

Role of ICT on Universities Administrative Services and Management

Deepak Pohekar

2nd floor Above SBI ADB Bank, Old Cotton Market, Amravati, Director, Dotcom Infotech Pvt. Ltd,
Maharashtra, India

Abstract - Information and Communication Technology (ICT) is a tool that enhances administrative activities of higher education institution; making it convenient for the users to communicate or exchange information with others. ICT contributes in education in many ways such as: ICT as a collaborative tool, ICT as a tool to support traditional subjects, ICT as an administrative tool and many more.

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.

The major impacts of ICT in administrative services and management of student's records in Indian universities were identified and discussed. Suggestions are made on the need for Indian universities to widen the scope of ICT application in administrative services to fully reap the benefits of ICT.

Key Words : General administration, Information administration, Information and Communication Technology (ICT) and Students Management.

1. Introduction

The Campus management is one of the toughest jobs particularly when it grows in size and numbers. In present scenario where change happens at the rate of thought, it is next to impossible to sustain without the presence of technology. ICTs give students and teachers new tools with which to learn and teach in effective manner. ICTs extend opportunities to supervise, coordinate and to control day-to-day administrative activities of the academic institution in easy and transparent ways. It has been proven by a number of studies that application of ICTs in administrative services is the need of the hour. The areas in education administration where ICTs may play a significant role may depend upon the institutional requirements. Based on the literature review, the highlights of this category relate to usage of e-media for admission activities. This may include 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. Having perused the various literatures, it is felt that the use

of ICTs in admission process, maintenance of student's personal and other academic records, submission of class assignments and projects, monitoring and evaluation, and communications with the stakeholders is unavoidable for sustainable development of the educational establishments.

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:

- General Administration
- Pay Roll and Financial Accounting
- Administration of Student Data
- Inventory Management
- Personnel Records Maintenance
- 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 (Christiana Maki 2008).

Sharad Sinha (2008) mentioned the various administrative challenges for Indian education system of the 21st century as given below:

- Global and local challenges
- Universal and individual challenges
- Balancing between traditional and modern approaches
- Long term and short term considerations
- Competition and equity challenges
- 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 (Caroline Salerno 2009):

- Sending e-mail notices and agendas to staff, rather than printing and distributing them
- Submission of lesson plans through e-mail
- Foster technology growth by asking parents to write e-mail addresses on medical forms.
- Insist that all teachers create a class Web page
- 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.
- Admissions through web-enabled services.
- Fees submission through online payment gateway
- Answer script evaluation through Digital evaluation system rather using manual checking
- All day-to-day activities of the institution (General Administration)
- Staff administration

2. Statement of the problem

With ICT administrative duties, especially management of student's data in education institutions have become much easier. ICT has brought transformation and efficiency in the way many management tasks are handled. It changed how information is processed, stored and managed making record keeping, document processing, clerical and such other activities less burdensome. It made information transfer easier and faster, and information about an institution can now be effectively disseminated to the entire world. It has also made access to these institutions easy, and applicants can now process admission, fee payment, registration and several other services online. The positive effects of ICT on administrative services in education institutions are numerous.

There is however indications that Indian higher education institutions are yet to satisfactorily enjoy the benefits of ICT, especially with the paucity of necessary facilities observed in most of the institutions. There is therefore the need to examine the use of ICT in administrative activities in Indian higher education. This study is undertaken to determine the impacts of ICT on administrative services in Indian universities.

The main purpose of the study is to examine the impacts of ICT on administrative services/management of student's records in Indian higher education. Specially, the study is to determine

1. The impact of ICT on administrative services/management of students records in Indian universities.
2. The most popular ICT-enhanced administrative service in Indian universities.

No previous study was found to have, particularly examined and articulated these impacts/benefits, such that would possibly guide policy makers, and provoke the university administrators to ensure total and effective application of ICT in administrative duties. This is enough to justify this study.

3. Objective of Study

The study attempts to answer the following question.

1. What are the impacts of ICT on administrative services/management of student's records in Indian universities?
2. What is the most popular ICT enhanced administrative service in Indian universities?

To determine the statistical relationship in the mean response of respondents on the study, a hypothesis is proposed; there is no significant difference in the mean response of students, lecturers, and administrators on the impact of ICT on administrative services/management of students' records in Indian universities.

