

IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY IN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

A good higher education system is required for overall prosperity of a nation. Many researches reveal that the integration of ICT helps to reduce the complexity and enhance the overall administration of higher education. This study has been undertaken to identify the various functional areas to which ICT is deployed for information administration in higher education institutions and to find the current extent of usage of ICT in all these functional areas pertaining to Information administration. The various factors that contribute to these functional areas were identified. A theoretical model was derived and validated.

Key Words : *General Administration, Information Administration, Information And Communication Technology (ICT), Student Administration, Staff Administration, Path Model.*

I.INTRODUCTION

Change has been happening at an uneven pace in any growth-oriented industry, and the education sector is no exception. Rapid growth in the field of education has made governance in academic sector a very complex task. The 21st century has witnessed tremendous advancements in technology which has led to far-reaching developments in the administrative system. Cost-effective technology combined with the flexibility in learning and administrative activities is essential to enhance efficiency. Computers can be used extensively for educational administration. The following are some of the areas where computers can be used for effective educational administration

- 1.1.1 General Administration
- 1.1.2 Pay Roll and Financial Accounting
- 1.1.3 Administration of Student Data
- 1.1.4 Inventory Management
- 1.1.5 Personnel Records Maintenance
- 1.1.6 Library System

Information and Communication Technology (ICT) plays a vital role in supporting powerful, efficient management and administration in education sector. It is specified that technology can be used right from student administration

to various resource administration in an education institution various administrative challenges for Indian education system of the 21st century as given below:

- 1.2.1 Global and local challenges
- 1.2.2 Universal and individual challenges
- 1.2.3 Balancing between traditional and modern approaches
- 1.2.4 Long term and short term considerations
- 1.2.5 Competition and equity challenges
- 1.2.6 Extraordinary expansion of knowledge

As a part of strategy, the author mentioned that these challenges could be overcome with the proper usage of technology. Moreover many studies revealed the need for ICT integration into administrative activities of higher education institutions. The various ways of introducing technology in education institution administration are the following:

- 1.3.1 Sending e-mail notices and agendas to staff, rather than printing and distributing them
- 1.3.2 Submission of lesson plans through e-mail
- 1.3.3 Foster technology growth by asking parents to write e-mail addresses on medical forms.
- 1.3.4 Insist that all teachers create a class Web page
- 1.3.5 Attend technology conferences to see what other schools are doing, what other teachers are doing to integrate technology, and what principals are doing to encourage the use of technology in their schools and classrooms.
- 1.3.6 Admissions through web-enabled services.
- 1.3.7 All day-to-day activities of the institution (General Administration)
- 1.3.8 Staff administration

II.HYPOTHETICAL MODEL

It was specified that ICT has played a major role in reducing operational inefficiency and improving decision-making in many areas of governance. An integrated Higher Education Service System is one such concept that can empower the governing bodies to administer the progress of the education plan in the whole country and serve various stakeholders in a much better manner.

According to (Christiana Maki 2008), administrative subsystems include Personnel administration, student administration, resources administration, financial administration and general administration. In (2009) Elżbieta Gajek mentioned that Communication and general administration are the two main areas in which ICT is used in the management of education institutions. It is evident from the above that administrative activities in a higher education institution consists of student administration, staff and resources administration, communication and general administration.

“Information and Communication technology provides several facilities and possibilities for educational administrators to do their tasks”. There is a mention that communication and information systems have changed the

very nature of higher education, allowing information to be transferred, stored, retrieved, and processed by almost all who work, study or interact with a given institution.

The various research studies conducted to evaluate the extent of usage of Information and Communication technologies in multiple aspects of higher education revealed that heads of faculties utilized technology in planning, and to a large extent in the supervision and evaluation of academic affairs, student affairs, financial affairs and administrative affairs. It was concluded that information and communication technologies have an impact on increase of the scientific level of faculty members, students, and staff.

