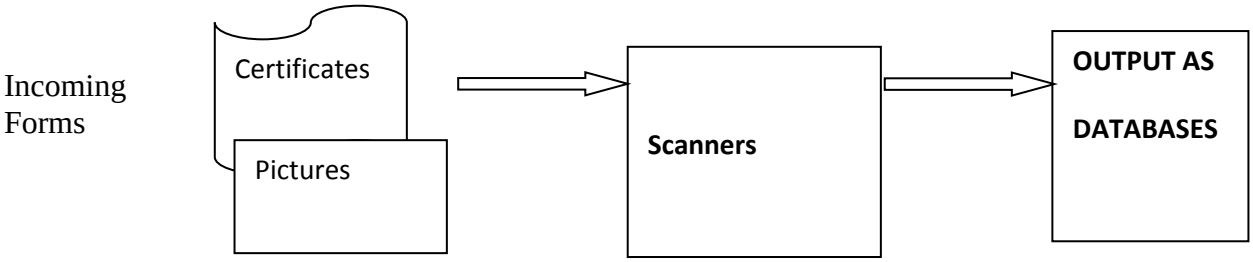
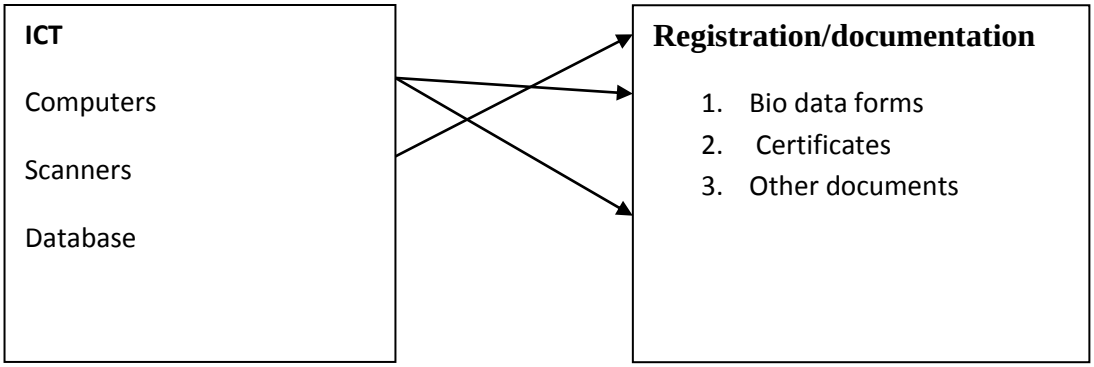


Figure 1: A complete processing solution (Onwudebelu, et al., 2013)

Definition of Variables

Independent variable **Dependent variable**



Source: Authors

Our independent variable in this research study is Database which is built using ICT equipment's such as computers, scanners, etc. while our dependent variable is registration/documentation using bio data forms, certificates and other necessary documents.

Research Methodology

The population of this study comprises the ten tertiary institutions in plateau state; however, seven institutions were conveniently selected as sample size. They include: University of Jos, Plateau State University, Bokkos, Plateau State Polytechnic, Barkin Ladi, Federal College of Education, Pankshin, College of Agriculture, Garkawa; College of Health, Pankshin, College of Health, Zawan;. The study made use of survey design. A questionnaire was designed and administered to 165 level coordinators in these schools where 148 were completed and returned. The questionnaire was divided into two sections: section A sought for demographic information while section B sought for information bothering on the research questions and objectives.

Chi-square test of independent was used in testing the hypotheses. They were tested at 5% level of significance using KGP Statistical Package (an add-in in Microsoft Excel).

Findings

Table 4 (appendix II) shows that 62.2 percent of the respondents have a work experience of 11 -20 years. This means that they have the requisite experience needed to provide answers to our research questions and to meet our objectives. Also, Table 5 shows that 71.6 percent of the respondents were male while 28.4 percent were female. This implies that majority of the departmental registration officers are male.

Table 6 shows how Information and Communication Technology is being deployed in tertiary institutions in Plateau State. It was discovered that 50 percent of the departments surveyed have ICT facilities while 50 percent don't have. It was also discovered that 85.1

percent of the respondents still keep students records in file jackets instead of dedicated servers, while 14.9 percent of the respondents don't keep students' record in file jackets but on dedicated computer servers. Those that still keep students records in file jackets, 40.5 percent of them have space to keep the files for a long time while 59.5 percent don't have space to keep their files for a long time. This will cause serious problem of storage as the departments may be force to damage records that may still be relevant for want of space.
The result also shows that 50 percent of the respondents use ICT in registering and documenting new and returning students while 50 of the respondents don't use it. Equally, 40.5 percent of the respondents have an up-to-date database while 59.5 percent don't have. What this mean is that their databases are outdated and may not be of use if current information is required.

