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Aesthetic Transfer in Modern Visual Arts Education: Emphasizing 'Learning by Making' and Experimental Approaches for Future Creative Success

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Abstract: The article explores the aesthetic transfer approach as a pivotal and distinctive element of contemporary visual arts pedagogy, emphasizing the "learning by making" method, which prioritizes hands-on exploration and creation for acquiring artistic skills and knowledge. It advocates moving from traditional architectural education towards a more experimental approach. The study assesses a visual arts course at a private university in Cairo, Egypt, where students designed and implemented a full-scale wooden chair inspired by a celebrity. The results reveal significant success in fostering team collaboration, enhancing practical skills, and bridging the theoretical and physical design gap. Comparisons with related research highlight the impact of instructional shifts, such as adapting to virtual platforms during the COVID-19 pandemic and employing alternative design techniques like Shape Grammars, on student learning and final project outcomes. The findings emphasize the importance of effective composition and practical experience in art education while identifying areas for future improvement.

1. Introduction

All creative work is inherently influenced by preexisting elements. It often stems from a response to something is already existing or a desire to enhance existing creations. Each piece of art is born within the context of its surroundings, encompassing cultural, physical, natural, and social aspects that shape the artist's thoughts. [1] Consequently, the creative process involves an overlaying reality associated with new layers: initially through

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imagination (conceptualization), followed by materialization (sketching, drawing, and final product). Even though any endeavor to solve a particular problem never starts from scratch and is always grounded in a framework of thinking and creative endeavor attempts, the fear of a blank page persists. [2]

The inception of every visual artwork [3] is rooted in a concept that knows no boundaries and is constrained by the imagination and boldness of its creator. Visual art serves as an embodiment and manifestation of a concept, showcasing the interplay between current technological capabilities and societal creative aspirations. Although being brilliant, the concept itself does not equate to a design. Nevertheless, it is an abstract creation of the human mind that eludes direct representation due to its intangible and ephemeral nature. Despite its significance, a concept remains an ethereal entity that can only be approached or approximated by a designer. The realm of visual arts education has experienced notable influence from Romanticism, which poses a strong emphasis on creativity, self-expression, and individuality. [4] This educational approach strives to empower students, therefore, encouraging them to explore their unique artistic styles and to convey their emotions and personal experiences through their creative endeavors.[5] However, it is crucial to acknowledge that while Romanticism advocates significance in visual arts education, it should not overshadow the importance of effectiveness.

An inclusive visual arts education should provide students with a strong background regarding technical skills, artistic principles, art history, and cultural context. Moreover, it should improve critical thinking, problem-solving, and collaboration skills, thus ensuring students are well-prepared for a variety of creative careers, including graphic design, illustration, animation, and fine arts. [6] In conclusion, while Romanticism can provide valuable guidance and inspiration in visual arts education, it should be harmonized with a focus on effectiveness, technical proficiency, and critical thinking. Within the visual arts, the term "aesthetic" refers to the concepts and qualities that contribute to the beauty, form, and emotional impact of an artwork. Its visual attraction is influenced by elements such as colour, line, texture, and composition. [7] The perception and interpretation of an artistic work by a viewer can be influenced by personal preferences and cultural context [8], thus rendering aesthetics in the visual arts not only objective but also subjective. Furthermore, aesthetics assume a significant role in art criticism and theory as these offer an insight into the social, cultural, and historical contexts of artworks, thereby enriching our comprehension of the human experiences. [9]

In visual arts education, a variety of teaching methods are utilized, and the most suitable approach depends on factors like instructional goals, student age and proficiency, and available resources. [10] Popular methods include demonstration, criticism, project-based learning, inquiry-based learning, collaborative learning, technology-based learning, and experimental learning. Each of these methods offers distinct advantages and accommodates various learning styles. [11] By employing a combination of these methods, educators can effectively engage learners and provide a comprehensive visual arts education experience.

In support of this concept, three case studies were cited, in case study (1) demonstrated consistency with similar research, highlighting the positive effects of transitioning from physical to virtual instruction during COVID-19. The study found that students maintained

comparable levels of understanding and engagement as in physical classrooms. Moving on to case study (2),it examined the use of Facebook to enhance tutor-student interaction and increase contact hours through virtual meetings. This approach significantly improved feedback timing and boosted student engagement, particularly for architecture students. Finally, case study (3) focused on constructing full-scale pavilion models using cardboard instead of digital tools. Despite the students' limited architectural knowledge and fabrication experience, the method proved highly successful. This research emphasizes that visual arts education that emphasizes hands-on learning fosters artistic skills and knowledge through practical experimentation with techniques like drawing, painting, and digital media. This approach enhances creativity and self-expression, supports individuality in art, and develops transferable skills such as problem-solving, critical thinking, communication, and collaboration, which have broader applications beyond the art field.

