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## INNOVATION IN HIGHER EDUCATION ADMINISTRATION THROUGH ICT

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### ABSTRACT

*Higher Education is a complex, distributed system. Innovations in higher education administrative systems have been evolving over a period of time with the adoption of different methods and techniques to enhance efficiency. Technology can enable and drive innovation. The 21<sup>st</sup> century has witnessed rapid advancements in technology which has led to developments in the educational administrative system. The educational administration system of the present era is greatly influenced by ICT (Information and Communication Technology). ICT helps in performing various administrative tasks with ease through the usage of electronic media. This paper highlights the need for integration of ICT into various aspects of higher education administration and also depicts the current status of ICT integration in higher education administration.*

### KEYWORDS

Higher education administration, ICT.

### INTRODUCTION

Universities are compelled to be innovative and lead by example in using cutting edge technology to meet these expectations (UNESCO 2011). Innovation is the need of the day and it is required to improve practices and quality to respond according to changing needs of the users, adapt to changing environment, and to respond to new opportunities. Information and Communication Technology (ICT) plays a central role in bringing innovation and transforming higher education by offering unimaginable opportunities and demanding unforeseen responses (Koester 2011). ICT has become a vital component for the success of the entire educational enterprise. Information and Communication Technology is an amalgam of some wonderful inventions of the 20th century in electronics and communication. During a very short span of time it has acquired an important place in almost all aspects of human life and particularly in the field of education.

The purposes of ICT-based administration in universities were aimed to reduce labour, cost and time towards repetitive tasks, to promote the administrative efficiency, and to promote the quality of university management (P. Y. Chu, and Z. L. Wang, 2000). Unlike a traditional environment, an ICT-based system is not bound by rigid timeframes and location, but facilitates continuous improvement and brings a lot of flexibility into the system. ICT systems provide powerful tools to help in all aspects of the administrative work of educational institutions. Ralph Lombreglia in the technology quotes mentioned that "The proper response to digital technology is to embrace it as a new window on everything that's eternally human and to use it with passion wisdom fearlessness and joy". The administrative challenges inherent in an educational institution can be handled more effectively through ICT-based administration.

### INTEGRATION OF ICT IN EDUCATION ADMINISTRATION

Technology has changed the face of higher education (Appana 2008). At present, Information and Communication Technology (ICT) has become an indispensable tool for education administration. It is mainly intended to improve education access, so as to provide education for all. Some of the major benefits of ICT-based education system include the following: ICT helps in integrating all the activities of an education institution which includes admission, registration, payments, hostel, transport, library, human resource management (Chickering et.al, 1996). According to Means et.al (2001), ICT facilitates usage by multiple and heterogeneous set of people to disseminate and accumulate information.

ICT thrives to achieve transparency in the entire system and also provides reliable and relevant information irrespective of the geographical barriers. Education administration includes both teaching-learning process and also the various administrative tasks pertaining to this process. The various areas where ICT is integrated in the educational systems are presented below.

### VIRTUAL LEARNING (E-LEARNING)

It is a transition from the traditional mode of learning to a virtual learning environment, enabling reduction in the barriers to knowledge acquisition. In an e-learning scenario, the pace of learning can be tuned to the individual's needs. The content can be accessed irrespective of time or location. Another benefit of e-learning is the standardization in the delivery of course content. Hence, if e-learning is effectively implemented, the delivery of knowledge can be efficiently done across widely distributed locations. The evaluation for the quality of online teaching methods for a particular course or entire curriculum includes the following: Interactivity, modularity, collaboration, learning styles, faculty involvement, support services, libraries, student services, assessment of learning etc.

### VIRTUAL LIBRARY

In this era of information explosion, newer challenges are faced in having access to vast information that is widely distributed. This has led to the development of a Virtual Library or e-library. It is a transition from the traditional mode of laborious searching and gathering of information to a quick online access to storehouses of knowledge. This has been facilitated by the development of technology for obtaining information in a networked environment. The key benefits of a Virtual Library (e-Library) include availability of access to books irrespective of location or time.

### TEACHING –LEARNING PROCESS

ICT-based teaching-learning process was mainly introduced to enhance the delivery of contents and to improve the skills of learners and prepare them for the global economy and information society (Haddad and Draxler 2002, Kozma and Wagner 2005, McNamara 2003, UNESCO 2002). Teaching-Learning is a life-long process which can be significantly enhanced through the appropriate use of emerging ICTs (Bureau of Public Information, UNESCO 2008).

