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# Embedding Modern Teaching Technology in Interior Design Program-OCMT as Case Study

*Ms. Maram Al-Hinai*[*, 1], Dr. Mohamed Alnejem[2], Ms. Basma Salama[3], Ms. Fatema Al-Akhzami[4]*

[1] Interior Design, Oman College of Management and Technology, Muscat, Oman, malhinai@ocmt.edu.om.
[2] Interior Design, Oman College of Management and Technology, Muscat, Oman, malnejem@ocmt.edu.om.
[3] Interior Design, Oman College of Management and Technology, Muscat, Oman, bibrahim@ocmt.edu.om.
[4] Interior Design, Oman College of Management and Technology, Muscat, Oman, falakhzami@ocmt.edu.om.
*Corresponding Author.

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***Abstract***

*This study investigates the integration of modern teaching technologies within the Interior Design program at the Oman College of Management and Technology (OCMT). The primary objective is to evaluate how digital tools, including 3D modeling software, virtual reality (VR), and augmented reality (AR), can enhance teaching methodologies and improve learning outcomes. The research contextualizes the need for these advancements by highlighting the inadequacies of traditional pedagogical approaches, which focus heavily on manual techniques. By deploying a mixed-methods approach, the study collects both qualitative and quantitative data to evaluate student engagement, design accuracy, and proficiency with contemporary design tools in an enriched digital learning environment. Key findings suggest that a technology-oriented curriculum significantly enhances a more interactive and dynamic learning environment, aligning with the evolving demands of the interior design industry. Additionally, the paper addresses potential challenges related to resource availability, teacher training, and the scalability of the OCMT model outside the interior design field. The findings underscore the importance of incorporating modern teaching technologies in preparing graduates for a competitive job market, ultimately contributing to a paradigm shift in interior design education. Future research is suggested to explore further advancements in teaching methodologies that could enhance the integration of technology in design curricula.*

***Keywords*: Interior Design, Teaching Technologies, Digital Learning, Student Engagement, Curriculum Development.**

## 1. Introduction

There has been a dramatic change in the technological environment of the early decades of the twenty-first century, which has greatly influenced the educational environment, particularly in fields that are dependent on creativity and spatial intelligence, such as interior design. Compellingly for us, interior design education has relied almost entirely on traditional pedagogy, where manual drawing, physical modelmaking, and face-to-face critiquing dominated the landscape. However, traditional methods are becoming insufficient for preparing students to meet the demands of technology-rich environments where technological literacy is crucial (Kivunja, 2015). Therefore, there is a clear need for interior design schools to embrace new teaching technologies to stimulate students' learning and augment learning effectiveness.

The Online Contemporary Modern Teaching (OCMT) program offers a model example of how state-of-the-art digital resources and interactive learning environment can be incorporated into the interior design curriculum. OCMT aims to place students in a digitally enriched learning space by deploying new technologies such as 3D modeling software, VR, AR, and online collaborative platforms. In addition to enabling exploration of design aesthetics and functionality, these tools reproduce to some extent the actual industry process, thus also narrowing the gap between education and practice (Higgins et al., 2012).

In this context, the present paper seeks to examine a number of the central dimensions of the OCMT programme. First, it will consider the teaching and learning techniques used to ensure that these technologies are effectively integrated in the classroom, considering how they promote a more interactive and dynamic learning environment, a concept emphasized by Prensky (2001), who asserts that modern learners benefit from learning in environments that harness the digital. 2) The study will explore the effects of the technological emphasis on the learning outcomes; that is, student engagement, design accuracy, and proficiency using current design tools, as suggested by the research that has found a direct connection between performance and tech-integrated curriculum (Koutropoulos et al., 2014). Third, concerns that may emerge during the operationalisation of this technology will be closely examined, such as those surrounding availability, resourcing demands, and teacher preparation (Higgins et al., 2012).

Additionally, the paper will explore options for scaling the OCMT model within the confines of interior design education, both nationally and internationally, and outside of the context of interior design, within the existing environment. It will also examine how a curriculum can be developed to meet the industry's needs. With a growing number of employers relying on digital tools, it is essential to understand how to utilize modern teaching technologies best to impact pedagogical practices in a way that ultimately impacts how well graduates are prepared to successfully compete in a tight job market.

