

EFFICIENT USE OF ICT IN ADMINISTRATION

A CASE FROM MEHRAN UNIVERSITY OF ENGINEERING AND TECHNOLOGY, JAMSHORO, PAKISTAN

Zuhaib Hassan Qureshi

Mehran University Institute of Science, Technology and Development

Mehran University of Engineering and Technology, Jamshoro Sindh, Pakistan

Muhammad Moinuddin Qazi Abro 

Department of Management, College of Business Administration,

King Saud University, Riyadh, Kingdom of Saudi Arabia

qaziabro@gmail.com

Abstract

Information and communication technology (ICT) plays an important role for enhancing the educational administration. Developed countries are taking full benefits from ICT in Higher Education Institutes' (HEI) administration and, developing countries have also started adopting technological resources now for the betterment of administrative affairs. Despite the ICT innovation in university administration, the administrative process still faces a number of problems indicating possible ineffective usage of ICT. Therefore, there was a gap exist to conduct a study that might help to find out status of effectiveness of ICT in HEI's administration. This study addresses the factors influencing effectiveness of ICT in administration and suggests the framework for effective utilization of ICT in administration. The study was conducted in the context of administration of Mehran University of Engineering and Technology, Jamshoro Pakistan, and the primary data was collected from the employees working in main branch of administration as well as administration offices at different departments and institutions. For this, an exploratory research is adopted and mixed methodology was carried out. The findings shows that ICT was not found as effective as it supposed be in administration. And reasons were exposed as there were lack of appropriate resources available particularly management information system with training and monitoring mechanism. Therefore, they are using more manual system and people are less encouraged to use more ICT.

Keywords: ICT, Higher Education, University, Administration, Pakistan

INTRODUCTION

Information and communication technology (ICT) is known as an extended synonym for information technology (IT) which can be defined as a diverse set of technological tools and resources. These resources are used to communicate, create, disseminate, store and manage the information such as radio, television, computer, internet, mobile phones and fax machine (Tinio, 2003). In the age of booming technology, running a business without or less technologies is like trying to breathe without lungs (Christiana, 2008). Similarly, educational institutions are expected to play a crucial role as the engine for knowledge generation and learning environment where ICT has become one of the most effective factors by helping not only in teaching and learning process but also in administration process. Moreover, ICT provides several facilities and possibilities to educational administrators for their task performance. It is mentioned that ICT resources have changed the very nature of higher education administration by allowing any information to be shared, stored, retrieved and processed easily by all who work, study or interact with the institution (Zainly, 2008).

Moreover, administrative process at Higher Education Institutes (HEI) still faces a number of problems which indicates the ineffectiveness of technology (Hassan, 2012). Therefore, it is important to conduct a research that may help to find out status of effectiveness of ICT in university administration and this study addresses the factors which influence the effectiveness of ICT in administration and suggests the framework for effective utilization of ICT in administration at MUET.

LITERATURE REVIEW

The value of ICT in higher educational sector was recognized when many projects were initiated by the governments in many developed countries that provided a model to enter a higher development process and these projects were directed towards the production of better educational system (Carnoy, 2004).

The task of managing higher education in such an effective manner that it leads to sustainable development cannot be attained if the full use of ICT related educational initiatives are not explored (Bassey, 2009). This is due to the technology promotes; reduction of workload of organization, quality improvement of teaching and learning process, provides the better access of information and easy way of communication (Christiana, 2008). It can also be used to improve the quality of education by enhancing educational content development, supporting administrative process in HEIs and other educational establishments. So ICT has become a major component for educational administration, which provides several facilities and

possibilities for administrators now to do their tasks easily. It also contributes the efficiency and effective infrastructure to manage the whole process.

According to, Krishnaveni; Meenakumari, (2010) ICT extensively covers whole process of administration of higher education. Based on literature review the three major functional areas of HEI's administration those are of great significance for day-to-day management is identified as follows: Student administration, Staff administration, and Teachers administration.

Effectiveness is a goal set by administrative leaders through their leadership strategies to help organization reach certain achievements across the board and technology applications in educational administration will help them to achieve their goals easily (Mwalongo, 2011). Moreover, effectiveness is a degree to which an organization's desired goals are correctly achieved in HEI's administration (Ghavifekr, 2013).

