International Journal of Technology Engineering Arts Mathematics Science
Special Issue 1, August 2023, pp. 273-277
ISSN: 2583-1224,

. .

Challenges and Opportunities in the Field of Architecture Education after Pandemic

Ar. Roshni Deshpande[1], Ar. Priyanka Dumane[2], Ar.Mahalaxmi Deshmukh [3]

[1] Architecture, S.B.Patil College of Architecture and Design, Maharashtra, India
[2] Architecture, S.B.Patil College of Architecture and Design, Maharashtra, India
[3] Architecture, S.B.Patil College of Architecture and Design, Maharashtra, India

Corresponding Author: Ar Roshni Deshpande (roshniyetiwar.nov@gmail.com)

Article Information

Article history:

Received Jun 10, 2023
Accepted Dec 10, 2023

ABSTRACT

Studying architecture solely within the confines of a classroom is insufficient, as the field demands practical expertise over mere academic education. Each semester in architecture is interconnected with all subjects and holds significant importance. The Covid-19 pandemic's consequences on architecture education are examined in the current paper, which also highlights the advantages of using hybrid learning and online/distance learning while underlining the difficulties and affects it has had on students, teachers, and institutions. These educational strategies are built on enhancing networking, exploration, and flexibility and adaptation, using a trans disciplinary approach, and incorporating information and communication technologies (ICT) in Architecture education, specifically with regard to learning design components. The paper offers an idea for creating a post-pandemic architecture education vision utilising an instructional technique. The purpose of this study is to examine how the pandemic has affected traditional architecture education.

KEYWORDS: Architecture education, ICT, Bloom's Taxonomy, Kolb's Cycle, Covid-19 pandemic, Online/distance learning

1. INTRODUCTION

Natural catastrophes offer feedback on how people think and behave; they have a profound, enduring impact on social life, which causes people to think about the future and the best course of action. Worldwide effects of the epidemic are affecting many educational institutions, and they are concerned about lost class times and sessions as a result. In order to continue offering educational opportunities while protecting their communities, professors, and students from this public health disaster, universities must make challenging decisions.

At several universities, online learning has largely replaced traditional education throughout the outbreak. Online and remote learning can therefore be used to reduce the spread of contagious viruses like Covid-19. [1]

Numerous challenges have arisen for architectural education (AE) as a result of the epidemic, and attempts are being undertaken to overcome them. A future vision for opportunities and change in AE has also been developed. In order to take advantage of these potential and alter education, there is ongoing research into educational theories and concepts. The paradigm of architecture education is also being updated, and the teaching technique is being reorganised; the approach includes a variety of delivery, assessment, and evaluation modalities. Because of these challenges, a "new normal" way of living had to be created. A "new normal" state of AE is a rare or frequent occurrence that will transform into a "normal," consistent, or anticipated state, suggesting that people are adaptable to change. The stability of traditional AE has already been called into doubt as architecture schools are compelled to change their practices and move away from in-person training. [8]

There are significant changes occurring in the architectural profession. Despite advancements in the sector, AE in schools continues to be centered on educational frameworks that are eroding further and further from what employers want. Additionally, there are ongoing initiatives to update the paradigm of

architecture education and reorganize its educational system, as well as ongoing research into education theories, concepts, and future outlooks. However, in recent years, the AE paradigm has continued to face some modern issues. [7]

This makes the development of an updated framework for AE programmes extremely important. The Covid-19 pandemic compelled the transition to a digital, online off-campus teaching and learning method. An abrupt change, which was not anticipated under normal circumstances, has prompted research into the educational impacts that result from such circumstances.
The shift from in-person to online learning was a challenge for students, teachers, and educational institutions. As a result of the issues that have arisen as a result of this influence, AE now has a future filled with possibility and development.