According to Whitworth and Berson (2003), ICT-enabled education has the potential to promote the development of students' decision-making and problem solving skills, data processing skills, and communication capabilities. ICT plays a major role for dealing with information and its transformation into knowledge, which is a basic requirement for citizens to become effective participants in this new scenario (Venezky and Davis 2002). Jarvis et al (2007) concluded that ICT-based learning encourages a wider range of learning styles through visual and kinesthetic approaches to learning thereby facilitating personalized learning and assessment. According to Kozma and Johnson (1992) educational problems seem to be responsive to technological innovation, faculty role, and organizational arrangements that facilitate adoption to new technologies and maximize impact.

ICT can be integrated into various activities of knowledge delivery, knowledge accumulation and evaluation. Some of the areas of ICT integration include the following: Using power point slides for delivery of lectures, Clarification to queries of students through e-mail, Usage of computers for explaining better in the classroom, Usage of technology for increasing creativity in teaching, Encouragement to students to send their doubts / queries by e-mail or post into discussion boards, Conduct of on-line tests and on-line quizzes, Electronic processing of results and performance analysis of students, and Internet browsing to supplement book information.

**GENERAL ADMINISTRATION**

The integration of ICT into general administration has brought increased efficiency and optimal resource utilization (Hasan et al 2007). Information and communication technology (ICT) helps in processing of voluminous records in a quick, meticulous, and impeccable manner thereby making data retrieval easier (Thomas Kwaku Obeng 2004). The various aspects of ICT integration into general administration are presented below.

Information Kiosks (e-Kiosks) can be used to disseminate information to the public on various aspects. Details about an educational institution, course information, administrative policies and procedures, etc. could be displayed on the e-Kiosks. Communication with staff using e-media, Electronic Circulars (e-Circulars) is an important aspect of e-administration and can be used to establish a paperless office in an educational institution. The activities of creation of a circular, review of the contents, storage in a secured repository, dissemination of information, and acknowledgment can be achieved using e-circulars.

Electronic bulletin boards (e-bulletin boards) can be used and its function is similar to that of a physical bulletin board available in an office, or university. In the case of information sharing through e-bulletin boards, messages are sent by users through e-mail. These messages get displayed on the electronic bulletin board for view by other users. An electronic newsgroup (e-newsgroup) is the Internet equivalent of a bulletin board. It facilitates exchange of information, ideas, and views, ideally regarding a specific subject area. Since people can interact in real time on a topic that is mutually interesting, it can be considered to be the electronic equivalent of a radio chat show. The availability of a private bulletin board across the intranet in an organization / institution can be used to facilitate intra-office communication. It can enable sharing of views and ideas on multiple company-related aspects among the employees belonging to the various departments. When data or information is exchanged electronically, the reliability of exchange of such information is higher, and is also more efficient and cost-effective.

An electronic identification mechanism to capture information electronically like ID cards with barcode can be used and lot of data entry on every day basis can be avoided. It can also be linked to an attendance recording system, to enable employees to swipe in the cards at the time of entry and exit. Electronic identification is getting more evolved by means of usage of fingerprint, voice, and signature identification techniques. An electronic identification mechanism reduces labour costs, and increases the accuracy of information as well as efficiency in usage of personnel, time and materials.

Automation of attendance and leave management of staff members in the institution, Usage of computers for student registration / enrolment, Usage of computers for maintenance of attendance of students, Communication of academic details of students to their parents / guardians through e-media, Facility for students to make fee payments electronically can be achieved so as to enhance the flexibility and transparency of the overall system.

**RESEARCH METHODOLOGY**

The methodology comprises instrument development and validation, sampling, data collection, and data analysis. Literature review was done to know the various areas of ICT integration in education administration. A questionnaire was prepared and administered based on the identified areas to know the extent of current integration. The Questionnaire consisted of two parts namely Part-A and Part-B. The Part-A questionnaire was administered to Faculties and Part-B to staff and administrative personnel. The sample size comprises 51% of the total population.

**ICT INTEGRATION – PRESENT SCENARIO**

The key objective of this paper is to highlight the present scenario of ICT integration in the above mentioned areas of higher education administration. A survey was done to know the extent and areas of ICT integration in AICTE approved institutions in Karnataka. Region-wise comparative analysis was also done.