Gumala Suri (2005) reported that Spanish and Indian universities have been changing fast due to the development of new Information and Communication Technologies (ICT). It was mentioned that user satisfaction is a widely used measure of ICT success. The author has concluded by providing a conceptual model for implementing a good technical system. It is mentioned that ICT is used in administration to support the business strategies and processes of higher education institutions, and a “dynamic new shift occurred in higher education” due to the application of ICT in University administration. This facilitated creation of large and complex institutions that could function with increased efficiency and user-friendliness. It is also mentioned that usage of ICT in higher education administration involves “harnessing technology for better planning, setting standards, effecting change and monitoring results of the core functions of universities. One of the key conclusions arrived at is that the integration of ICTs in higher education is inevitable

This flow of information is largely impervious to geographic boundaries allowing remote communities to become integrated into global networks and making information, knowledge and culture accessible, in theory, to anyone. It is also mentioned that ICT enhances day-to-day management of institutions and the various functional areas in which it could be used are specified below:

- 2.1.1 Timetabling
- 2.1.2 Student admission and Tracking
- 2.1.3 Financial Management
- 2.1.4 Medical services
- 2.1.5 Procurement and Store management
- 2.1.6 Data distribution and management

ICT is used in maintenance of student and staff records and for communication and document management . It is mentioned in the study that students of different universities reported the usage of ICT for facilitated contact and information exchange and also promoted access to higher education. ICTs included systems for student admission and records, examination results and transcripts, finance database, human resources database, and management information.

Various literature reviews reveal that Information administration is one part of overall administration of education institutions which mainly covers general and day-to-day operational activities. Hence, it could be concluded that Information administration cycle includes four major components namely, Student administration, Staff administration, and General administration. A theoretical model for Information administration has been formulated,

and is depicted below:

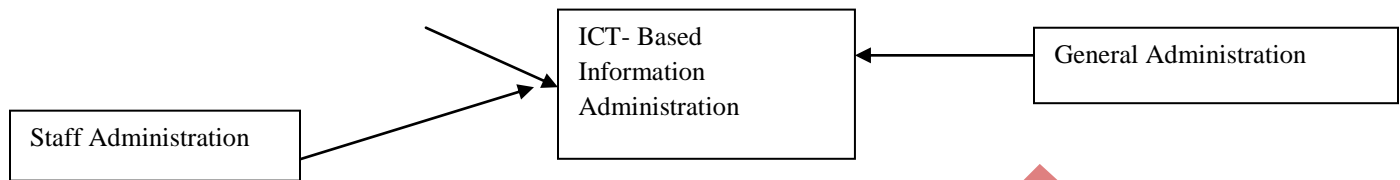


Figure1. Hypothetical model of information administration

Information administration in this context refers to activities relating to the management of higher education institutions which is often mentioned in other studies as managerial activities in higher education institutions. The administrative systems include Personnel administration, student administration, resources administration; financial administration and general administration are of great significance for day-to-day management of higher education institutions was identified as follows:

2.2.1 Student administration

2.2.2 Staff administration

2.2.3 General administration

Student administration is an important and integral part of information administration. This involves various activities commencing from the admission process to learning activities till processing of results and performance analysis. The integration of ICT into this process enhances the overall admission activities of higher education institutions by making it more accessible to many. This includes admission enquiry by students, applying for admissions through electronic media, registration / enrolment using computers, course allotment, and availability of information like timetable / class schedule in electronic form and attendance monitoring / maintenance through e-media. Further it includes the various communications relating to transport, hostel accommodation and other communication to guardians/parents. The integration also helps in expansion of the geographical boundaries for student intake, thus facilitating cross-border higher education.

A very important part of Information administration is general administration of higher education institutions which includes the various day-to-day activities of the entire system. Through literature reviews, it is evident that the integration of ICT into general administration has brought increased efficiency and optimal resource utilization (Hasan et al. 2007). The various items classified under this category include usage of electronic media for scheduling of halls and other resources, fee payment, and handling internal and external examination activities in coordination with the faculty members, all day to-day activities, intra and inter communication etc.