4. Literature of Review

Rajeev Singh (2008) has 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. Ulf Fredriksson and Elzbieta Gajek (2009) 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

Ozdmemir and Abrevaya (2007) asserted that ICT is reducing the cost per students and expanding the enrolments and makes the provisions for employers and supports enduring learners. Lalit bhushan S Waghmare, (2014) studied "Role of Information and communication technology in Higher education: learners perspective in rural medical schools". They concluded that there is a need to foresee the role of technology in education and take appropriate measures to equip the stakeholders for adequate and optimum application of the same. Uttam kr Pegu studied "Information and communication technology in higher education in India: challenges and opportunities" (2014). The study revealed that ICT enabled education will ultimately lead to the democratization of education and it has the potential for transforming higher education in India. Mahisa, Anju studied "The role of ICT in higher education in India" (2014). The study revealed that ICT play vital role as a strong agent for change among many educational practices.

According to Hossein Zainally (2008), "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 author has also quoted from other research work that there is an increase in managerial effectiveness and efficiency through usage of Information and Communication technologies. 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. Ashish Kumar and Arun Kumar (2005) highlighted the importance of Information Technology (IT) as a modern day techno-management tool that would benefit institutions of higher education in India. Gumala Suri (2005) reported that Spanish and Indian universities have been changing fast due to the development of new Information and Communication Technologies (ICT). The author has 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 (UNESCO, 2009) Olive Mugenda (2006) said ICT fosters the dissemination of information and knowledge by separating content from its physical location. 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:

- Timetabling
- Student admission and Tracking
- Financial Management
- Medical services
- Procurement and Store management
- Data distribution and management

ICT is used in maintenance of student and staff records and for communication and document management. Ashish Kumar and Arun Kumar (2005) have mentioned about the

positive perception towards the use of ICT in education. It is mentioned in the study that students of different universities reported the usage of ICT for communication and for on-line discussion forums. ICT 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 three major components namely, Student administration, Staff administration, and General administration. A theoretical model for Information administration has been formulated, and is depicted below:

5. Methodology

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 Methodology adopted involved the following:

- Item generation
- Content Validity
- Reliability test
- Criterion Validity
- Path Validity

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

Construct : Student Administration
Content : <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

Construct : Staff Administration

Content :

- 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

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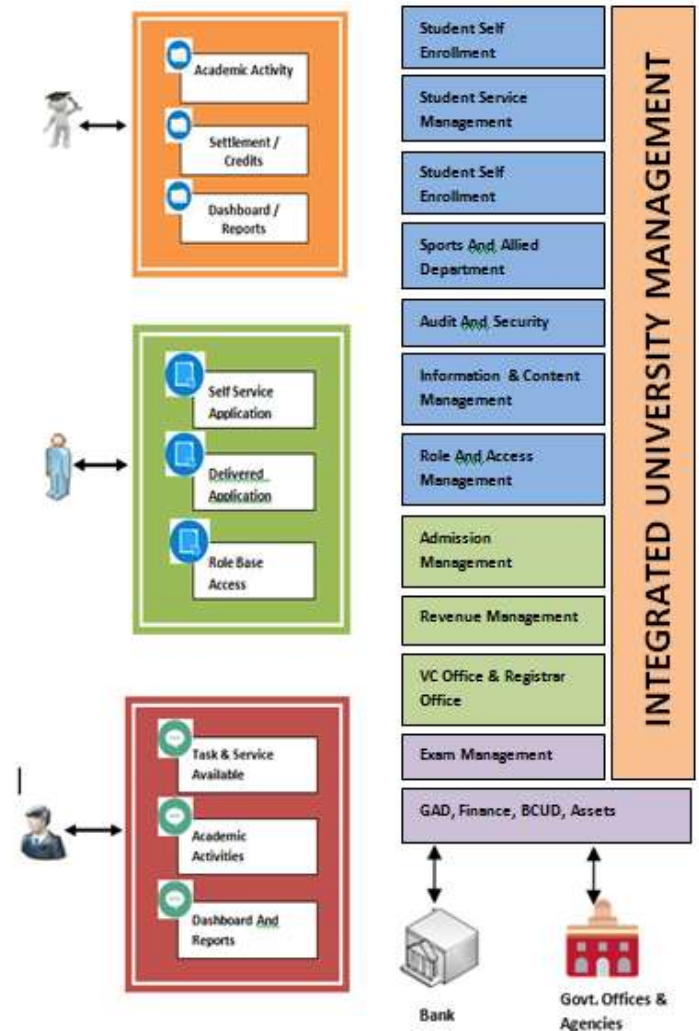
Information administration consists of three main components namely Student administration, Staff Administration and General administration with Communication as an integral part of these three components. The items that contribute towards all the three functional areas were carefully identified through 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 the respondents were classified into two categories namely 'Yes' and 'No' for the usage of technology in Information administration.

