

Creating virtual architectural education in a traditional environment: Prospects and challenges

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| ARTICLE INFO | ABSTRACT |
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| <p><i>Article history:</i> Received June 06, 2023 Received in revised form June 21, 2023 Accepted July 25, 2023 Available online August 01, 2023</p> <p><i>Keywords:</i> Architecture Computer E-mail Multi-media Technology</p> <p>*Corresponding author: Oluropo Stephen Ilesanmi Department of Architectural Technology, Rufus Giwa Polytechnic, Owo, Nigeria Email: jsarwono@tf.itb.ac.id</p> | <p><i>The advent of computer technology has set off an information explosion that has changed civilization and indeed the entire workforce of today's world. These changes presage a new context in which architecture schools must function. Traditionally, architectural education is basically between a group of persons; the teacher and the learner(s) in a defined classroom space. This mode of knowledge delivery makes the students to adopt a passive position (based on just listening to the teacher). This prevents the diversity of ideas, promotes repetitive learning and kills creativity. Virtual education on the other hand refers to instruction in a learning environment where teacher and student are separated by time or space, or both. In this knowledge delivery mode, students' take responsibility of their learning process in an active way. Multimedia tools, electronic media like a discussion forum, chat room, voice mail, and e-mail are employed for communication. The benefits inherent in this type of learning process include sharing of resources and learning environment, promotion of collaborative learning, effective education delivery and educational programme enhancement. In this paper, the concept "virtual architectural education" is considered together with the inherent benefits for the architecture schools and profession.</i></p> |

Introduction

Architectural education has over the years undergone some level of transition encouraged by the innovation and advancement of information communication technology (ICT) (Oko 2005). This change is both necessary and desirable as stagnation of any kind is a recipe for the decay of the profession. ICT in architectural education means that there is a transition from the traditional mode of teacher to student knowledge delivery in a defined classroom space to knowledge infrastructure (laboratories, radios, television and the internet), from a classroom of a group of

learners to individual learners, from a teacher as knowledge provider to a teacher as a tutor and a facilitator, from a set of text books and audiovisuals to multimedia materials (Arolosafe 2005).

Virtual architectural education which is a new and unconventional approach to the education of architects is a fall out of the increasing technological advancement of today's world (Mahmoud Saleh, Abdelkader, and Sadek Hosny 2023; Soliman, Taha, and El Sayad 2019). Hitherto, architectural education was basically between a group of persons; the teacher and the learner(s) in a defined classroom space. As

straight forward as this model may be; there is a fundamental and continuing failure to prepare students for the real world of practice (Chukwuma-Uchegbu 2006). In the first place this mode of knowledge delivery makes the students to adopt a passive position (based on just listening to the teacher). This prevents the diversity of ideas, promotes repetitive learning and kills creativity which is so needed for a successful practice life.

In Virtual architectural education, the traditional design studio with drawing tables and T-squares are replaced with computers and digitizers (Abubakar 2006). This development is corroborated as necessary by Adeyemi (1986) who opines that architecture as a profession should not be confined to the creative wonder of the paper and pencil alone, it should rather take advantage of emerging design situations which can be attributed to the incorporation of new technologies in architectural education. This way; the student's imagination and creative thoughts are stimulated. This new mode of knowledge delivery which is based on flexible patterns of work, focuses on information gathering, processing and analysis, calls for an educational curricular change for the training of Nigerian architects who will be critical thinkers, able to interact with other professionals and the general society in an environment of rapid information exchange and technological changes (Sa'ad 2001).

This knowledge delivery mode has some prospects as well as some challenges and this is the focus of this paper.

Definition of term

Architecture

The word "architecture" comes from the Latin word, "architectura" and ultimately from Greek, "arkitekton", which means "master builder" (McGrath 2018). While the primary application of the word "architecture" pertains to the built environment, by extension, the term has come to denote the art and discipline of creating an actual, or inferring an implied or apparent plan of any complex object or system (Wikipedia, n.d.).

Computer

A computer is a machine which manipulates data according to a list of instructions which makes it an ideal example of a system. The ability to store and execute lists of instructions called programs makes computers extremely versatile

and distinguishes them from calculators (Wikipedia, n.d.).

