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Research Article

A STUDY OF USE OF INFORMATION TECHNOLOGY AND COMPUTERIZATION IN HIGHER EDUCATIONAL INSTITUTIONS IN PUNE CITY

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ABSTRACT
Today, the higher education across the world is going through drastic changes as a result of computerizations. Computerization and information technology (IT) have enriched the learning and teaching process at various levels in higher education. The objective of this study is to highlight the use of IT and computer by faculty members in Higher Educational Institutions. This study also highlights the academic functions which are influenced due to computerization.

Keywords: *Computerization, Higher Educational Institutions, Academic Functions*

INTRODUCTION
The rapid changes taking place in the field of education are the consequences of various types of electronic information and communication technology (ICT). Computer technology which needs to be applied in educational sector can help to remove inequalities between the institutions of developed and developing countries, between inner cities and suburbs and between urban and rural areas.
Universities, colleges and other higher educational institutions are using computer and IT for teaching and learning activities; today, computer has become an integral part of education at all levels. Students of engineering, medical, science, commerce, management etc can derive benefits from computerization. Computerization has a considerable potential to enhance teaching, and provide a better learning environment in particular when, the unique capabilities of computer are adequately in the process of computerization.

Significance of the Study
In many higher educational institutions, computers are being used in various academic programmes and its benefits have accounted. The study examines the impact of use of major - areas of using IT/ computer by faculty members, barriers existed while adopting computerization and to understand the opinions of faculty members about its impacts on academic activities, the study also - describes the overall scenario of computerization in higher educational institutions, as well as the major barriers, existed in the computerization.

Review of Literature
Singh (2002) has discussed on the computerized training models used in the higher education and opportunities for implementing information technology to enhance higher education. Specifically author has identified that computer based learning models enhanced the delivery of learning materials by embedding a structure into a learning process are rated in the objective rather than collaborative model.
Mahajan (2012) has highlighted the various aspects of need and use of computer in higher education in the Indian context by discussing the role, use, requirement and barriers in computerization of higher educational intuitions. Author has described the practical steps for aligning information on technology and computerization with higher education. Author has also presented an overview of computer technology enabled flexible education and development, and compares the traditional and the new learning environment.
Ignacimuthu (2005) has opined that, it is necessary to provide educational opportunities for faculties, researchers, and students in the effective use of high performance computing for the exploration of

scientific problems. Author has suggested that, workshops should include lectures on system features, optimization, introductory and advance topics in scalable parallel computing and visualization.

Thakore (2013) has opined that, the implementation of a variety of lessons to address the students in the classroom is limited to the amount of resources available to the teacher; technology is a tool that can be used to improve classroom instruction.

Through the study author has also discussed on the barriers in the implementation of computer system in the education process.

Venezky (2009) has examined the factors affecting the successful implementation of innovative pedagogical practices using computer and information technology within higher education institutions. In the opinion of author, in spite of the all elevated implementation pace of information technology infrastructure in the higher educational system, including connection to the internet majority of higher educational institutions and universities in developing countries, are only at the beginning of a long process.

Schofield and Davidson (2002) stressed the need for computer based technology in higher education and higher educational institutions in India. Authors have stated that, computer based technology could play a major role in solving educational problems and preparing the nation's workforce to be competitive in the global economy, therefore, computerization is essential to effective administration of education. Author has also highlighted some barriers in the computerization of higher education in the Indian context.

Objectives of the Study

i. To highlight the major academic areas of using computers information technology in the selected educational institutes.
ii. To study the major faculty areas of using computer/ information technology in the selected educational institutes.
iii. To study the opinions of faculty members about the impacts of computerization on administrative, academic activities in the higher educational institutions.
iv. To study the opinions of faculty members about major academic functions impacted due to computerization and information technology.
v. To analyze the barriers in the system of computerization facing by the selected higher educational institutions.

MATERIALS AND METHODS

Research Methodology

The study is - exploratory in nature. The primary data has been collected from faculty members of higher educational institutions. Questionnaire was used as a major tool. Method and observation method were used to study the current status of computerization in selected higher educational institutions situated in Pune city. For this purpose, 112 higher educational institutions related to management, commerce, science, technology etc were selected by using convenient selection method.

Selection of Sample

In total sample of 112 higher educational institutions was selected from Pune city. The following table shows the details of the selected sample.

Nature of Higher Educational Institute	Number of Institutes
Arts, Science and Commerce college/ degree colleges(graduation and post-graduation colleges)	43
Management Institutes (Business management, computer management, hotel management)	43
Technology Institutes (Engineering institutes)	03
Other Higher educational institutes (Social Science)	20
Total	112

One faculty members each from the 112 higher educational institutions has been selected with a view to collect primary information about computerization of higher educational institutions. The collected primary data from faculty members has been analyzed by using percentage method.

Period of Study

The present study highlights the impacts of computerization on academic and administrative functions of higher educational institutions, during the last 10 years (i.e. from 2005 to 2015) only.

Limitations of the Study

The result of the study is bound to be affected due to the following limitations:

i. The study is limited to the selected higher educational institutions situated in Pune city only, therefore, the result of the study cannot be generalized to the other higher educational institutions situated in other cities of India.

ii. Some biased responses existed whilst filling up of questionnaire from the faculty members. However due care was taken to ensure the accuracy of primary data collected from faculty members.