Finally, this research project seeks to add to the larger conversation regarding incorporating technology into the classroom in the study of interior design, to create a great understanding of what to teach when designing a strong interior design curriculum. Through a look into the OCMT program's endeavour to integrate contemporary teaching tools, this paper seeks to showcase how progressive methods can be used to not only enrich students' learning experience, but to develop sustainable and effective educational models of teaching within the field of interior design.

## 2. Related Work

### 2.1 As a Case Study inside Oman:

The integration of additive manufacturing in the construction industry has garnered considerable attention due to its potential to transform traditional building practices. It offers benefits such as faster construction, less material waste, and greater design flexibility. A recent case from the German University of Technology in Oman (GUtech) exemplifies this potential. In collaboration with the Danish company Cobod International and local contractor Teejan, they achieved a remarkable feat by 3D printing three distinct structures: a commercial coffee shop, a public restroom, and a fisherman's residence, all on-site in just eight days. This project took place in Oman's Special Economic Zone of Duqm. It employed Cobod's Dfab solution, developed in collaboration with Cemex, which enabled the use of 99% locally sourced materials in the concrete mix. The total cost of the concrete for all three buildings was an impressive USD 3,600, highlighting the economic advantages of this method.

Each of the structures had varying sizes, ranging from 20 m² to 81 m², and they were all completed within 22 hours of printing time. This demonstrates the technology's ability to deploy rapidly. Notably, these buildings featured a load-bearing wall system without internal columns and included curved and unconventional designs, showcasing the design possibilities provided by 3D printing. The project also received regulatory approval from local authorities, indicating institutional support and adaptability for additive manufacturing in the region. Overall, this case adds to the growing understanding of 3D construction printing by providing real-world evidence of its application in a Gulf-region context that faces environmental challenges and seeks economic diversification. GUtech's success not only demonstrates the technical feasibility and cost-effectiveness of using locally sourced materials for 3D printing construction but also highlights the importance of collaboration between academia and industry in driving technological innovation. This initiative sets a regional benchmark and invites further exploration into sustainable construction practices informed by digital fabrication.

### 2.2 As a Case Study outside Oman:

**3D Printing in Education**

This review synthesizes current research on the application of 3D printing in education, highlighting its emerging role as a teaching tool grounded in constructivist and constructionist learning theories. Imagine a classroom where ideas leap off the page and take shape in your hands. That's the magic 3D printing is bringing to education today. Especially in STEAM subjects, science, technology, engineering, arts, and math, this technology is transforming learning from something abstract into a hands-on adventure. Students don't just study concepts; they build them, experiment with their own designs, and dive into complex ideas with ready-made models. Research shows that 3D printing sparks curiosity, fuels creativity, and turns problem-solving into a collaborative journey across different disciplines. And its reach goes beyond STEAM, helping students in biology, social studies, and special education by crafting personalized tools that make learning more inclusive and engaging. Of course, like any great innovation, there are bumps in the road, teachers need more training, researchers need to dig deeper, and schools must find smooth ways to weave 3D printing into everyday lessons. But the potential? It's limitless, turning classrooms into playgrounds of imagination and invention. As we move forward, more studies are needed to determine the most effective ways to utilize 3D printing in classrooms, particularly in supporting students from underrepresented backgrounds in STEM fields.

**Interactive Screen in Education**

Digital technologies have become essential in today's education landscape, providing innovative tools and platforms that enhance student engagement, flexibility, and accessibility. This literature review looks at the various ways digital technologies contribute to inclusive, equitable, and high-quality learning experiences. The shift to online learning, accelerated by the COVID-19 pandemic, underscores the importance and potential of integrating digital tools in academic settings. Key advancements include the use of virtual classrooms, assistive technologies, mobile and web-based learning platforms, and interactive applications that promote personalized and collaborative learning. However, bringing these technologies into education isn't without its challenges. Many schools lack the necessary infrastructure, some users struggle with digital literacy, and there can be resistance to adopting new teaching approaches. The review also highlights a growing trend toward blended learning models that align with contemporary educational objectives. But having the latest technology isn't enough on its own. What really makes a difference is strong support, clear policies, proper training, and the right resources, so teachers feel confident and prepared to use these tools in ways that genuinely improve student learning.

