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ROLE OF INFORMATION TECHNOLOGIES IN TEACHING AND LEARNING PROCESS: Perception of the Faculty

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ABSTRACT

Information technologies have affected every aspect of human activity and have a very important role to play in the field of education and training, specially, in distance education to transform it into an innovative form of experience. Various problems which arises to the students during the traditional teaching method. The need of new technologies in teaching and learning method grows stronger and faster. The information age becomes an era of knowledge providing suitability for discovery, exchange of information, communication and exploration to impower the teaching learning method so that students can explore their ideas and can help in creating innovative ideas.

Information technologies help in raising opportunities of knowledge sharing throughout the world. These can help the teachers and students having up-to-date information and knowledge. Accurate and right information is necessary for effective teaching and learning method and information technologies are the set of tools that can help provide the right people with the right information at the right time. Students are independent and they can make best decisions possible about their studies, learning time, place and resources with the help of using information technology. Students are able to work in collective and interactive learning environments effectively communicating, sharing information and exchanging ideas and learning experiences with all in the environment.

Keywords: *Information technologies; teaching learning process; computers; knowledge explosion; media; distance education.*

INTRODUCTION

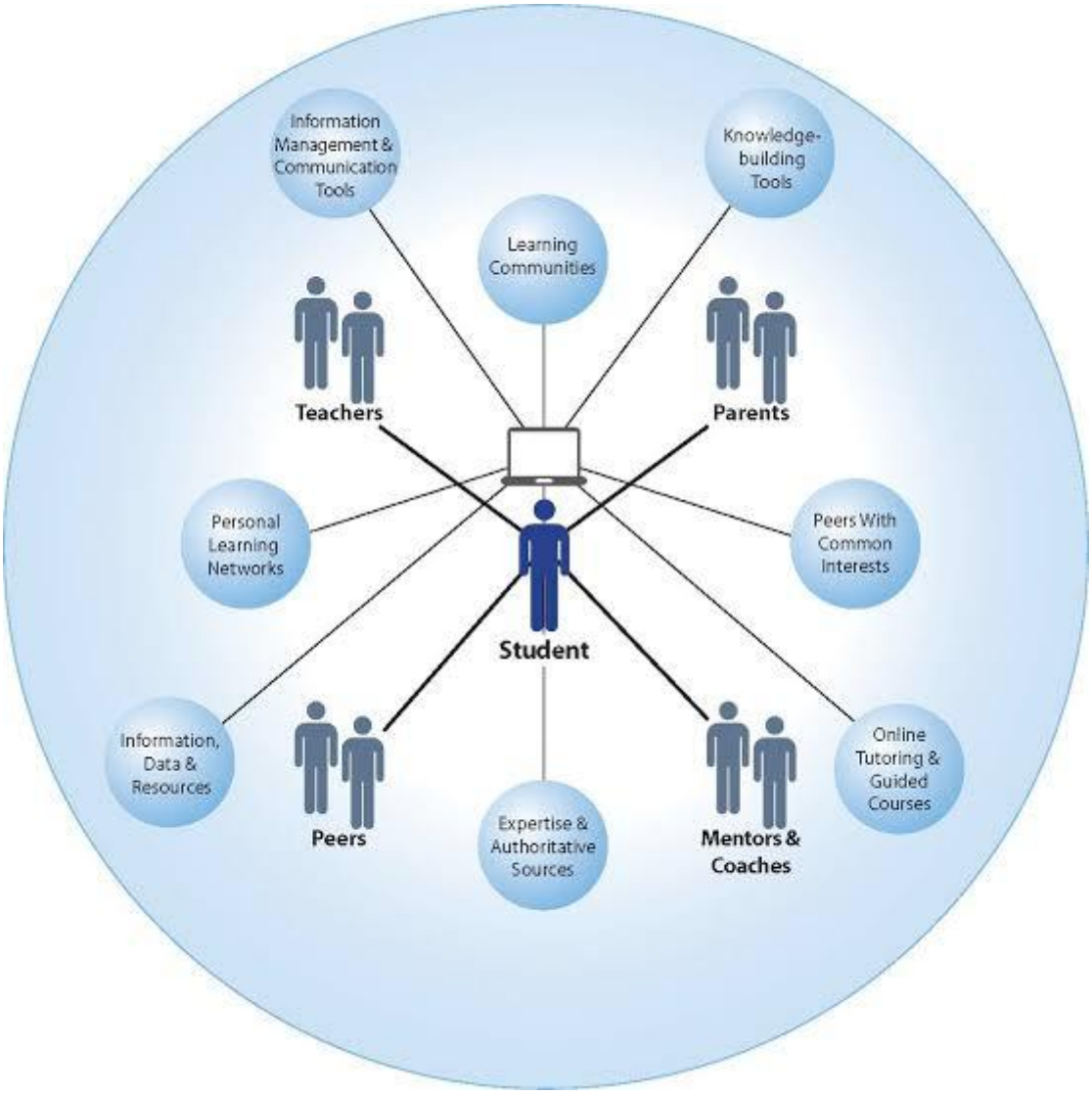
One of the basic functions of education is preparation of students for life. This function in 21st century may be participation in an information rich society, where knowledge is regarded as the main source for socio-cultural and politico-economical development of countries and/or nations. Information rich societies are developed and dominating and they are controlling the information throughout the world. Information surrounded and depends on the use of different channels of communication, presently called information and communication technologies and would be include better pedagogical (related to teaching) methods to manage with such arising situations.