RESULTS AND DISCUSSION

The collected primary data has been presented in a tabulated form as follows:

Table 1: Major Academic Areas of Using Computer/Information Technology Multiple Response

Academic Areas	Numbers of Higher Education Information	Percentages
Teaching	110	98.2%
Pedagogy	83	74.10%
Research	66	58.92%
Statistical Analysis	72	64.28%
Literature Search	52	46.42%
Report Generation	71	63.39%

From the above table it is revealed that, in majority of higher educational institutions (98.21%), teaching is the major academic area in which computer/ Information technology is using in 74.10% higher educational institutions information technology is using in the activities related to pedagogy? These academic areas, information technology and computer system is used in research (58.92%), statistical Analysis (64.28%), literature search (46.42%) and report generation (63.39%). This indicates that, interplay of technological developments and also socio-economic changes, which have had a great impact on the education sector. The collected primary information shows that, the Indian higher educational sector has already begun to change the process of teaching and learning, pedagogy, research etc. the existence of internet and World Wide Web (www) provides information with speed and economy with no limits of time and boundary. Today, computer based technology has brought revolution in higher education, and research by providing new opportunities and challenges in creation and dissemination of information. The challenges are to ensure the framework within which they are developed is adequate for the achievement of educational objectives.

The following table indicates the percentages of major faculty areas in which computer based technology is using to a great extent.

On the basis of collected primary data, it is management area (38.39%) and arts, science and commerce areas (35.71%). A part from this, sociology, engineering (5.35% and 2.67% respectively) etc. by providing useful information with user friendly aspects. With the help of computer technology, it has become very easy to -to use any kind of information, visual presentation, self-learning, data analysis, graphical designing and drafting etc in all above stated faculty areas. It is also found that, the Agricultural degree colleges, educational degree colleges (17.85%) are also using computer technology in their teaching and learning process.

Table 2: Major Faculty Areas of Using Computer/Information Technology

Faculty Areas	Numbers of Higher Education Institution	Percentages
Sociology (MSW, BSW etc.)	06	5.35%
Arts, Science, Commerce (B.com, B.sc, B.A)	40	35.71%
Management (MBA, MMM, DBM, MCM)	43	38.39%
Technology (BE, ME and Diploma course)	03	2.67%
Other faculty areas (Agriculture, Education, Economics etc.)	20	17.85%
Total	112	100%

The following table highlights the opinions of faculty members regarding the impacts of computerization and information technology on the academic and administrative functions of higher educational institutions.

Table 3: Impact of Computerization and Information Technology on Academic and Administrative Functions (Opinion of Faculty Members- Multiple Responses)

Opinions	Numbers of Higher Education Information	Percentages
Computerization & IT have increased productivity in educational process	112	100%
Computerization & IT have achieved quality in teaching and learning process.	97	86.60%
Computerization & IT have improved the administrative functions of institution	102	91.07%
Computerization has helped to provide individualize instructions as per the needs of students	83	74.10%

Computerization and information technology have increased overall productivity in educational process. According to 91.07% faculty members, due to computerization and use of information technology, the entire administrative functions of institutions have improved. 86.60% have opined that, there is a great achievement in the quality of teaching and learning process; and 74.10% faculty members have opined that, computer based technology has helped to provide individualized instructions as per the needs of students.

It is observed that, majority of faculty members of selected higher educational institutions, are in favor of computerization and implementation of information technology the academic and administrative functions of higher educational institutions. This shows that, computerization has enhanced their imagination, efficiency in the process of teaching and in the process of logical thinking.

By utilizing simulation with suitable animation and graphics complicated situation can be illustrated for improving grasping power; and this create a good positive impacts on the creativity of teachers and students as well.

The following table indicates the opinions of faculty members regarding the major academic functions impacted due to the computerization and information technology.

Table 4: Major Academic Functions Impacted Due to Computerization and Information Technology (Opinion of Faculty Members- Multiple Response)

Impacted Academic Functions	Number of Faculty Members	Percentages
Access of Information	112	100%
Visual Access	112	100%
Self-Learning	96	85.7%
Data Analysis	112	100%
Graphical Designing and Material	78	69.64%
Preparation of Study Material	97	86.60%
Programmed Learning	82	73.21%

In the opinion 100% faculty member's information areas, visual access and data analysis are the most positively impacted academic functions. In the opinion of 85.71% faculty members self-learning is the major academic function positively impacted due to computer technology. 69.64% faculty members have opined that, graphical designing and drafting is positively impacted by computerization; and 86.60% and 73.21% faculty members respectively opined that, preparation of study materials and programmed learning are positively impacted due to adoption of computer technology by their higher educational institutions.

Table 5: Barriers in the Computerization System

Barriers	Numbers of Institutions	Percentages
Higher cost of installation/maintenance	23	20.53%
Lack of adequate space	17	15.17%
Unavailability of hardware and software	03	2.67%
Lack of skilled persons/system Analysis	07	6.25%
No any barriers	62	55.35%
Total	112	100%

It is observed that, there are certain barriers in the computerization system. As per the collected primary data, 23.53% higher educational institutions are facing the problem of higher cost of installation and higher cost of maintenance of computer system. 15.17% institutions are facing problem of inadequate space for installation of computer system. 2.67% and 6.25% higher educational institutions are facing the problems of unavailability of hardware and software and the problem like lack of skilled persons or system analysis respectively. Majority of institutions (55.35%) are not facing any problem or barriers in the computerization system.

Conclusion

Computerization of the higher education seems very much encouraging in the selected higher educational institutions. Through the observation it is found that, some of the selected institutions are using computer based technology since the last two decades. The computerization of higher education and higher educational institutions has not only changed the way of teaching but also the way of students learning as well as fundamental change in the administration and individuals involved in it.

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