**Virtual Reality (VR) in Education**

Recent advances in immersive technology are driving the adoption of Virtual Reality (VR) in education, particularly in design education. VR is opening new, interactive ways for students to learn and explore creative ideas. Increasing research indicates that virtual reality (VR) has the potential to transform the way we teach by making learning more interactive and hands-on. One key idea behind this approach is Dual Coding Theory (Paivio, 1991), which suggests that people learn more effectively when they process information through both visual and verbal channels simultaneously. This approach helps with remembering and understanding concepts more deeply. It's especially useful in creative fields like 3D design, where being able to think in terms of space and visualize objects is an important part of the learning process.

The literature demonstrates that VR can enhance learners' engagement and creativity (Fowler, 2015; Barari et al., 2020), facilitating deeper conceptual comprehension through the active manipulation of virtual objects. Studies by Korkes et al. (2019) and Maheshwari and Maheshwari (2020) confirm the efficacy of VR in improving cognitive outcomes and fostering learner motivation across STEAM curricula. However, while desktop-based VR solutions have been widely applied, fully immersive VR remains underutilized, especially in secondary education contexts where students often lack prior exposure to complex design tools.

Empirical research also highlights the necessity of structured pedagogical frameworks when adopting virtual reality (VR). Bloom's revised taxonomy offers a scaffolded model to align learning objectives with VR-enhanced activities (Anderson & Bloom, 2001). In design education, using a framework that includes stages like remembering, understanding, applying, analyzing, evaluating, and creating has been shown to support well-rounded cognitive growth (Cai et al., 2019; Liu et al., 2020). But for this approach to really work, the curriculum needs to be thoughtfully planned, the technology must be easy to access, and it should match how students prefer to learn.

Even though students generally respond well to VR, there are still challenges especially when it comes to making sure everyone has equal access to the tools during group work and that students are properly trained to use them. While VR is praised for how naturally it helps with spatial thinking, its real impact depends on having clear learning goals and effective ways to track progress. Looking ahead, research should focus on finding scalable ways to bring VR into different types of classrooms and studying how it affects students' independence and design skills over time.

## 3. Methodology

### 3.1 OCMT:

OCMT is a medium college founded in 2004, It focuses on three disciplines (computer science, business administration, and Design), The college has around 150 students in the department of design, about 90% of which are female. Admission is highly selective good students with Omani high school diploma.

### 3.2 Interior Design Program:

The Department of Interior Design provides students enrolled in both diploma and bachelor's programs with essential creative and technical competencies for interior design. The curriculum emphasizes space planning, construction methods, and furnishings tailored to residential and commercial projects.

### 3.3 Modern teaching technology at OCMT:

In the strategic plan at OCMT for integrating teaching and learning technology in the academic affairs, OCMT plans to form Tech Lab that will provide students with all required tools and devises for using technology in their study plan under the supervision of the instructors, this Lab includes ( 3D Printer, Plotter, VR Glasses, Interactive screen).

### a. 3D Printer:

OCMT offered 3d printer for interior design students to apply all modern technology in their projects especially for the courses such as (workshop I, Workshop II, 3D Illustration, Principles of 3d Design, Graduation project ....). This printer has the following specifications:

Build volume: 256 x 256 x 256 mm
Bambu lab x1 carbon
Professional & high-tech 3D
Printer with multicolor
printing ability and high printing
speed with the best
printing quality.
• Build volume: 256 x 256 x 256
mm
• Printer Design: Core XY
• Printer technology: FDM
• Filament Run Out Sensor
• First layer calibration Bambu
Micro Lidar with AI inspector
• multi-color printing, 4 colors. (up
to 16 as Add On)
• Chamber Monitoring Camera
• Spaghetti failure detection
• Power Loss Recover
• Print medium Wi-Fi, Bambu-Bus
• Slicer: Bambu slicer