III.FRAME WORK OF PAPER

Information administration was identified as one of the important functional area in higher education institutions. It is often mentioned in various studies as managerial. Usage of appropriate information technologies could improve

the overall environment and operational efficiency of higher education institution and it helps to improve the following functional areas and not limited to inventory control, allocation of resources, fiscal management, communications, pupil/personnel services, student records, employee productivity etc.

The Frame work involved the following:

- 3.1.1 Item generation
- 3.1.2 Content Validity
- 3.1.3 Reliability test
- 3.1.4 Criterion Validity
- 3.1.5 Path Validity

The item categories derived from the literature review for information administration are summarized in Table-1

Table1. Item categories generated for information administration

S.No	Construct	Content categories
1	Student Administration	<ul style="list-style-type: none"> *Usage of electronic media by students to apply for admissions *Usage of computers for student registration / enrolment Availability of timetable / class schedule in electronic form *Usage of computers for maintenance of attendance of students *Communication of academic details of students to their parents / guardians through e-media *Usage of e-media for notifications regarding hostel accommodation *Usage of e-media for notifications regarding transportation
2	Staff Administration	<ul style="list-style-type: none"> *Usage of computers for recruitment and work allotment of staff in the institution *Automation of attendance and leave management of staff members in the institution *Usage of electronic media for performance appraisal Communication with staff using e-media *e-circulars from the institution regarding official matters *e-kiosks are available in the institution
3	General Administration	<ul style="list-style-type: none"> *Usage of e-media for scheduling / allocation of halls for examinations *Dissemination of information in the institution through e-kiosks *Usage of e-media by students to apply for university examinations *Usage of e-media for the processing and display of results of students *Facility for students to make fee payments electronically

Information administration consists of three main components namely Student administration, Staff Administration and General administration with Communication as an integral part of these three components. The items that contribute towards all the three functional areas were carefully identified through extensive literature review and discussions with educational practitioners and experts. A formal questionnaire was prepared. The responses for the questionnaire received from administrative personnel were grouped according to the functional areas. For every item, the responses given in a five-point Likert scale by there spondents were classified into two categories namely 'Yes' and 'No' for the usage of technology in Information administration.

IV.FINDINGS

Finding of the research are given below

4.1.1 The overall Information administration revealed that all the functional areas contribute well towards Information administration and have significant relationship with each other.

4.1.2 The demographic factors were analyzed for their impact on the functional areas of Information administration. Most of the demographic factors not have any significant difference in the functional areas of Information administration. These include the demographic factors relating to respondents such as gender, age, department, designation and the factors relating to institutions such as years of existence, affiliated university, and region.

4.1.3 It can be observed that Student and staff administration are well above and then of General administration. This clearly indicates that the integration of ICT into general administration has large scope. Every item of all the respondents was analyzed based on the above and the items contributing to Student, Staff, and General administration were grouped to find the extent to which technology is currently in use.

This clearly shows that ICT has become a necessary tool for accomplishing the administrative tasks with ease. Through this study it is evident that transformation in accordance with technological advancements is happening in the education sector. It is mainly used in the areas of student administration and staff administration.

V.CONCLUSION

This study has identified a comprehensive set of functional areas of Information administration. It was found that current level of usage indicates a clear integration of ICT for managerial or information-based administration in higher education institutions. This study reveals that demographic factors do not have major impact on Information administration in higher education institutions. It was also evident from the validation of the path model that all the functional areas identified have an influence on Information administration. This reveals that enhancing the usage of ICT on these functional areas and especially for general administration will enable enhancement of overall information administration in higher education institutions in the realm of global competitive environment. This study could serve as a base for education planers to deploy Technology based administration in higher education Institutions.

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