The administrators face various challenges in their daily work performance particularly if there is inappropriate utilization of technology or in manual process. These challenges are the obstacles towards an efficient administration. Therefore these problems need to be solved by administration leaders to establish a productive administrative process within universities and with the help of more ICT integration and its maximum utilization they can resolve many of those challenges (Kawade, 2012).

In terms of taking full advantage and for effectively utilizing ICT resources, there should be availability and accessibly of all basic ICT resources which are the fundamental need of an educational administration and everyone should be well equipped. Moreover, the author argued if the system is not able to satisfy its users and they find same challenges, this cannot be interpreted as an effective system. User satisfaction is the most widely used variable for measuring any organization success because there exist a strong correlation between this variable and firm's performance.

There are many problems faced by employees in administrative system and the literature highlighted the nature of problems and literature encountered those problems for this study to find out the effectiveness of system; Wastage of resources (time, space and paper), costs of resources (manpower and transportation) and complexities (data storage, data share, data receive, data accuracy, security, repetition and duplication).

METHODOLOGY

According to nature of the study the exploratory research is adopted because this type of research design helps to explore the research problem. This study uses mixed methodology (qualitative and quantitative) to collect the required information. The aim of using qualitative approach is to address the in-depth understanding of required knowledge retrieve from

participants. For qualitative method personal interviews are conducted from administration at different departments to get particular results. The aim of using quantitative research method is to measure and compare the quantity of large number of responses from participants which contains with numerical and statistical variables of data collection process.

A survey questionnaire was used for quantitative method to collect the data which offer a number of option for responsible to choose from. The questionnaire was developed from the literature review and it was divided in to four sections that contained 33 questions. The questionnaires were distributed among 151 administrators, out of which 103 correctly and completely filled questionnaires were received back, which is 68% of total sample size. For in-depth exploration and understanding of required information 11 interviews were conducted. Interviews were conducted from knowledgeable persons whom are very much familiar and using both manual and ICT systems there in administration and their names are assigned as x1 to x11.

ANALYSIS AND DISCUSSION

A number question was presented to participants in this first part of the questionnaire, to find out the level of availability and accessibility of basic ICT applications in administration at MUET. For example; computer, internet, email and electronic management information system EMIS were considered as basic resources. Availability and accessibility of all the basic ICT applications are the fundamental need for an effective educational administration. Therefore it is required to find out availability and accessibility of applications for this study.

Availability and Accessibility of Basic ICT Applications

Figure 1: Availability and Accessibility of Basic ICT Applications in Administration

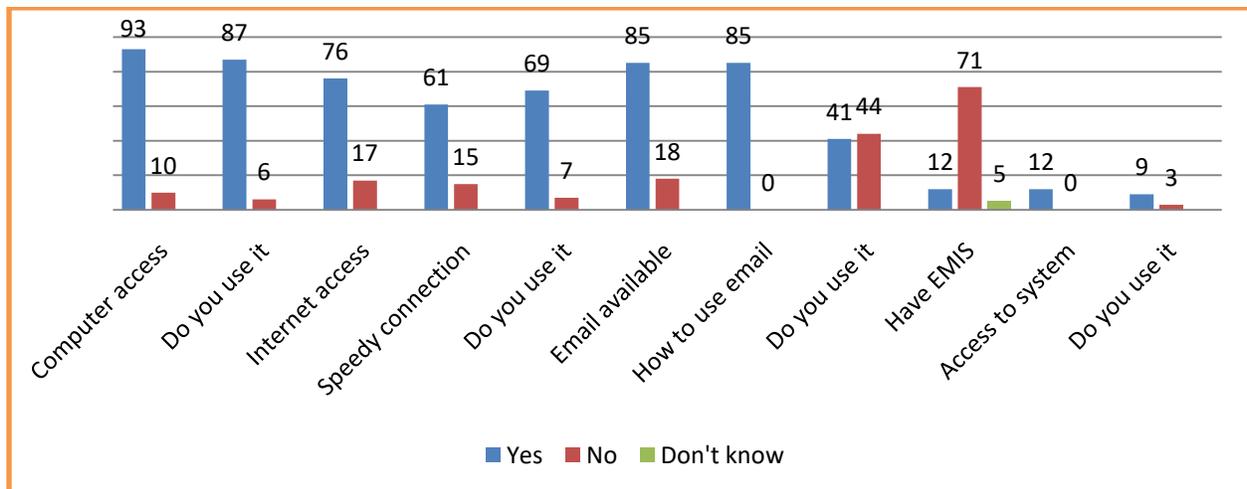


Figure shows that 90% workers had computers while, 10% did not have computer accessibility on their work places. Whereas 94% of those who had computers on their work places they use them properly while 6% did not use computers for their administrative work. The results of those two questions are implication for the availability of computers and their usage in university administration.