2. METHEDOLOGY

Data were gathered from the literature on the effect of the COVID-19 pandemic on AE in order to study present difficulties and prospects for AE and to understand how students, instructors, and educational institutions were coping with the transition to a "new normal" condition of AE. The suggested methodology calls for defining the research questions, looking for pertinent publications, screening papers, key wording abstracts, extracting data, and categorizing it. Our research on AE literature focuses on the following questions: How has the Covid-19 pandemic affected AE?
What challenges and opportunities do AE have in the digital age following the pandemic? To explore deeper into important aspects of the ongoing investigation, the research questions were created.. [5][6]

2.1 OPPORTUNITIES CREATED FOR THE EDUCATION SECTOR

Opportunity 1: Emphasised Gaps in the Educational System
The Covid-19 Pandemic situation has brought attention to the weak points and vulnerabilities in the education system, but only during this crisis has the system been able to overcome many of them in order to continue serving millions of students around the world and provide them with an education. However, there is still room for growth and development. By addressing them, the industry can attain sustainability, whereby it will have the infrastructure and safeguards necessary to successfully face and overcome issues in the future without having to halt its operations.

Opportunity 2: Technology used wisely and effectively for greater results
The pandemic has compelled educators to use digital technology to carry on with their lessons when the colleges were closed. It reduced the reluctance that educators once felt to use technology into their lessons and learning activities and encouraged both teachers and students to become digitally literate. Additionally, students' access to digital learning resources and in-depth understanding of subjects outside the scope of the syllabus were made possible by the use of technology. Additionally, educational institutions use technical support as much as feasible for their non-teaching operations.

Opportunity 3: Increased number of Teaching and Learning Methods
Education professionals around the world have incorporated new teaching and learning approaches, with blended learning mode being the most popular and successful approach. This approach strikes a balance between traditional learning and digital learning. It has been demonstrated that modern students respond better to this. Students find this style of learning to be more fascinating, engaging, and convenient in terms of time commitment and educational expenses. Because of this, these techniques will continue to be useful and be improved upon in the post-pandemic educational environment.

Opportunity 4: Development of Self-Learning Abilities
Students developed individualized learning skills on their own in accordance with their convenience during the epidemic, when online learning was the only available means of instruction and direct contact between students and teachers was not possible. The time they had to spend in isolation exploring their skills and learning new material using techniques they had developed gave them the chance to do so. They may find considerable benefit in the long run from these skills.

2.2 POST-PANDEMIC EDUCATION CHALLENGES

Challenge 1: Students Attendance
The decreasing student attendance, in the opinion of educators and business owners in the education sector, is the biggest difficulty facing the institutions. Students who became accustomed to homeschooling and online learning during the epidemic have become resistant to attending traditional classroom settings across all levels. Teachers are having trouble completing the curriculum on schedule and correctly leading other learning activities as a result of this circumstance.

Challenge 2: Students' uneven educational development
The only alternative available to universities during the epidemic to continue educational activities was online learning. During this time, it was very impossible to keep track of each student's learning progress and academic development individually. Uneven learning status and knowledge gaps from earlier standards are widespread issues in all institutions and among all

student groups now that exams are administered online, and students have been promoted to higher levels.

Challenge 3: Drastic Changes in Student Habits, Discipline, and Behavior

Students' habits have altered because of extensive home-based online learning. They are now more reliant on technology than ever. The lack of standard educational procedures has hurt the students' feeling of discipline. Schedule changes have caused dietary habits to shift. The chore of taking offline exams has grown more difficult for students taking online exams from home. Students are putting more emphasis on digital resources than textbooks because they are more engaging for learning. Natural learning processes have been hampered.

Challenge 3: Increased Need for Student Support

Students now need more support because of their altered routines and uneven academic development. Teachers are being required to work harder on the same. The development of teaching strategies to adapt to the changes, the preparation of pupils who lagged during home schooling and other responsibilities are taking up more of the teachers' time because of new learning techniques.