Furthermore, it was found out that 20.3 percent of the respondents have digitized all their departmental registration and documentation process while79.7 percent of the respondents have not digitized the process. This implies that majority of tertiary institutions in Plateau State have not digitized their registration and documentation process. It shows that even though most of the institutions have ICT facilities and use it in the registration and documentation process, students' documents such as birth certificates, declaration of age, past certificates are not scanned and kept in digital forms.

The study also found that 27 percent of the respondents have customized software or applications used in the registration and documentation of students in the department while 73 percent of the respondents don't have customized software or applications that they used. It implies that most tertiary institutions in plateau state don't have customized softwares and applications used in the documentation and registration of students. This corroborates the immediate findings that most of the institutions have not digitized their documentation process, which may not be unconnected with the fact that most departments are not aware that they can have softwares and applications that can be used to capture students' records or documents at the point of registration.

It was also found that 56.8 percent of the respondents are of the opinion that the use of ICT in departmental registration has reduced paper work in the registration process while 40.5 percent said it has it reduced paper work in the process.
Table 7 further shows that, out of those who said it has reduced paper work, 48 percent said it has reduced to a very large extent, 39 percent said to a large extents while 13 percent said to a small extent. What this implies is that the use of ICT in departmental registration has reduced paper work to a large extent in tertiary institutions in Plateau State.

Since the chi-square test of independence in table 9 shows that the p value (0.021359) is less than α (0.05), as a result, we reject the null hypothesis and accept the alternative which states that there is significant relationship between information and communication technology and departmental registration/documentation of students in tertiary institutions in plateau state. The difference is statistically significant. This implies that Information and Communication Technology is used in the registration of students at the departmental level in tertiary institutions in Plateau State.
Table 11 shows that the p value (0.000420) is less than α (0.05), thus, we reject the null hypothesis and accept the alternative hypothesis which states the Information and Communication Technology has significantly reduced paper work in the registration/documentation of students in tertiary institutions in Plateau State. The difference is statistically significant. This implies that the used of Information and Communication

Technology has significantly reduced paper work in the registration of students at the departmental level compared to when it was not available.

Conclusions

Based on the findings above, we conclude that some departments in tertiary institutions in Plateau State have ICT facilities who while some don't have. Those institutions that have use the facilities for registration and documentation of students, while those that do not have are denied the privilege of using it. Even though some of the institutions use ICT in registering and documenting new and returning students, they still keep their students' records in file jackets. This is in spite of the fact that they don't have space to keep the file jackets for a long time.

We conclude also that the tertiary institutions in Plateau state do not have up-to date database and have not digitized all their departmental registration and documentation process. Equally, they do not have customized software and applications that could be used in the departmental registration and documentation of students.

However, there is a significant relationship between Information and Communication Technology and departmental registration in tertiary institutions in Plateau State. As such, it has significantly reduced paper work in the registration and documentation of students at the departmental level.

Some institutions that use ICT in departmental registration and documentation attest to the fact that it has helped them reduced paper work to a large extent.

Recommendations

The study advanced the following recommendations:

i. Government should provide all departments of tertiary institutions in Plateau State with state-of-the-art ICT facilities
ii. Tertiary institutions in Plateau State should digitized all their departmental registration and documentation processes
iii. Tertiary institutions in Plateau State should have customized softwares and applications that will aid in the digitization process
iv. Tertiary institutions in Plateau State should have up-to-date database with easy access and retrieval.

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APPENDIX 1

Table 1: Institution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PLASU	12	8.1	8.1	8.1
	UNIJOS	10	6.8	6.8	14.9
	FCE Pankshin	42	28.4	28.4	43.2
	C of H Zawan	10	6.8	6.8	50.0
	C of H Pankshin	6	4.1	4.1	54.1
	C of A Garkawa	28	18.9	18.9	73.0
	PLAPOLY	40	27.0	27.0	100.0
	Total	148	100.0	100.0	

SOURCE: Field Survey, 2017

Table 2: Department

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20	13.5	13.5	13.5
Accountancy	4	2.7	2.7	16.2
Agricultural Science	2	1.4	1.4	17.6
Agricultural Sciences	2	1.4	1.4	18.9
Agricultural Technology	12	8.1	8.1	27.0
BAM	6	4.1	4.1	31.1
Banking and Finance	2	1.4	1.4	32.4
Basic Studies	2	1.4	1.4	33.8
Building	10	6.8	6.8	40.5
Business Education	8	5.4	5.4	45.9
Computer Science	2	1.4	1.4	47.3
CRS	2	1.4	1.4	48.6
Economics	6	4.1	4.1	52.7
English	4	2.7	2.7	55.4
Environmental Health	8	5.4	5.4	60.8
Fine and Applied Arts	2	1.4	1.4	62.2
Foundation	2	1.4	1.4	63.5
GSE	6	4.1	4.1	67.6
HRDC	2	1.4	1.4	68.9
Integrated Science	2	1.4	1.4	70.3
ISC	2	1.4	1.4	71.6
Marketing	8	5.4	5.4	77.0
Mass Communication	4	2.7	2.7	79.7
Medical Image Processing	4	2.7	2.7	82.4
OTM	2	1.4	1.4	83.8
PES	2	1.4	1.4	85.1
PHE	4	2.7	2.7	87.8
Political Science	6	4.1	4.1	91.9
Psychology	6	4.1	4.1	95.9
Public Admin	4	2.7	2.7	98.6
Special Education	2	1.4	1.4	100.0
Total	148	100.0	100.0	