The next three questions were given about internet accessibility where 82% participants who had computers on their work places had internet access on their computers, and 18% did not have internet access. Whereas, 19% of those who had internet access on their computers were not satisfied from internet speed, while 81% were satisfied. While 91% of participants who had internet access, revealed that they also use internet for their work and 9% of them do not use internet properly. The results show that most of the participants had internet access and they were using it properly for their work performance.

The next three questions were asked about availability of email address and the chart shows that, 83% of participants had their email addresses and they all know how to use email address while 18% had no email address. But in the next question participants revealed that 48% of those had email addresses, were using their email addresses for their work performance while 52% of those who had email addresses did not use it. So the results show that most of the participants had their email addresses but most of them did not use it. According to Kawade, (2012) accessibility of fast internet and email usage are the most dominant tools and this is due to the capability of internet and frequent usage of email provides opportunities of saving time and other resources for instance sending and receiving information via email which is better and faster and it saves time, man power engagement and travelling expenditures. The author also revealed that, institutions those have lower usage of email, were lacking their competency among competitors.

When the participants were asked about EMIS, the majority 82% administrators revealed that they did not have any EMIS and 13% of respondents revealed that they had EMIS. While 5% of participants did not know whether, their departments have it. Whereas all who revealed that their departments have EMIS they all had access to these systems and 75% of those who had access, only used these systems.

So the results show that most of the participants did not have availability of any EMIS. Therefore, it can be assumed that there is lower ICT resources are available in administration such as; computer, internet and email. However, there is massive lack of availability of basic ICT applications particularly electronic management information system. The literature revealed that EMIS is most effective system application because it is not only including software system,

but the entire set of business processes and resources that are used to pull together information systems. Data is presented in a user-friendly and timely manner so that mid and upper level of administrators can use it to take the right actions. The entire system is designed so that organization can meet its strategies and tactical goals (Mwalongo, 2011). Moreover, for an effective usage, everyone should have access to the innovative ICT resources. While less availability and accessibility of resources specifies the inappropriate utilization and users can probably find difficulties in managing administration process.

Utilization of ICT Applications in Administrative Process

This part of the chapter is about data analysis and discussions of utilization of available ICT resources in administration at MUET in their different aspects of administrative process such as; admission, examination, attendance, class and examination timetables, notifications and transport management. This section basically helps to analyze the utilization strength of both electronic and manual systems. According to literature there are two systematic ways to manage administrative functions; manual and computer-based or electronic systems, both are designed to help a business to carry out its day-to-day running functions. Manual system is considered as a system which processes without any computerized system. Computerized system which is not considered as an activity of usage of computer for typing and taking prints out. While electronic system is considered as a system which depends on computerized system with the help of ICT applications. Studies have explored that lower utilization of ICT doesn't facilitate the administrators and cannot be effective for institutions. While maximum utilization of ICT helps to reduce more complexity and enhances the efficiency of overall administration.

Table 1: Utilization of ICT application in administrative process

Item No.	How do you manage your work?	Manually	Electronically	Both
1	Admission Process	58%	5%	37%
2	Attendance Process	85%	5%	10%
3	Timetables	75%	6%	19%
4	Examination Process	71%	0%	29%
5	Notification Process	73%	8%	19%
6	Transportation Process	80%	0%	20%

The findings of this section show that there is lower utilization of ICT and most utilized system is manual in administrative process. It has already been found in previous section that there was massive lack of availability and accessibility of basic important applications and now it is also found that there is lack of utilization of resources. Moreover, it was found through the interviews that they prefer manual system to use here because people who have resources available are

lacking in expertise for utilizing them and people who have expertise are lacking in suitable resources. Therefore, they are using more manual and less electronics system (x1, x3, x4, x5, x8 and x9). In order to take fully benefits from ICT, every user should be well equipped and every user should have knowledge and skills related using ICT applications. Lower utilization of ICT creates problems for administrators and this lowers the competency of the organization and they are less competitive.