PETG
Extruder temperature 190 °C - 220
°C
Bed temperature 65 °C
Speed 10-70 mm/s
Retraction speed 40 mm/s
Retraction distance 4 mm
Cooling fan Yes
Minimum layer height 0.05 mm

**Figure 1:** 3D Printer

**Figure 2:** 3D Printer Modul

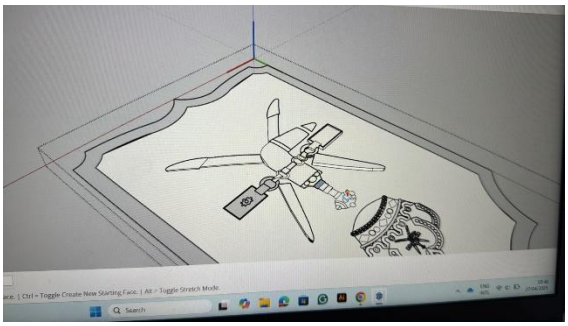

**Figure 3:** Ongoing Process in the 3D printer

**b. Plotter:**

OCMT purchased plotter for printing projects for the students in interior design program, to help students and saving time of printing, also for supporting the students OCMT offered discount about 30% for student printing, and organized the process of printing between all related departments ( TSD, FAD, DOD) to perform the task easily and properly, and the plotter has the following specifications:

- Multi-colored printing.
- Different paper sizes: A4, A3, A2, A1, A0.
- Printing on paper roll with width (106, 88 cm).
- Printing on different paper roll quality (normal, Glossy, high quality...).
- Automatic cutter.
- 5 inkjet colors.

**Figure 4:** 3D Plotter

**c. VR Virtual Reality:**

OCMT offered VR glasses for interior design students to help them in imagination and inspiration the projects, and provide experimental teaching, motivate students, enhance optical understanding, develop information, and provide different teaching experiences, this glass has the following silicifications:

- used by smart phones.
- Size: 6- 4.7 inches
- Used without online control.

**Figure 5:** VR Virtual Reality

**d. Interactive Screen:**

OCMT in cooperation with MoHERI performed a project to enhance student learning outcomes aligned with program learning outcomes in classroom AC-009. As a case study, this project aimed to improve classroom functionality, engage students, academic achievement, and support instructors.

One of the most important tools was an interactive screen with advanced specifications and tools that helped students and instructors enhance CLOs and PLOs for all courses conducted in this classroom.

**Figure 6:** Interactive Screen

### 3.4 Data Collection Tools and Procedures:

To assess the effectiveness of these modern teaching technologies, multiple data collection tools were employed:

- **Student Engagement**: Measured through attendance records, participation tracking sheets, and digital platform analytics (e.g., frequency of tool usage in the Tech Lab).
- **Design Accuracy**: Evaluated by instructors using a standardized rubric focusing on precision of dimensions, adherence to design principles, and quality of final outputs (both digital and printed).
- **Proficiency with Tools**: Assessed through practical exams, project submissions, and observational checklists documenting students' ability to operate the 3D printer, plotter, and VR systems.

### 3.5 Sampling Strategy:

A stratified purposive sampling method was applied to ensure representation from different academic levels and user experiences with the modern teaching technologies. The sample included:

- **Students**: Selected from both diploma and bachelor's programs across first-, second-, and final-year levels in the Interior Design Department to capture a range of skill proficiencies. Participation was voluntary,

and students were chosen to represent a balance of high, average, and lower academic performers based on GPA.

- **Instructors**: All interior design instructors actively using the Tech Lab facilities were included to provide insights from a teaching perspective.
- **Selection Process**: Lists of eligible students and instructors were obtained from the department records. Random selection within each academic level was then performed to reduce bias, while ensuring each group was proportionally represented.