6. Theoretical Model

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. Based on the literature review the three main functional areas of information administration that are of great significance for day-to-day

management of higher education institutions was identified as follows:

- Student administration
- Staff administration
- 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. Based on the literature review, the important items identified under this category relates to the automation of admission process through e-media. 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. Staff administration includes recruitment and work allotment of faculty and staff in the institution, their attendance and leave management, and performance appraisal. This also includes relevant communication to and from the institutions and among peers. Staff administration done through Information and communication technology (ICT), helps in processing of voluminous records in a quick, meticulous, and impeccable manner thereby making data retrieval easier. In general, a good communication system should also be in place for the overall effectiveness of administration. ICT helps in providing a good communication system in higher education system. ICT helps in providing timely information to all concerned. Communication could be for internal and external information acquisition and dissemination. It includes communication between the important stakeholders of the system such as sending e-circulars to students, faculty and staff. The dissemination of information about the institution using e-kiosks is also a very important item to be considered. The relevant aspects of communication have been clubbed with Student administration and Staff administration for this research study. 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. 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.,

7. Findings

From the above analysis, ICT is used to display information about the university on its websites making it easy to showcase the university. Many Indian universities have website, used mainly to provide easy online access and information about the university, especially for students' intake. The findings also indicated that, Computers are extensively used for accounts-related, clerical and general administrative duties in the university. This finding is in consonance with the findings of Barta et al (1995) that, computers are used for effective educational administration, for financial records, word processing, examination processing, inventory records, students' records, and general administration. Also, in the statement of Aduwa- Ogiegbaen & Iyamu (2005), the demand for computer use is increasing in schools as computer enhances efficiency. He noted that schools now depend on computers for day-to-day activities.

Another finding was that, application and admission are conducted online and applicants can check admission status anywhere. According to Obeng (2004), ICT enhances the overall admission activities of higher education institutions making it accessible to many through electronic means. Online application and admission has also made travels to universities for admission unnecessary, and encourages cross-border high education. Many Indian university websites serve no other purpose than online application and registration.

A similar finding was that, registrations are also online, eliminating the hitherto method of long queues at the university registry. It was also indicated that, payment of fees are processed online, preventing fraudulent loss of money to students who would want to evade payments. Like online registration, also identified that, payment of tuition; hostel and other sundry fees are now carried out online, without the nightmare of queues. Generally, from the data presented above, admissions, registration, and fee payments appeared to be the major areas ICT has gained ground and impacted on administrative services/management of students' records in Indian universities. This collaborates the findings of OECD(2005) that, It seems that ICT has indeed had more impact on administrative services such as admissions, registrations, fee payments, and purchasing than on the fundamentals of classroom teaching and learning.

8. CONCLUSIONS

This study has identified a comprehensive set of functional areas of Information administration. Application of ICT has great influence on the administrative services/management of student's records in the universities. ICT produces effective, efficient and excellent services in university administration and management of student's records. Unfortunately, Indian universities are yet to take full benefits of these services. The main impacts of ICT on administrative services/management of student's records in Indian universities were discovered to include: use of website to display the university, use of computers for clerical and general administration, application and admission of students, student's registration and fee payments.

Analysis showed that the responses of students, lecturers, and administrators did not differ significantly on the matter. The study, however revealed that ICT has not made much impact in Indian universities, on many key administrative duties including; provision of online information and records of students, provision of online information about lecturers and staff of the universities, Online release of examination results, and assessments, Online access to transcripts and other documents of students, Online postgraduate application process, Online allocation of hostel / rooms to students Necessary actions should be taken to ensure that impact of ICT is also felt in these activities, for maximum efficient delivery in the administrative services of Indian universities. This study could serve as a base for education planers to deploy Technology based administration in higher education institutions

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