User Satisfaction with ICT Infrastructure

This part of the chapter presented to find out the satisfaction level of administrators about ICT infrastructure system they are using currently. User satisfaction is the most widely used variable for measuring any organization success because there exist a strong correlation between this variable and firm's performance. This section was created to analyze the satisfaction of administrators towards the ICT system they are using. Therefore the participants of this part of the questionnaire were who use ICT. Six different questions are given within the questionnaire to find out the satisfaction of participants: and the questions are given such as satisfaction, motivation, efficiency, reduction of loss of resources, reduction of workload and recommendation.

Table 2: User Satisfaction with ICT Infrastructure

Item No.	User Satisfaction	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	I am Satisfied with current ICT system	30%	42%	6%	16%	6%
2	ICT system motivates to work efficiently	28%	40%	7%	13%	12%
3	ICT system reduces loss of resources	30%	39%	9%	14%	8%
4	ICT system reduces the work load	29%	42%	7%	11%	11%
5	ICT system is efficient in managing data	31%	40%	9%	15%	5%
6	I highly recommend this ICT system	32%	37%	10%	12%	9%

User satisfaction towards that infrastructure raises up the organization's performance, moreover, user satisfaction is most widely used variable for measuring any organization success. This section was presented to analysis the satisfaction of participants with current ICT infrastructure they are using for their work performance. It was found that people are not satisfied with ICT infrastructure because it does not motivate them to work, does not reduce

their workload and the loss of their resources while it is not efficient in managing data and they do not recommend it. This is due to there is lack of sufficient ICT equipments and lack of proper utilization of available resources (x2, x3, x6, x11). This indicates the literature, that inappropriate utilization of technology can be effective. It was also found through interviews that people who were not satisfied because they were not motivated enough to use the resources (x1, x2, x4, x5, x6, x8 and x10).

Problems Faced by Administrators

This last part of the questionnaire was presented to participants to analyze and discuss the challenges faced by administrators at MUET at their work place. According to (Kawde, 2012) there could be various challenges faced by administrators on daily basis in their job performing, and it is important for administrative authorities to encounter these challenges faced by their employees to produce an effective administration for organization. Although with the help of innovative ICT applications they can resolve many of these challenges such as; wastage of resources (time, physical space, paper) costs in manpower and transportation and difficulties in data storage, data sharing, data retrieving, accuracy, security, repetition and duplication of work. Ten problem factors are carried out from the literature for this section within the questionnaire to find out the problems faced by administrators.

Table 3: Problems Faced by the Administrators

Item No	What problems do you face in your work performance ?	Strongly Disagreed		Disagreed		Uncertain		Agreed		Strongly Agreed	
		#	Percent	#	Percent	#	Percent	#	Percent	#	Percent
1	Wastage of Time	0	0%	9	9%	7	7%	45	43%	42	41%
2	Wastage of Paper	0	0%	10	10%	8	8%	46	44%	39	38%
3	Wastage of Space	5	5%	14	13%	13	13%	48	47%	23	22%
4	Transport expenditures	9	9%	14	13%	10	10%	34	33%	36	35%
5	Duplication of work	2	2%	11	10%	10	10%	43	42%	37	36%
6	Manpower engagement	8	8%	12	12%	13	12%	44	43%	26	25%
7	Security Issues	10	10%	19	18%	12	12%	42	41%	20	19%
8	Difficulty in Data Storage	10	10%	11	11%	12	12%	48	46%	22	21%
9	Difficulty in Data Sharing	7	7%	14	14%	11	11%	49	47%	22	21%
10	Difficulty in Data Retrieve	7	7%	11	10%	9	9%	44	43%	32	31%

Findings of this section revealed that working administrators are facing many problems at their work places as they are wasting their resources and facing difficulties. It was also found through interviews that participants are facing problems because people are using more manual system (x3, x5, x6, x7, x8, x10 and x11) and literature has also exposed that manual system could create those problems (Zain, 2004). While people who use ICT resources are also facing few problems because they are lacking any advance information system (x1, x2, x4, x5, x6 x8, and x9).