## 4. Analysis Study:

### Aligned Study Plan:

Table 1 indicates an overview of the different technologies used in teaching in the interior design department courses at OCMT. As the table indicates, most of the technologies are used for both bachelor's and diploma levels to ensure students acquire hands-on experience with the essential technological tools, regardless of their levels. Based on the results, interactive screens are the most used technology at OCMT, where it is integrated into 90.6% of the courses, corresponding to 29 courses. It is used for both theoretical and practical courses such as Color Theory & Applications I, Quantity Calculations, Computer Graphics, etc. Plotter is the second most integrated tool in the department, where it is integrated into 68.8% of the courses, equivalent to 22 courses, followed by the VR, which is incorporated into 65.5% of the courses, equivalent to 21 courses.

Plotter is mainly used for visual communication courses involving designing, drafting, and rendering, including Color Theory & Applications I, Computer Graphics, Interior Design Technology, and Interior Space Planning. Whereas, VR is mainly used for courses that require spatial exploration such as Interior Design Technology, Interior Space Planning, Residential Interior Design, Commercial Interior Design, etc. Considering the 3D printer, it is used for 50.0% of the courses, which is equivalent to 16 courses. The use of the 3D printer is primarily for design studio courses and workshop-based, such as 3D Illustration, Interior Space Planning, Residential Interior Design, etc.

**Table 1:** Course Name with Type of technology that can be applied

| Course Name | Level Bachelor/Diploma | 3D Printer | Plotter | Virtual Reality (VR) | Interactive Screen |
|---|---|---|---|---|---|
| Color Theory & Applications I | Both | | * | * | * |
| Quantity Calculations | Bachelor | | | | * |
| 3D Illustration | Both | * | * | * | |
| Computer Graphics | Both | * | * | * | * |
| Design Psychology | Both | | | * | * |
| History of Interior Design | Both | | | * | * |
| Interior Design Technology | Both | * | * | * | * |
| Interior Space Planning | Both | * | * | * | * |
| Islamic Design and Architecture | Both | | * | * | * |
| Ergonomics | Both | | * | * | * |
| Lighting | Both | | | | * |
| Residential Interior Design | Both | * | * | * | * |
| Commercial Interior Design | Bachelor | * | * | * | * |
| Environmental Design | Bachelor | * | * | * | * |
| Work Shops I | Bachelor | * | * | | |
| Colour Theory & Applications II | Bachelor | | * | * | * |
| Material Technology | Bachelor | | | * | * |
| Drawing & Painting : Materials & Techniques | Bachelor | * | * | * | * |
| Special Topics in Interior Design | Bachelor | * | * | | * |
| Computer as a Design Tool | Both | * | * | * | * |

| | | | | | |
|---|---|---|---|---|---|
| Workshop II | Bachelor | * | * | * | |
| Field Study in Interior Design | Bachelor | * | * | * | * |
| Advanced Studies in Interior Design | Bachelor | * | * | | * |
| Creative Study | Bachelor | | * | * | * |
| Special Topics in Graphic Design | Bachelor | | * | | * |
| Introduction to Drawing | Both | | | | * |
| Introduction to 3D Design | Both | * | | | * |
| Introduction to Aesthetics | Both | | | * | * |
| Design: Theory and History | Both | | * | * | * |
| Principles of 2D Design | Both | | | | * |
| Principles of 3D Design | Bachelor | * | * | | * |
| Arabic Calligraphy | Both | | | | * |
| **32 courses** | **TOTAL** | **16** | **21** | **20** | **28** |