These have changed the structure of education particularly, teaching method and instruction making teaching learning process more productive creating collective, learner centered and interactive global learning environments. Therefore, information technologies are assumed to play a positive role in

education to make the teaching and learning process more productive through collection in an information rich society.

Information rich society forwarding new practices and pattern for education where the teacher has to play new role of advising, coaching and helping students in their studies rather than to play the conventional (traditional) role of spoon feeding in the classrooms. Students can learn independently having a wide choice of programme selection and access to information. Students can be involved in skill oriented activities in group learning environments for accumulated knowledge. They can interact and share learning experiences with their teachers and fellow learners in knowledge construction and circulation process. They can receive and use information of all kinds in more constructive and productive profession rather depending upon the teacher.

Now students can learn much more than that the teacher teaches in conventional learning environments. For productive teaching learning process teachers and students have to use information technologies according to their requirements and availability.



INFORMATION TECHNOLOGIES

The history of information storage and distribution indicates that human being used different things for information storage, its display and transmission. In different ages people used different materials and methods for communication such as rocks and stones, papyrus, palm leaves, animal leather and handcrafted manuscripts for storing and transmitting the information from one place to another and to the next generation. These means of information were limited and confined to the best but "the arrival of printing enabled information to be truly widespread throughout the world to move to a more balanced level in terms of access to knowledge" .

At present, knowledge may be regarded as power and it comes from having information. Information surround and depend upon the use of different communication channels or technologies –called information technologies, for its effectiveness and equal access. Information technologies may enhance knowledge beyond the geographical boundaries of a state or country providing relevant information to the relevant people round the clock.

Information Technology "is any computer-based tool that people use to work with information and support the information and information processing needs of an organization" . It includes computers and its related technologies; WWW, Internet and Videoconferencing etc. Information technology can be used to forward the opportunities of knowledge spreading. It can help the teachers and students having update information and knowledge.

Accurate and right information is necessary for effective teaching and learning; and information technology is a set of tools that can help provide the right people with the right information at the right time.

In this sense, information technologies may the result of knowledge discharging, "computer technology (software) extends the mental ability." Therefore, information technologies may include computer and its related technologies of high tech and low touch nature.

These include wireless communications, the information highway, asynchronous mode, integrated services digital networks (ISDN), multimedia applications, personal digital associate (partner), artificial intelligence and virtual reality. These technologies would be big of brain and small of mass, depending upon computer technology for their effectiveness and increased capabilities. Similarly, discussed the interactive video, CD-ROM, compact video disc, Internet, WWW, teleconferencing, computers, satellites and e-mail as emerging information technologies, and according to him these are "current technologies incorporating into the teaching learning environment [process]" .

INFORMATION TECHNOLOGIES AND TEACHING LEARNING PROCESS: Making Students Independent in their Studies

Using information technologies students can decide about their studies, learning time, place and resources in a better way. Students can work in more supportive environments, try to help from teachers and fellows, and share their learning experiences and ideas in romantic and productive fashion.

The development of high performance computing and communication is creating new media such as the WWW and virtual realities. In turn these new media enable new type of messages and experiences, such as interpersonal interactions in immersive synthetic environments lead to the formation of virtual communities. The innovative kinds of pedagogy empowered by these emerging

media and experiences promoted the opportunities of distance education and at present virtual education and eliminated the barriers of distance and time. New and innovative learning experiences would be enhanced and encouraged by these technologies, as by virtual communities, which exist by interactions across the globe through global network of computers round the clock. The global sharing of experiences would make possible the group presentation form of instruction in distance education. Distance education surrounds and depends on the use of information technologies to make learning more productive and more individualized, to give instruction a more scientific base and make it appropriate & more effective, learning more immediate and access to resources more equal. These important features can expand the quality and quantity of instructional resources. They can benefit for learners at their ease in terms of time and place.

- Both teachers and learners can work with others at distance area.
- The community of learners can expand to include virtually anyone who wishes to obtain information and who is not excluded by policy or cost.
- They can provide real access to experts in universities, research laboratories, the business community, government agencies and political offices.

Information technologies can encourage the opportunities of organizing the teaching learning method.

