Research Paper Architecture

Applications of Educational Technology (ET) in Architecture Education

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ABSTRACT

The architecture education is being constantly challenged to remodel the knowledge architecture of the future, and its responsive to the continuous technological changes that architecture undergoes every day. Architecture is presently engaged in an impatient search for solutions to critical questions about the nature and the identity of the discipline, it is realised that architecture is neither a branch of arts nor of engineering it require a separate identity as a fully fledged discipline in itself. It encompasses not only arts and engineering but social science, humanities, life sciences and all disciplines affecting the built environment and educational technology is a key agent for prevailing innovations in it.

We realize that architecture is a multi disciplinary entity having inputs from diverse fields. And multi disciplines requires multi ways to teach that creates challenges for the teacher that can overcome by using educational tecnologis.when teacher think about incorporating educational technologies into their courses, they should examine possible uses carefully. Incorporating educational technologies is not a simple binary decision, yes or no. Rather, the teacher chooses which functions of the technologies to use, and the level at which each function is used.

Educational technologies may be used both inside and outside the classroom. These technologies support both conventional classes and online classes with students in multiple locations. Personal computers, connected via networks, enable instructors and students to access and share information with speed and convenience. Using these technologies, teacher and students can communicate their ideas, prepare documents, disseminate those documents, archive documents on a variety of storage media, and access remote resources such as databases.

In architecture too, we are seeing the beneficial effects that educational technology has brought to the field. For example "the personal computer workstation, with the ability to store and process graphic and alphanumeric information, is the most powerful tool for an architecture student has ever been given."

This paper explores the ways in which educational technology can benefits the architecture education. In particular it explores the ways of teaching strategy and teaching components which can revolutionise the process of teaching learning in architecture education.

Keywords : educational technology, architecture education, teaching strategy and teaching components

1.0 Introduction:

We as a community are constantly being challenged to re-model the knowledge architecture of the future, an architecture that is responsive to the continuous technological changes that our community undergoes every day.

When instructors think about incorporating educational technologies into their courses, they should examine possible uses carefully. Incorporating educational technologies is not a simple binary decision, yes or no. Rather, the instructor chooses which functions of the technologies to use, and the level at which each function is used.

Presently students are embarking on their academic careers with the knowledge and desire to use technology during their experience at the university or college level. They expect to learn cutting edge technologies. As students' expectations and abilities to use technology continue to increase our community must ask the question: How can we remodel the knowledge architecture of the university to integrate useful, desired technologies most effectively?

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Educational technologies may be used for beneficial effects in architecture education both inside and outside the classroom. These technologies support both conventional classes and online classes with students in multiple locations.

2.0 Educational Technology:

Educational Technology is concerned with the systematic application of science and technology in the field of education and may be defined as the application of technology to education in order to further the cause of the latter.

Educational technology encompasses the total teaching and learning process involving the elements like the following:

- Specification of goals and behavioural objectives.
- Analysis of the characteristics of the learner.
- Selection and the organization of the content or subject matter to be learned and strategies of presentation of the content.
- Use of aid material, software and hardware, mass media and communication techniques.
- Effective arrangements of learning situations and learning environment.
- Effective classroom control and management.
- Continuous feedback and evaluation of the result.

Educational technology is not only limited to the use of hardware such as the sophisticated gadgets and mechanical devices but it also tends to utilize the results of all good, experi-

ments and researches in the field of human learning and the art of communication employs a combination of all possible human and non-human resources to achieve the desired educational objectives.

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2.1 Uses of Educational Technology:
Educational technologies can be used to duplicate traditional pedagogies, such as delivering a video of a lecture to remote students several hours after the lecture occurred. Educational technologies do support multiple active and cooperative learning methods, although these pedagogical methods do not require electronic technologies.

Following are the principle uses of Educational Technologies:

1. Good practice encourages contact between students and faculty, because frequent contact with faculty strengthens student motivation.
2. Good practice develops reciprocity and cooperation among students, because collaboration increases involvement in learning.
3. Good practice uses active learning techniques, because students learn best when they talk and write about academic ideas, relate new ideas to previous experiences, and apply these ideas in their lives.
4. Good practice gives prompt feedback, because students benefit from independent assessment of their knowledge and skills.
5. Good practice emphasizes time on task, because students learn more efficiently when they focus on assignments.
6. Good practice communicates high expectations, because students rise to the level of faculty expectations.
7. Good practice respects diverse talents and ways of learning, because different students learn in different ways.

2.2 Teaching Technology in Architecture Education:
Teaching technology as a sub system of educational technology is concerned with the task of systematization of the process of teaching.

In Architecture Education a teacher has to play a role of technician by learning the art & science of teaching. A technical Knowledge and skill of task requires that it should be completed with reasonable economy and greater efficiency.

He must be well equipped with the following technological skills, besides having good knowledge over the subject matter:

- Communication skills
- Skill of interaction with students
- Skill of making the students to learn
- Skill of evaluating and reinforcing pupil's learning behaviour, etc.

3.0 Architecture Education:
The field of architecture is becoming increasingly complex, and a large number of sub disciplines are coming under its purview. Architecture is thus a multi-dimensional, or non-linear field, since a complete understanding is achieved, not by learning one aspect after another in a linear sequence, but by simultaneously imbibing the different aspects and recognizing the relationships between them. Traditionally, technology has been taught differently and separately from studios. Lecture classes give out information in discrete chunks. Thus we have one class dealing with "History" and another dealing with "Structures". Students are therefore exposed to only partial knowledge at any given time. Examples used in these classes highlight only portions of buildings that are relevant to the particular subject. Thus, one part of one building may be highlighted as an example in a "Lighting" class and another aspect of another building may be highlighted in a "Construction" class.