SOURCE: Field Survey, 2017

Table 3: Faculty/School

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	56	37.8	37.8	37.8
Education	14	9.5	9.5	47.3
HRDC	2	1.4	1.4	48.6
Languages	4	2.7	2.7	51.4
Management Science	2	1.4	1.4	52.7
Management Sciences	2	1.4	1.4	54.1
Natural Sciences	2	1.4	1.4	55.4
SAB	22	14.9	14.9	70.3
Sciences	8	5.4	5.4	75.7
Social Science	8	5.4	5.4	81.1
Social Sciences	6	4.1	4.1	85.1
Social Scienes	2	1.4	1.4	86.5
Technical Education	10	6.8	6.8	93.2
Voc and Tech	10	6.8	6.8	100.0
Total	148	100.0	100.0	

SOURCE: Field Survey, 2017

Table 4: Years in Service

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
1-10	42	28.4	28.4	28.4
11-20	92	62.2	62.2	90.6
21-30	10	6.8	6.8	97.3
31 years and above	4	2.7	2.7	100.0
Total	148	100.0	100.0	

SOURCE: Field Survey, 2017

Table 5: Sex

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Male	106	71.6	71.6	75.6
Female	42	28.4	28.4	100.0
Total	148	100.0	100.0	

SOURCE: Field Survey, 2017

Table 6: How ICT is Being Deployed in Tertiary Institutions in Plateau State

Questions	Agree		Disagree		Total	
	F	%	F	%	F	%
We Have ICT Facilities in Our Department	74	50	74	50	148	100
We Still Keep Students Records in File Jackets	126	85.1	22	14.9	148	100
If Yes, Do You Have Space To Keep These Files For a Long Time	51	40.5	75	59.8	126	100
We Use ICT in Registering and Documenting new and Returning Students	74	50	74	50	148	100
We Have an Up-to-date Database	60	40.5	88	59.5	148	100
We Have Digitized All Our Departmental Registration and Documentation Process	30	20.3	118	79.7	148	100
We Have a Customize Software or Application We Use in the Registration and Documentation of Students in the Department		27	108	73	148	100
Has the Use of ICT in Departmental Registration Reduced Paper Work in the Registration Process	84	56.8	64	43.2	148	100

SOURCE: Field Survey, 2017

Table 7: If Yes, to What Extent has the used of ICT in Departmental Registration Reduced Paper Work in the Registration Process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Very Large Extent	40	48	48	48
	Large Extent	33	39	39	87
	Small Extent	11	13	13	100.0
	Total	84	100.0	100.0	

SOURCE: Field Survey, 2017

Table 8: Contingency Table For Hypothesis One
We Use ICT in Registering and Documenting new and Returning Students * We Have ICT Facilities in Our Department Crosstabulation

Count

		We Have ICT Facilities in Our Department		
		Agree	Disagree	Total
We Use ICT in Registering and Documenting new and Returning Students	Yes	44	30	74
	No	30	44	74
Total		74	74	148

Table 9: KGP Output

Crosstabulation Table

OBSERVED

	Agree	Disagree	Total
Agree	44	30	74
Disagree	30	44	74
Total	74	74	148

EXPECTED

	Agree	Disagree	Total
Agree	37.000	37.000	74
Disagree	37.000	37.000	74
Total	74	74	148

Calculation of the Chi-Square Test

DESCRIPTION	VALUE
□^{2}*	5.297297
p-value	0.021359
Critical value	3.841459
□	0.05
Df	1

Source: KGP Statistical Package (an add-in in Microsoft excel)

Table 10: Contingency Table for Hypothesis Two
We Use ICT in Registering and Documenting new and Returning Students * Has the Use of ICT in Departmental Registration Reduced Paper Work in the Registration Process Crosstabulation

Count

		Has the Use of ICT in Departmental Registration Reduced Paper Work in the Registration Process		
			Agree	Disagree	Total
We Use ICT in Registering and Documenting new and Returning Students	Agree	0	2	0	2
		0	54	20	74
	Disagree	4	28	40	72
Total		4	84	60	148

Table 11: KGP Output

Crosstabulation Table

OBSERVED

	Agree	Disagree	Total
Agree	56	24	80
Disagree	28	40	68
Total	84	64	148

EXPECTED

	Agree	Disagree	Total
Agree	45.405	34.595	80
Disagree	38.595	29.405	68
Total	84	64	148

Calculation of the Chi-Square Test

DESCRIPTION	VALUE
□^{2}*	12.442157
p-value	0.000420
Critical value	3.841459
□	0.05
df	1

Source: KGP Statistical Package (an add-in in Microsoft excel)