Over two years were taken away from the world by the Covid-19 epidemic. Students had enough time to develop new habits, and the education sector had the time to develop and infer new pedagogical strategies. Numerous lives were lost as a result of the epidemic and its unfavorable impact on the world. Out of this negative, some good features could be emphasized, among which we considered a few that were particularly important to the education sector. People across the globe are overcoming their fear of the pandemic, which is already a distant memory. In light of what has been said, we are certain that we can meet the challenges by taking the necessary action and creating additional opportunities and possibilities out of this trying period for the post-pandemic education industry.

3. BLOOM'S TAXONOMY

"Bloom's Taxonomy" is taxonomy of the many learning goals that teachers assign to their students.

Affective, Psychomotor, and Cognitive are the three "domains" that Bloom's Taxonomy uses to categorise educational goals. Learning at the higher levels of the taxonomy depends on having mastered the necessary knowledge and abilities at the lower levels. In order to create a more comprehensive approach to teaching, Bloom's Taxonomy encourages educators to concentrate on all three domains. [2]

3.1 COGNITIVE DOMAIN

The categories of Bloom's talents in the cognitive domain center on knowledge, comprehension, and critical analysis of a specific subject. The lower order aims in this domain, in particular, are often highlighted in traditional education. The hierarchy has six tiers.

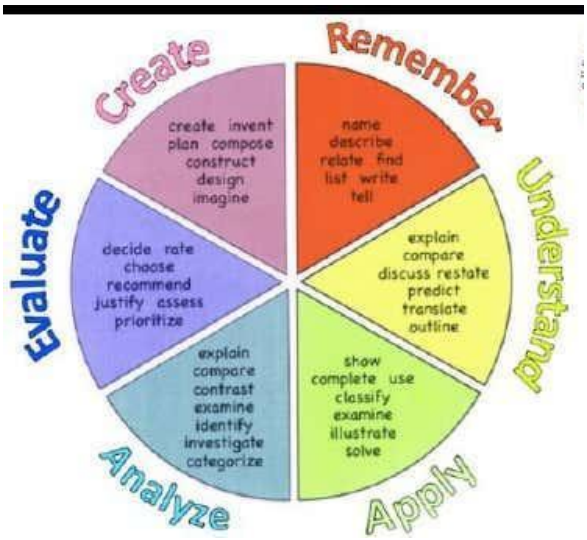

Figure 1: Bloom's Taxonomy

Cognitive Domain - Relate with Architecture Education

Examples include, Building Construction and Materials in First Year B. Arch. I

Knowledge - The teacher uses slides, images, and drawings to define "the foundation," explain the function of the foundation, and explain the function of the site inspection.

Understanding - By doing this, students gain knowledge and comprehension of the subject and are better equipped to explain it in their own words.

Application - Following presentation of the illustrations and slides describing the various forms of foundation.

The students are expected to sketch "Types of Foundation" as instructed by the teacher.

Analysis: As they work on the drawing sheet, the students analyse various types of foundations, including shallow foundations, grillage foundations, eccentrically loaded footings, combined footings, mat or raft foundations, pier foundations, pile foundations, foundations on sloping ground, and machine foundations.

Synthesise: After learning about all different types of foundations, students synthesise the most popular and affordable building foundation. The teacher assigns the task of gathering information from many sources and producing a sketch.

Evaluation: After students turn in their drawings and supporting materials, the teacher assesses each one. [3]

3.2 AFFECTIVE DOMAIN

The ability to emotionally react and experience the happiness or anguish of another living creature is referred to as having affective skills. The primary aims of affective objectives are typically the awareness and development of attitudes, emotions, and feelings. There

are five levels in the affective domain, ranging from the easiest tasks to the most challenging problem-solving.

Affective Domain - Relate with Architecture Education

Receiving: Students pay attention to the instructor and keep in mind the name of the recently introduced topic, "Foundations." Students take part in a conversation about the new subject of "Foundations" by responding. They discuss the subject by exchanging questions and responses.

Valuing: The teacher assigns sketches, and the students are expected to write descriptions of the sketches in their own words.