CONCLUSIONS

It was found that there was lack of availability of ICT tools and applications, particularly there is massive lack of an advanced management information system. MIS is most effective system application because it is not only including software system, but the entire set of business processes and resources that are used to pull together information systems. In the application data is the presented in a user- friendly and timely manner so that users can use it take the right actions. The entire system is designed so that organization can meet its strategies and tactical goals. It is therefore recommended that indigenous and customized MIS should be designed with the help of IT and software departments in universities. This could be potential students' research areas for students who wish to fulfill their thesis requirements.

It was found that they are using more manual system than electronic because most of the people who have resources available were lower in expertise and people who have skills to use they were lacking very important application, even they are willing to use more ICT resources. It is therefore recommended that training should be provided and monitoring mechanism should be placed to check the proper utilization of ICT. For a start, milestones are set for the different administrative units to increase the use of ICT tools.

It was also found that people are not satisfied with the ICT infrastructure because they are not motivated and encouraged enough to use resources and this lack of motivation is due to lack of appreciation from their concerned heads. Therefore, it is recommended that encouragement policy should be adopted for the user satisfaction towards using maximum ICT applications.

It was also found that participants are facing problems because they are using more manual system and this leads the cause of problems. Literature also exposed that manual system could create those problems, while appropriate utilization of ICT (availability and accessibility of all basic ICT resources, maximum utilization with users satisfaction) can overcome all those problems (Zain, 2004). And people who use ICT resources are also facing problems because they are missing some important applications such as; advance

management information system for their work performance. It is, therefore, recommended that wastages should be minimized by adopting appropriate MIS and with maximum utilizing of other resources.

It is concluded that proper utilization of ICT resources can be effective for achieving better results for university administration. Moreover, the resources shall be properly utilized i.e. everyone should be well equipped with all the basic and important ICT resources with training, monitoring and encouragement policy. Failure to this will result in the wastages of resources.

LIMITATIONS

The overall population within one context was decent enough to get reasonable findings however, the limitation still exists as it is considered within one university and that too within administration. Having said that, the findings deduced seems a good platform to make improvements and also carrying further research by comparing with other universities.

The unit of analysis has been taken as an employee within administration. This creates an element of bias and could become an issue of validity of research findings. As mentioned earlier that this is a platform research therefore, there is a need for further research. For this the respondents views need to be matched or contrasted with the views of independent observer such as faculty or student who view this differently and this could have an impact on the research results.

REFERENCES

- Bassey, S.U (2009). Information Communication Technologies in the Management of Education for Sustainable Development in Africa. *An International Multi-Disciplinary Journal, Ethiopia*, Vol. 3, 2009, Pp 414-428.
- Carnoy, M (2004). ICT in Education: Possibilities and Challenges.
- Christiana, M. (2008), "Information and Communication Technology for Administration and Management for secondary schools in Cyprus", *Journal of Online Learning and Teaching* Vol. 4 No. 3.
- Ghavifekr, S. (2013). ICT Applications for Administration and Management: A Conceptual Review. 13th International Education Technology Conference. 103 (2013) 1344-1351.
- Hassan, S.M. (2012). Designing Examination Information System Management: A Comparative Case Study.
- Kawade, D.R. (2012). Use of ICT in Primary School. *Pioneer Journal*. Retrieved on 27 April on 2013 from: http://pioneerjournal.in/conferences/tech-knowledge/14th-national_conference/3798-use-of-ict-in-primary-school.html.
- Krishnaveni, R and Meenakumari, J (2010). Usage of ICT for information administration in higher education institutions- A study. *International Journal of Environmental Science and Development*, Vol. 1, No. 3, August 2010.
- Mwalongo.A. (2011). Teachers' Perception about ICT for Teaching, Professional Development, Administration and Personal use. *International Journal of Education and Development using information and Communication Technology (IJEDICT)*. 7(3), p.36 49.

Tinio V.L. (2003) ICT in Education, <http://www.apdip.net/publications/iespprimers/eprimer-edu.pdf>

Zain, M (2004). The impact of information and communication technology (ICT) on the management practices of Malaysian Smart Schools. *International Journal of Educational Developmenet*, Vol. 24, Pp 201-211.

Zainally, H. (2008),” Administration of Faculties by Information and Communication Technology and Its Obstacles”, *International Journal of Education and Information Technologies*, Vol. 2,issue1 2008.