These can transform teaching and learning by offering alternatives to the teacher provided information, access to virtually unlimited resources and opportunities for real world communication, collection and competition.

- " developing awareness and understanding– recognizing that something is wrong or different;
- exploring alternative–researching for new ideas from other institutions and allowing that change is needed;
- making a transition–leaving the old approaches behind (or dramatically changed);
- achieving inclusion-putting the pieces from the transition phase back together; and
- taking action-putting new ideas into operation".

The process can work at instructional programme or institutional level and one or more phases work simultaneously. Traditional lectures and confirmation can become web based multimedia learning experiences for distance learners. Web can enrich the learning resources and institutions refocus from teaching to learning, from teacher to learner. It can create learning environment throughout the world by networked learning communities. Networks may create educative environments embedded in popular philosophy of instruction and helping learners learn. The characteristics of which are:

- "respect for personality;
- participation in decision-making;
- freedom of expression and availability of information; and
- mutuality of responsibility in defining goals, planning and conducting activities and evaluating [the process]" .

Learning may take place more effectively and continuously in educative environments where teacher and learners are open to each other to interact and exchange information and experiences in a friendly way. "Openness on the part of instructor increased their [learner's] desire to discuss problems or topics of interest… these discussions expanded their [learner's] understanding of the content and

assisted them in planning the information within a relevant context in their own lives". Educative environments can enhance and shape the teaching learning process to achieve the desired goals. There is a natural tendency for students to learn and learning can faster, in interactive and encouraging environments. Accelerating the encouraging environments may be psychological climates and students' interactions can create them. Interactions of students can make learning environment more effective and meaningful and 'much of learning takes place in a meaningful environment'. Learners may get immediate feedback and increment through web-based learning.

The psychological fashion of such increment and hope also influences the important for any given behaviour and/or learning to occur. Desired learning always requires access to qualitative and latest information resources and web confirms the increased access to such resources at students' step. "there is no opposing that web-based courses open new educational access to the non-traditional and geographically scattered students. The online setting provides a level of adaptability and convenience not provided by traditional classroom courses".

Internet and WWW provide learners latest applicable information at their own pace and they can form a virtual community of learners at global level. Teaching organizations are adopting information and communication technologies specially the computers, World Wide Web, teleconferencing and educational television because of their cost effectiveness, access and adaptability of choices.

For what purpose students use Information Technologies :

1. Participate in a media change, deeply affecting the way they think about and use information technologies.
2. Improve the ways of learning in new learning fashions
3. Extend the ability and skills of applying their learning in real situation.
4. Working in groups for cooperative and collective learning
5. Developing self-learning habits at their own step and time.
6. Learn with the teacher rather by the teacher.
7. Develop asking-learning habits.
8. Use right information at right time to achieve right objective.
9. Review and explore qualitative data.
10. Exchange learning experiences and information with others students and teachers living anywhere in the world.

Information technologies facilitate students in their learning process through their active participation on one hand and help teachers on the other hand. Therefore,

Why Teachers Use The Information Technologies :

1. Present the material in more interesting and attractive way.
2. Guide and help students in searching the qualitative material.
3. Make best use of time.
4. Coach the students.
5. Provide individualized instruction.
6. Direct the students toward cooperative as well as collective learning activities.
7. Prepare learning material for students, rather teaching in traditional situations.

8. Identifying the learning problem of students and help them to overcome.
9. Solve the study problems of students.

Information technologies provide the opportunities of global interactions. Students can learn from interactions with the information, interface, teachers and co-learners using global networks. They can interact at their own and get clear of their routine work. They may review and enhance the qualitative as well as quantitative data trough computer networks. They can work on group projects participating in survey learning and knowledge building activities. Under the effect of information technologies, teaching and learning occurs in a changed situation. There seems a shift from teacher centered teaching to student centered learning. These shifts put greater importance on the activity of the students than on that of the teacher's. These include:

Shifting lecture and performance to coaching Students learn by interactive technologies and teacher facilitates them on how to use and reflect responses. He/she may be identifying learning problems and helping learners to find their solutions. When students work with information technologies, teachers reduce the time they spend directing students; they spend more of their time facilitating student learning.

Shifting whole-class instruction to small group instruction

Students progress at different rates and step in their learning process. Teachers can interact with individual students and in small groups. They can become better informed of the individual student's progress and problems in their learning. So they can help and facilitate students individually in more effective way.

Shifting from working with better students to working with weaker students

Individual differences exist among students at all levels of learning. Information technologies enable teacher to cope with this problem in large classes working with individual students and in small groups. The teacher is then able to aim instruction at one specific target group and to devote time to those who mostly need help.

Shifting from all students learning the same things to different students learning different things

Traditionally, all students had to learn the same things what the teacher intended to teach them in a class. However, now the situation has changed and the use of information technologies has enabled the students to learn what they need, and what they want to learn.