Organising: The instructor introduces the topic "Design Consideration for Foundations" Students compile information and organise it according to priorities. Examples include the kind of soil, the location and size of the building. The students combine various facts and concepts and incorporate them into their plans.

Charecterise: When working independently, students demonstrate independence. Here, the instructor instructs the class to form groups to create a 3D model. All the students work together in a group task, demonstrating collaboration. Students approach issue solving with objectivity. [3]

3.3 PSYCHOMOTOR

The capacity to physically use a tool or instrument, such as a hand or a hammer, is referred to as psychomotor skills. The majority of the time, psychomotor objectives centre on behaviour change, skill improvement, or all three.

Though other educators have since developed their own psychomotor taxonomies, Bloom and his colleagues never divided up the skills in the psychomotor domain into subcategories. [3]

Psychomotor Domain - Relate with Architecture Education

The students see sketches and drawings from the teacher. The students then copy the drawings.

Manipulation: Without the use of a visual model or close observation, the students manipulate images on a drawing page concerning "Type of foundations." A different option is for the pupils to do it on the surprise test.

Precision: Students were ultimately able to create a 3D model for RCC footing with precise dimensions after using trial and error techniques. Performance improves in its ability to accurately recreate an act. Here, performance correctness, proportion, and exactness all take on greater importance. The action is completed autonomously by the learner. The students exhibit assurance.

Articulation: When students were asked to create a model of the RCC, they added the RCC beam using the same RCC column model. This category refers to the harmony that is achieved between diverse acts by coordinating them. Expressions that characterise results at this level include confidently carrying out the behaviours.

Naturalisation: The student may develop or make a new idea about "Foundations" once he or she has gained experience as an architect. The skill has now reached its highest level of competency. The actions become automatic and unprompted. [3]

4. KOLB'S CYCLE

David A. Kolb's four-stage learning cycle includes the following four steps: concrete learning, reflective observation, abstract conceptualization, and active experimentation. Effective learning takes place when a learner progresses through each step. The learner can also enter the learning cycle at any phase by using a logical sequence. [4]

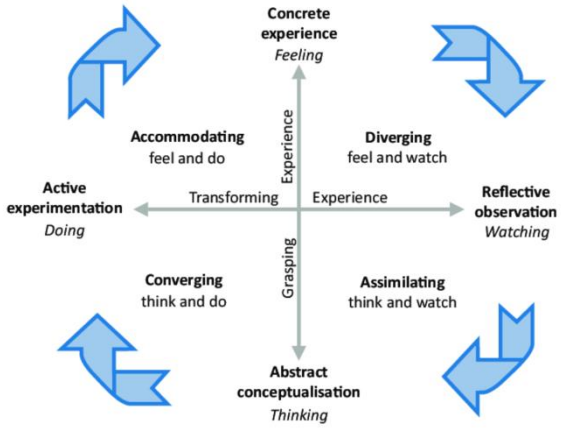

Figure 2: Kolb's Cycle

Kolb's model of learning styles Kolb's learning styles model divides pupils into four groups based on these preferences and their dominant learning style.

Diverging - This type of learning makes use of an original and creative approach. People usually assess actual occurrences from various perspectives as opposed to examining them while taking the actions taken into account. They value emotions and are concerned about others. People who prefer this approach of learning typically enjoy teamwork and idea generation activities.

Divergers like the following pedagogical strategies:

Exercises that need independent work as well as the option to research a normal teacher-class lecture that promotes correct system usage and lists its advantages and disadvantages.

Assimilating: The emphasis in this learning method is on reasoning. This type of learner is able to study the information and evaluate the complete experience. They typically find enjoyment in organising experiments and seeing projects through to completion. Assimilators like the following teaching strategies: Activities that the learner can carry out independently without the guidance of the teacher, an audio or video

presentation to accompany a traditional teacher-class lecture Personalised study or a demonstration that complies with directions and offers solutions.
Converging: In this learning approach, problem solving is emphasised as a teaching strategy. People who like this form of learning are able to make decisions and apply their concepts to unusual circumstances. Compared to Divergers, they are less prone to look for technology solutions in preference of people and perceptions.