E-mail

E-mail (short for electronic mail; often also abbreviated as e-mail, email or simply mail) is a store and forward method of composing, sending, storing, and receiving messages over electronic communication systems. The term "e-mail" (as a noun or verb) applies both to the Internet e-mail system based on the Simple Mail Transfer Protocol (SMTP) and to X.400 systems, and to intranet systems allowing users within one organization to e-mail each other (Wikipedia, n.d.).

Multimedia

Multimedia according to wikipedia free encyclopedia (Wikipedia, n.d.), is a digitally-unified media made up of the following components: sound, text, picture and movie. "Digitally-unified" means that different types of materials (sound, text, picture and movie) are digitally unified into information which is delivered by means of internet.

Technology

The word "technology" means the application of science, especially to industrial or commercial objectives. It also means the scientific method and material used to achieve a commercial or industrial objective (Wikipedia, n.d.).

What is virtual education?

Virtual education is a teaching and learning process based on the principles of active pedagogy (where the student takes the responsibility of a frequent and effective participation), with the characteristics of distance education (during most or all classes, students and teachers will not personally meet (Munna and Kalam 2021). This may however happen in a virtual space; with the possibility of synchronous (chatting with each other in real time using internet services) and asynchronous (using technologies that don't require that both are on-line at the same time) interaction (Alejandro 2007).

Virtual education refers to instruction in a learning environment where teacher and student are separated by time, space or both. The teacher provides the course content through course management applications, multimedia resources, the internet and video conferencing. The students receive the content and communicate with the teacher via the same technologies (Hope 2012).

Result and discussion

Virtual architectural education in Negeria (Prospects and challenges)

The Nigerian architectural education

This is carried out at the following levels in polytechnics and universities: At the polytechnics, we have the traditional distinction between the following categories: National diploma programme which produces architectural technicians is run for 3 years (2 years of tutelage and one year of industrial training). The Higher national diploma programme provides middle level manpower for the profession. It is run for 3 years (2 years of tutelage and one year of industrial training).

Prospects of virtual architectural education

Over the years, the number of architectural education aspirants has increased appreciably without a commensurate increase in the facilities and qualified instructors ([Chukwuma-Uchegbu 2006](#)). Alternative ways of providing access to architectural education via virtual education needs to be fully explored. The following are the identified prospects of virtual architectural education by [Darkwa and Mazibuko \(2000\)](#):

1. Virtual education makes it possible for students anywhere who have access to Internet and Web connections to enroll in online courses;
2. It encourages new frontiers to architectural teaching and learning through enriching collaborative research among schools of architecture in Nigeria, Africa and other parts of the world;
3. It promotes cross-national, multi-disciplinary perspectives in the educational practice, and thereby equips students, faculty, and administrators with tools and resources that would enable them to successfully engage the academic world of the 21st century;
4. Virtual architectural education will enable the academia to take advantage of educational opportunities (such as virtual access to faculty and up-to-date educational materials through online libraries around the world) to become part of the global learning community;
5. Through virtual architectural education, fewer Nigerians will leave the country for opportunities elsewhere. Hence the issue of

brain drain will be minimized if not eradicated.

Challenges of implementing virtual architectural education in Nigeria

While virtual architectural education holds promises, a number of obstacles have been identified which will have to be addressed before it can be fully utilized in Nigeria?

1. Technological constraints:

To implement technologies that allow virtual education, it is necessary to have more equipment (internet connected computers) for the on-Campus students that are going to attend half-virtual courses, and also for those that will have virtual supports to their classes. Telephone and other communication infrastructure remain inadequate in many schools of architecture nationwide.

2. The lack of a trained cadre of professionals:

The effective use of virtual learning technologies demands that the staff of any faculty be properly trained in using the virtual platform as a delivery mode. To date, few Nigerian architecture scholars are familiar with teaching in an online environment. This situation poses a major challenge in introducing virtual architectural education in Nigeria.

3. Cost of connectivity

Any authentic virtual education requires the following basics: access to computers, Web browsers such as Explorer or Netscape, word processors, easy and inexpensive connections to Internet service provider (ISP). In addition, depending on the nature of a given course, students might be required to use a video cassette recorder to play videotaped instruction and perhaps tape-recorded lectures. All of these basics require funds which many individuals and institutions simply do not have.