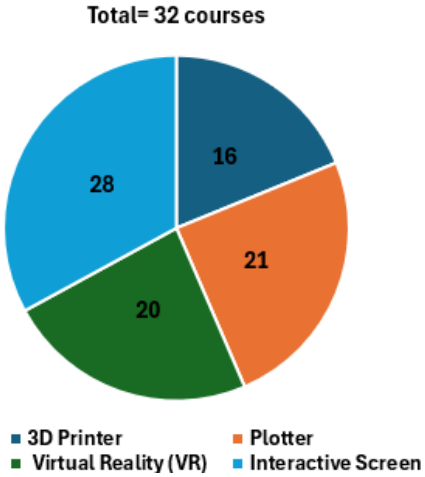


**Figure 7:** Total numbers of modern teaching technologies aligned to study plan courses at ID program in OCMT

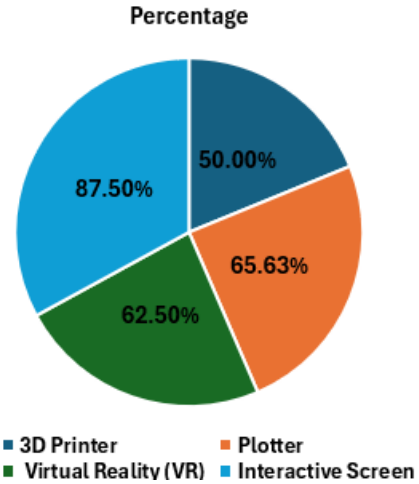


**Figure 8:** Percentage of modern teaching technology aligned to study plan courses at ID program in OCMT

**CLOs and PLOs achievements:**

The integration of 3D printers, plotters, VR glasses, and interactive screens at OCMT was evaluated for its impact on Course Learning Outcomes (CLOs) and Program Learning Outcomes (PLOs). Data from standardized

assessments, project evaluations, and instructor rubrics were compared across two consecutive semesters pre- and post-implementation using a stratified sampling strategy to ensure representativeness.

Post-implementation results (Tables 1 and 2) show consistent gains across all CLOs, with the most significant increases in CLO2 (+11.1%), CLO4 (+17.0%), CLO5 (+13.8%), and CLO6 (+10%). Similarly, PLO4 (+10.7%), PLO5 (+14.5%), and PLO8 (+10.7%) recorded notable improvements. While these findings suggest a positive effect of technology integration, the absence of inferential statistical testing limits definitive conclusions; future studies should incorporate significance testing to strengthen validation.

**Table 2:** Average percentage of CLOs' achievement before and after implementation

| Average | CLO1 | CLO2 | CLO3 | CLO4 | CLO5 | CLO6 | CLO7 |
|---|---|---|---|---|---|---|---|
| **Before** | 84.13% | 83.63% | 86.39% | 77.23% | 79.55% | 87.13% | 85.44% |
| **After** | 93.94% | 94.73% | 92.94% | 94.18% | 93.39% | 97.38% | 87.43% |

**Table 3:** Average percentage of PLOs' achievement before and after implementation

| Average | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 |
|---|---|---|---|---|---|---|---|---|---|
| **Before** | 88.61% | 82.00% | 86.65% | 84.85% | 78.00% | 87.50% | 77.50% | 87.10% | 85.00% |
| **After** | 94.00% | 90.67% | 93.00% | 95.50% | 92.50% | 93.00% | 81.00% | 97.75% | 94.00% |

## 5. Result Discussion

The integration of modern technologies at OCMT demonstrates a strong institutional commitment to enhancing the interior design program by developing students' technical skills, creativity, and industry readiness. Interactive screens were widely adopted across courses, serving as dynamic tools for presenting visual aids, drawings, and real-time course content. Their flexibility fosters student engagement, collaboration, critical thinking, and active learning, thereby enriching the overall learning experience.

Plotters played a pivotal role in enabling students to produce architectural drawings, presentation panels, and large-scale designs. By translating design ideas into tangible visual outputs, plotters enhanced communication skills and contributed directly to improved learning outcomes. Similarly, VR technology provided students with immersive, hands-on experiences, allowing them to navigate and evaluate their designs virtually. This simulation process helped students identify potential improvements and understand spatial relationships more effectively.

The introduction of 3D printing further strengthened the program's hands-on approach. By transforming digital models into high-quality physical prototypes, students gained a deeper understanding of scale, form, and structure. This practical fabrication experience reinforced spatial reasoning and design visualization skills, crucial for professional practice.

The comparative analysis of CLOs and PLOs before and after implementation of technology showed a clear positive trend, suggesting that these tools contributed significantly to student achievement. While statistical validation is recommended for future studies, the observed improvements indicate that the integration of technology not only enhances student learning outcomes but also aligns with industry standards and accreditation requirements. Consequently, graduates are better prepared to meet professional expectations, thereby supporting the broader goals of the interior design field.