**ANALYSIS AND INFERENCES**

The various demographic factors considered for this study includes age, gender, institution type, years of existence of the institution, name of the university, region in which it is located, designation of the respondents, years of experience and the approximate number of students. An analysis was done to measure the impact of demographic factors and it is observed that most of the demographic factors did not have any statistically significant difference with the areas of ICT integration. However, there was some statistically significant difference observed in only two of the demographic factors, namely, years of experience of the individual and type of institution. Even in these cases, the statistically significant difference was observed only in the functional area of general administration.

The largest extent of usage of technology was found to be in the area of Virtual learning (75.8%) followed by usage of ICT in teaching –learning process (65.1 %). This reveals that technology has been deployed to a large extent in the delivery and evaluation of knowledge and also in the acquisition of knowledge. The study also revealed that ICT integration into library services, mainly Virtual library systems has a large scope for enhancement since the current utilization is only 54.2%.

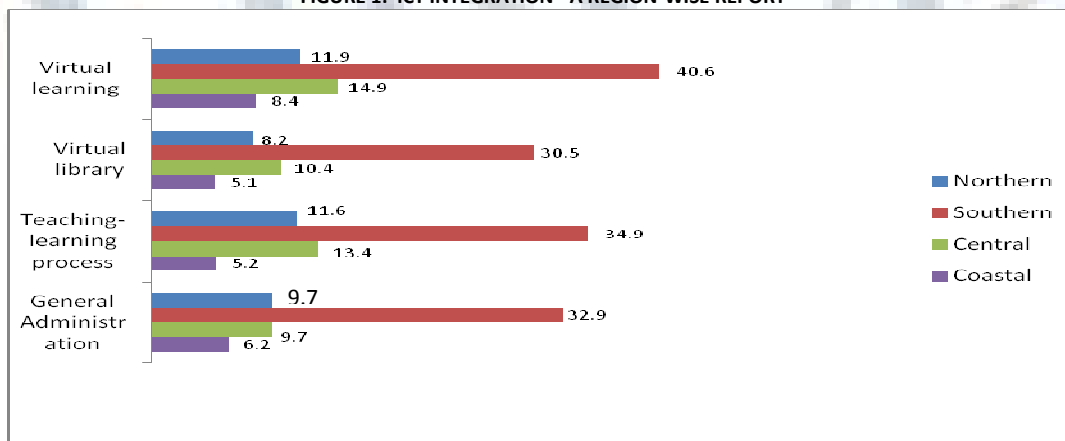
The current utilization of ICT into general administration is found to be 58.5%. The study also revealed that the ICT integration is more into the sub-functional areas like admission process rather than regular administrative tasks.

The region-wise report depicted below (Table1) depicts the present utilization in the four regions of Karnataka state. The analysis reveals that Southern region records the highest utilization of ICT in all the functional areas and the Coastal region recording the least.

**TABLE 1: ICT INTEGRATION - A REGION-WISE REPORT**

	Northern	Southern	Central	Coastal	Total
<b>Virtual learning</b>	11.9	40.6	14.9	8.4	75.8
<b>Virtual library</b>	8.2	30.5	10.4	5.1	54.2
<b>Teaching-learning process</b>	11.6	34.9	13.4	5.2	65.1
<b>General Administration</b>	9.7	32.9	9.7	6.2	58.5

**FIGURE 1: ICT INTEGRATION - A REGION-WISE REPORT**





This analysis reveals that the usage of ICT in the southern region is relatively more in all the functional areas. This is mainly due to the presence of major IT cities in this region. The awareness, technological availability and access to these facilities are interpreted as probable reasons for the more usage. The Central and Northern regions follow next in the extent of usage respectively. Usage of ICT is low in the Coastal region in almost all the functional areas. There is a large scope for improvement in this region wherein more awareness needs to be created by highlighting the benefits of ICT integration.

## CONCLUSION

The above applications indicate how ICT is being adopted for enhancing effectiveness and efficiency of the higher education system. This study clearly reveals that there exists extensive scope for complete transformation of the processes to an ICT-based system. With the proliferation of Internet and computing technologies, ICT is bound to stay and to evolve as we move into the future.

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