Other challenges identified by [Alejandro \(2007\)](#) are listed below:

Resistance to change: This is two pronged; the teacher's resistance and the student's resistance to change. These are x-rayed below:

1. The teacher's resistance to enter into the technological era

Unfortunately, today there are professors that do not know how to read an email or how to take advantage of the internet to improve research. There are probably two big factors that influence this resistance: ignorance and lack of motivation, the last one due to certain unconscious resistance.

Concerning the unconscious resistance, this could be the result of computer-related frustrations, the fear to face new things (fear of changes), or of the narcissistic idea (some kind of omnipotence) that there is nothing that the machine can do for us in the teaching-learning process (Balick 2014).

2. The teacher's resistance to change in the pedagogic level

To teach in a virtual classroom means to transform the traditional pedagogy toward an electronic pedagogy in which the teacher becomes a facilitator of the student's learning process. This "new" pedagogy supposes that the teacher should be qualified in new pedagogic techniques and should renounce, totally or partially the face to face interaction in class, and, for some members of the academia, this is very difficult (Jaffee 2003).

For many lecturers, it can also be a threatening experience if they do not feel comfortable in writing, because interaction in virtual education is given mostly in this way. Facing this new course delivery mode could be a problem, when the teacher is already accustomed to the use of an easy pedagogy in which the same class is repeated semester after semester without having to make the effort of researching, of improving, or of enlarging the cognitive spectrum.

3. The resistance of the students to change

Students have the habit to work in a space in which only the lecturer speaks and directs his class. In this case, the good teacher is the one that makes all the effort, while the bad teacher is the exigent one, the teacher who makes work their students' and the one that does not give everything (Wilson and Peterson 2006). The consequence is that an enormous distrust is generated toward the facilitator teacher's role, which is the position of the lecturer in a virtual course. The "traditional" mode of lecture delivery; is a position that generates a lot of satisfaction because of the power of recognition. It is also a position that prevents the diversity of ideas, promotes the repetitive learning and kills creativity.

Addressing the challenges

The challenges can be addressed through the following ways:

1. Creating a learner support system

Since the concept of virtual educational technology is still an emerging area in Nigeria, a learner support system needs to be put in place to assist students to comprehend all the technical

details needed to make effective use of the technology. Research shows that virtual learning requires a lot of self-discipline on the part of the student; student isolation tends to be high, compared to conventional learning. , this study recommends that the virtual support mode should be encouraged at the under graduate level, while the half and totally virtual mode can be employed at the graduate level(with "mature" students).Strategies for reducing dropouts should be put in place to ensure successful completion of programs.

2. Need for higher educational institution, public, private sector corroboration

The inputs of educational institution, public and private sectors would be very crucial in advancing the development of virtual architectural education. The private sector should assist with technologies for the delivery of virtual education. Government agencies should also formulate national policies to promote virtual education as well as invent campaigns to heighten awareness about its potentials. Academicians in the meantime should create locally-based content by way of curriculum review.

3. International corroboration of architecture schools

Nigerian schools of architecture will have to start institutional links to foreign schools of architecture utilizing virtual architectural education. Such programs will offer Nigerian students the opportunity to take courses online.

4. Solving the infrastructural obstacles

One of the major obstacles to virtual architectural education is the lack of a well-developed telecommunication infrastructure. Many institutions are less likely to benefit from the advantages offered by information technologies. The telecommunications infrastructure will have to be further improved with adequate energy back up in order to achieve an effective virtual architectural education in Nigeria.

5. The need for faculty training

This is essential if Nigerian architecture schools are to make any significant headway in applying virtual educational technologies. Faculty training could be offered by experts who have distinguished themselves in the use of emerging communications technologies.

Conclusion

The need to improve access to educational opportunities, at all levels, will lead to the innovation of Architectural education without walls (virtual architectural education). However, more than just resources are necessary to maximize the potential of virtual architectural education so as to transform architectural education in Nigeria. Careful attention to planning, funding, support, and incentives is a prerequisite for any institution wishing to change itself and prepare its students for the 21st century.

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Author(s) contribution

- Oluropo Stephen Ilesanmi** contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.
- S. C. Folorunso** contribute to the research concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.
- O. O. Kolade** contribute to methodology, supervision, and validation.