The following teaching strategies converge in support of:
Booklets or worksheets with interactive computer-based assignments and sets of problems.
Flexible and intuitive, this learning approach is accommodating. These people favour solving problems on their own, letting trial and error guide their learning. They often have good interpersonal skills and are able to adjust their course depending on the circumstance.
The teaching techniques that Accommodators prefer are as follows:
Deeper investigation opportunities, as well as instructor assistance for questions like "what if" and "why not?" activities that promote independent learning.

3. CONCLUSION:

In conclusion, the COVID-19 pandemic has significantly impacted architectural education, forcing a shift from traditional face to face instruction to online and digital learning. This unexpected change has brought forth both challenges and opportunities for the education sector. By examining the effects of the pandemic on architectural education and exploring the current challenges and

Opportunities, we can better understand the necessary steps to adapt and improve the educational system.

The pandemic has highlighted the gaps and vulnerabilities in the education system, providing an opportunity for growth and development to ensure future sustainability. Additionally, the use of technology in education has become more prominent and has encouraged educators and students to become digitally literate, opening up new possibilities for teaching and learning. The adoption of blended learning approaches, combining traditional and digital methods, has shown promising results in engaging students and making education more accessible and convenient.
The pandemic has also led to the development of self-learning abilities among students, as they were required to adapt to online learning and explore new skills independently. While challenges such as declining student attendance, uneven educational development, and changes in student habits and behavior have emerged, it is essential to address these issues through increased support and tailored teaching strategies.
Bloom's Taxonomy and Kolb's Cycle provide valuable frameworks for understanding and enhancing the cognitive, affective, and psychomotor domains in architectural education. By incorporating these frameworks into instructional practices, educators can create a comprehensive and dynamic learning environment that fosters knowledge acquisition, critical thinking, creativity, and practical application.

As we navigate the post-pandemic era, it is crucial for educational institutions to seize the opportunities that have arisen and continue to evolve and adapt to the changing landscape. By embracing technology, exploring new teaching and learning methods, and addressing the challenges faced, the architectural education sector can emerge stronger and better equipped to prepare students for the future.

Ultimately, by understanding the impacts of the COVID-19 pandemic on architectural education, identifying the challenges and opportunities, and implementing effective strategies, we can pave the way for a resilient and innovative educational system that prepares students for the ever-evolving architectural profession. Through continuous research, collaboration, and adaptation, we can create a "new normal" in architectural education that fosters growth, excellence, and adaptability in the face of future challenges.

4. REFERENCES

[1] M. M. Saleh, "Architectural education challenges and opportunities in a post-pandemic digital age," in *Ain Shams Engineering Journal*, 2023.

[2] A. V. Patil, "Bloom's Taxonomy: Influential Learning Parameter," in *ARCC*, Wisconsin, 2011.

[3] A. Salama, "New Trends in Architecture Education," in *New Trends in Architecture Education*, US, Tailored Text and Unlimited Potentials, 1995, pp. 5-1.

[4] "Educational Technology," [Online]. Available: https://educationaltechnology.net/kolbs-experiential-learning-theory-learning-styles/.

[5] Stunited, "Post-Pandemic Education – Opportunities & Challenges," [Online]. Available: https://stunitednewsfeed.org/post-pandemic-education/.

[6] M. M. Saleh, "Architectural education challenges and opportunities in a post-pandemic digital age," in *Ain Shams Engineering Journal*, Egypt, 2023.

[7] S. Dhawan, "Online Learning: A Panacea in the Time of COVID-19 Crisis," in *Journal of Educational Technology Systems*, 2020.

[8] N. Megahed, "Antivirus-built environment: Lessons learned from Covid-19 pandemic," in *Sustain Cities Soc*, 2020.