**Table 4:** Related Work to Previous Cases

| Aspect | OCMT Observations (Data & Findings) | Alignment with Previous Literature |
|---|---|---|
| **Interactive Screens** | Integrated into 90.6% of courses; improved engagement, collaboration, and visualization across theoretical and practical subjects. | Higgins et al. (2012) – Digital tools foster interactive and dynamic learning. |
| **Plotters** | Used in 68.8% of courses; enhanced efficiency in producing professional drawings and communication materials; reduced printing barriers. | Novak (2022) – Digital fabrication strengthens hands-on learning outcomes. |

| | | |
|---|---|---|
| **Virtual Reality (VR)** | Incorporated into 65.5% of courses; improved spatial exploration, iterative design, and immersive learning; boosted creativity and problem-solving. | Koutropoulos et al. (2014); Barari et al. (2020) – VR enhances creativity, conceptual understanding, and motivation. |
| **3D Printing** | Used in 50% of courses; enabled creation of scaled prototypes; strengthened visualization, accuracy, and design comprehension. | Haleem et al. (2022); Novak (2022) – 3D printing fosters constructivist learning and tangible understanding of concepts. |
| **CLO Achievement** | Notable improvements: CLO2 (+11.1%), CLO4 (+17%), CLO5 (+13.8%), CLO6 (+10%). | Kivunja (2015) – Tech-integrated curricula improve accuracy, engagement, and achievement. |
| **PLO Achievement** | Notable improvements: PLO4 (+10.7%), PLO5 (+14.5%), PLO8 (+10.7%); indicates stronger professional readiness and technical mastery. | Prensky (2001) – Digital learners excel when curricula embed modern tools. |
| **Challenges** | Resource management, need for instructor training, and equitable student access. | Haleem et al. (2022) – Global literature also identifies infrastructure and training gaps. |

The table highlights how each technology and outcome aligns with, expands upon, or adds new evidence to previous studies. The comparative analysis confirms that OCMT's integration of interactive screens, plotters, VR, and 3D printing has contributed significantly to learning outcomes at both course and program levels. While these findings align with global evidence, the OCMT case provides a distinctive perspective by offering a comprehensive institutional implementation rather than isolated experiments.

Moreover, recording both quantitative gains and qualitative observations provides a more holistic understanding of technology's role in design education. Challenges such as faculty training and resource distribution remain, but these represent implementation concerns rather than limitations of the pedagogical model itself.

## 6. Conclusion

The incorporation of contemporary teaching technology into the interior design curricula, such as the Online Contemporary Modern Teaching (OCMT) program, provides a significant improvement in education practices to meet today's fast-paced industry. With the digital tools of 3D software and virtual reality and augmented reality, the OCMT program ensures that graduates are well prepared to tackle the challenges of the modern-day design world.

The results of this research highlighted the beneficial effects of technology-enhanced teaching on student engagement, accuracy in design, and mastery of the design tools available today. The relationship between academic achievement and technology integration curriculum has been well documented in the literature; therefore, findings from this research on the OCMT approach will not only enhance academic achievement but also meet the needs of industry.

But it's not all roses with the standby checklist application of these technologies either. Resourcing, teacher readiness, and the provision of ongoing support must be considered to successfully support the emergence of these alternative pedagogies. Given the increasing need for digital knowledge among future professionals, the present is an essential moment for interior design education to catch up.

Into the future, the scalability of the OCMT model holds avenues for impacting interior design education at national and global levels. By further developing this method of teaching, schools can equip graduates with the skills and knowledge they need to succeed in the competitive labour market and can become part of a broader discussion on technology in the education sector.

Finally, the OCMT program is a powerful example of the integration of Modern teaching strategies and practices for the future of interior design teaching. By harnessing these new developments, teachers and curriculum developers can produce strong curricula that promote student achievement and generate a wave of new designers trained to work in a technologically rich landscape.

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