There also exists individuality in some common attainments. Resources for learning are available through information technologies, it becomes possible for students to identify and use the appropriate information to achieve the goals under the gaurdianship of teacher.

Shifting towards more engaged students

Traditionally, majority of students is passive listener in the classrooms for most of the time. Teachers carry on delivering lectures without any concern of students' participation in the teaching learning process. Use of Information technologies in classroom situation particularly interactive technologies however; ensure attention and active involvement of students.

Well-designed computer-mediated instruction is more likely to engage individuals for effective learning than simple lectures and book reading a classroom.

Shifting from assessment based on test performance to assessment based on products and progress

Capability and skills are necessaries to live a successful and productive life. These may result from undertaking creative projects rather than repeating or rewording information from lectures and textbooks. The best projects include practical tasks that generalize the student's learning and its application in new situations. Information technologies actively involve the students in different ability based activities through skill oriented projects in real situations.

Shifting from competitive to a cooperative goal structure

Collective and cooperative learning approach provides learners the opportunities of great interaction. Students have access to extensive databases and share their own work through networked communications to work on collective projects. Teachers guide the students on how to share and interact in networked collective learning environments.

Shifting from the priority of verbal thinking to the combination of visual and verbal thinking.

Using information technologies students would have huge experience with video than with print, yet instruction is based primarily on print. However, visual literacy is poorly understood and poorly utilized in perceiving instruction. Teachers need to consider what capacities for visual knowledge and skills students should possess, and determine how they can ensure progress towards developing these capacities.

Information technology can help the teacher on the one hand and facilitates the learners on the other hand. Both, teachers and students get clear of their routine work, and have to play their new roles in new situations respectively. Teachers spend much of their time in helping the students rather lecturing; and students access the information of their need.

NEW SITUATIONS AND NEW DEMANDS

In the age of information technology, effective and efficient learning is potentially possible at all levels for all round the clock. Content-centered presentation by teachers to large groups of students can not have any justification to be governing method of instruction.

In the age of information technology teachers will be spending more time in facilitating students rather delivering lectures in the classrooms. They would be working in groups; preparing and evaluating instructional materials and organizing data into meaningful information and accessible forms. They will be spending their time in coaching students; helping them to learn through reviewing the great information. They will be offering group presentations.

Presentations will not be used to provide new information rather, presentation will be carefully constructed to model and answer existing questions and solve current problems in certain disciplines. They will also be demonstrating the impotance of skill development in students by using information in problematic situations.

PREPARATION FOR THE AGE OF INFORMATION TECHNOLOGY

Certain skills capabilities of using different information technologies are necessary for students as well as teachers. Therefore, measured experience with the technologies are necessary to prepare themselves for the age of information technology. They will expect in the age of information technology as:

- Requiring students to use electronic databases in their searches.

- Encouraging students to use electronic mail to ask questions, and for submitting assignments.
- Becoming familiar with the advantages and disadvantages of the technologies and exploring the capabilities of compact-disc read-only memory (CD-ROM), tele/videoconferencing etc.
- Surveying students about their familiarity with the information technologies and asking if they will share their knowledge and skills with the class.
- Using a word processor to develop class notes and editing a version to use as students' handouts and a version for overhead transparencies.
- Using computer programs for keeping records in large class-enrollment lists, test items and so on and having students review and update their own record from time to time.
- Using different packages for data analysis ¾ Encouraging students to include visual elements as part of their projects.
- Spending students' time as a multimedia workstation, planning a presentation; assembling projection graphics, video clips, animation, sound and other materials; trying to match particular materials with specific learning objectives; and integrating the materials into a unified presentation.
- Eliminating and/ or minimizing physical problems arising from the use of information technologies.

CONCLUSION

Information technologies are the result of knowledge explosion. These include hardware & software technologies and facilitate teaching learning process. Using Information Technologies learners are now able to participate in learning communities throughout the world. They are independent and free in choice of their programmes of study and access to the resources. They may learn collaboratively, share information, exchange their learning experiences and work through cooperative activities in virtual learning communities. Information technologies facilitate teaching learning process in more productive fashion. Similarly, the role of teacher is also different in new settings than in the conventional system. Teacher facilitates and guides the learners in their study playing the role of a coach or mentor. Now teacher is not at the centre of the instruction and sole source of information as in conventional classrooms. He/she decides contents/experiences and/or activities, locates the resources and guides learners how to have access and utilize the information for required outcomes. In nutshell, information technologies are restructuring teaching learning process to meet the International standards.

ACKNOWLEDGEMENT

There was an early acknowledgement that technology should not necessarily involve radically different thinking about its role in the teaching/learning process than that afforded to any other teaching innovation. The same general educational principles should apply. However, educational technology does afford us with a greater variety of strategies for teaching statistics. Moreover, it offers us new ways of doing statistic.

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