Design studio situations involve the student actively in the learning process by placing the responsibility of defining goals and finding solutions on the student. In contrast, technology classes convey specific analytical skills, often without teaching the application of those skills in architectural practice. This has resulted in a separation or division between design and lecture classes, and the expected application by students of the interconnectedness between the two does not often occur.

3.1 Need of Educational Technology in Architecture Education:

- To identify educational needs and aspirations of the community
- To determine the aims of architecture and needs and then formulating the structure of Architecture education
- To develop a suitable curriculum with interaction of science, art, social and cultural values
- To identify man-material resources and strategies for achieving the stipulated aims of architecture education.
- To develop certain models leading to improvement of the process of teaching in architecture education.
- To develop appropriate aids and equipments to meet the educational purposes
- To manage the whole educational system covering planning, implementation and the evaluation phases.

3.2 Educational Technologies in Architecture Education:

Fig. 3.2.1: Splitting of educational technology

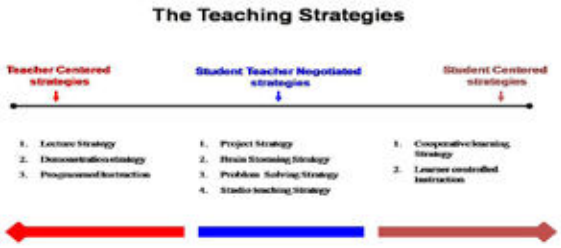

Fig. 3.2.2: Classification of teaching strategies

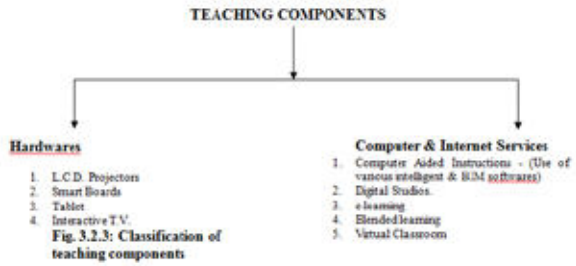

Fig. 3.2.3: Classification of teaching components

3.3 Digital Studios in Architectural Design:
Study shows that for teaching architectural design, studio teaching is the only option for making the design teaching effective. One of the reason is the exercise is directly related with learning by doing. Now if the studio teaching is the only way then how it can be advanced with the application of technologies overcoming the limitations of traditional design studios like wastage of time of students in giving critics, how the each class can be turned into the internal assessment so the students get motivated till the last minute of the class, how the

stage wise progress of each student can be monitored and saved for the record.

The basic thrust of digital studios will be on to enhance the visualization of students regarding their designs, time management in giving critics to the students, checking the motivation level of the students throughout the class and recording the stage wise progress of the students.

Digital studios in architectural design will comprise of three major components:

1. Students workstation which will be comprises of architectural Tablets connected in place of drawing board, computer. This work station will be connected to the instructor's computer.
2. Teacher or instructor computer which will be connected to the all students computer. Teacher can access of any students digital drawing board i.e. tablet and connected to the teaching hardware devices.
3. Teaching Hardware Devices (Interactive Television, L.C.D. projector and smart board). These devices will be directly connected to instructor's computer.

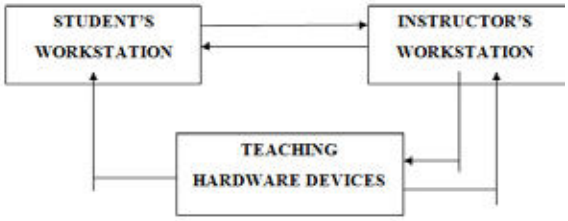

Fig. 3.3Interrelation of different components of Digital Studios

4.0 Conclusion

To support the teaching of Architecture education, Educational Technology offer a variety of functions: enhanced communication between students and instructors, providing multiple options in design, production of new and complex ideas, production of documents, archiving of class sessions and access to remote resources.

Educational technologies may be used both inside and outside the classroom. These technologies support both conventional classes and online classes with students in multiple locations. Personal computers, connected via networks, enable instructors and students to access and share information with speed and convenience. Using these technologies, instructors and students can communicate their ideas, prepare documents, disseminate those documents, archive documents on a variety of storage media, and access remote resources such as databases.

When instructors think about incorporating educational technologies into their courses, they should examine possible uses carefully. Incorporating educational technologies is not a simple binary decision, yes or no. Rather, the instructor chooses which functions of the technologies to use, and the level at which each function is used.

Today education is both "face-to-face" and "face-to-interface." Instructors should use these technologies in imaginative ways, not merely to duplicate conventional pedagogies, but to promote intellectual engagement. Instructors should assess their effectiveness in achieving educational goals. Educational technologies provide convenient ways for instructors and students to access and share information. This paper shows an attempt of finding out the best possible educational technologies in architecture education and use of these educational technologies which can revolutionize the teaching learning process of Architecture Education and ultimately this change in productive direction will give a new enhanced vision to architecture practice.

Educational technologies impose costs for the purchase of hardwares, licensing of softwares, hiring of support personnel and training of instructors. Whether the benefits of these educational technologies justify these expenditures in the present contemporary age.

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