1.1. Teaching Colour Theory in Visual Arts

To effectively teach colour theory in the visual arts, educators should combine theoretical knowledge with practical application. Introduce basic concepts like the colour wheel, primary and secondary colours, and complementary colours. Once these are understood, students can explore different colour relationships, such as analogous, monochromatic, and complementary hues, as shown below in Figure (1). Discussing the emotional impact of colours helps students grasp how colours evoke moods in art. Using examples from art movements like Impressionism, and encouraging creativity through personal colour investigations, helps students develop their artistic skills and a solid understanding of colour theory. [12]

Fig. 1: analogous, monochromatic, and complementary hues [40].

1.2. Pedagogical Methods Strategies

Pedagogical approaches involve various strategies, techniques, and methods educators use to enhance learning and engage students in knowledge and skill development. These methods, grounded in research and practical insights, aim to create a supportive learning environment that fosters student engagement, critical thinking, and problem-solving. The effectiveness of these approaches depends on factors such as subject matter, student age, skill level, learning objectives, and classroom context. Examples include lectures, discussions, group work, project-based learning, and hybrid models. Educators tailor their methods to meet diverse student needs and create a meaningful educational experience[13]

1.3. Didactic Theory in Visual Arts

Didactic theory in visual arts focuses on principles and methods of teaching and learning. It emphasizes using of visual aids, like photos and videos, to enhance understanding and visual literacy. Critical thinking is encouraged through analyzing artworks, and considering composition, colour, and historical context. Hands-on learning and creative expression are key, with students exploring new materials and techniques to develop their artistic style. Overall, didactic theory provides a framework that fosters artistic skill development and creativity in a supportive learning environment. [14]

1.4. Specific Methods of Visual Arts Didactic

Teaching techniques are proven methods that facilitate effective communication between educators and students, aiding in transferring knowledge and skills. These techniques, refined through extensive testing, support personality development and learning. From a didactic perspective, teaching methods help achieve specific educational objectives, enhancing classroom interaction and communication. These approaches involve joint efforts from teachers and students to structure and transmit information meaningfully. In visual arts, didactic strategies like Visual Thinking Strategies (VTS) encourage critical thinking and discussion about art through open-ended questions. Project-based learning fosters creativity through hands-on art projects, while inquiry-based learning promotes investigation, especially in art history. Collaborative learning and feedback are essential for improving communication skills and artistic expression. [15]

1.5. Didactic Versus Perception in Visual Arts

Juliusz Órawski's theory explores how spatial perception and associated behaviours are continuous human experiences. Spatial objects, especially those evoking strong emotions, are more likely to be remembered and influence associations. Perceptions are personal and unique, shaped by individual experiences and categorized based on memories. Órawski classifies forms into "cohesive" (clear internal connections) and "free" (weaker connections), noting that humans tend to favor cohesive forms for their clarity and simplicity. [16] Form strength, determined by texture, size, and cohesion, impacts how a form is perceived. Simple, cohesive forms are and more accessible for the mind to process, and they stand out more against a background, which should exhibit more freedom to enhance form coherence. [17]

Architectonic form involves balancing cohesion and freedom to create functional and aesthetic unity. Repetition and rhythm in form composition, as shown in figures (2) below, enhance cohesion, while human cognition naturally favors orderly, grid-like spatial arrangements. This grid, composed of straight lines connecting key points, forms the basis for perceiving and recalling spatial structures. Subtle variations in these grids can create new correspondences, affecting how spatial layouts are remembered and perceived. [18]

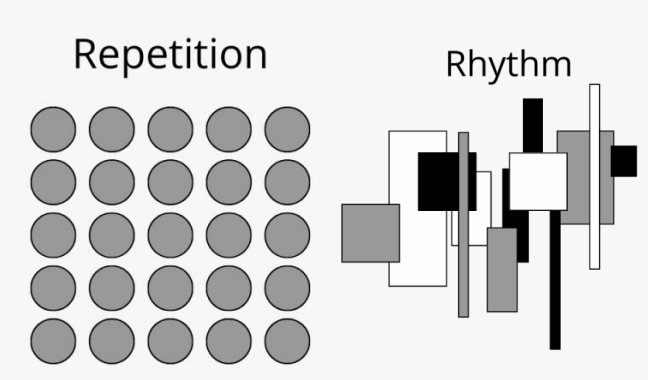

Fig. 2: Repetition and rhythm [41].

2. Methods and tools

Extensive studies and research have highlighted the crucial role of workshops in the visual arts. According to findings published in the International Journal of Art and Design Education, workshops are an excellent means for artists to enhance their skills, experiment with new techniques, and nurture their creativity. Moreover, the research emphasizes that workshops contribute to fostering a sense of community among artists and nurturing professional relationships. [19]. Further underscoring the significance of workshops, a study published in the Journal of Education and Practice highlights their value in supporting artists' professional development, particularly in acquiring new skills and expanding their networks. [20] The research demonstrates that workshops enhance awareness of artists' work and create additional opportunities for growth and advancement in their careers.
Overall, these studies affirm that workshops play a pivotal role in the visual arts. They offer artists avenues to improve their craft, explore innovative approaches, cultivate relationships within the artistic community, and ultimately promote their work, leading to further prospects for personal and professional development.

2.1. Visual Perception in Visual Arts

Visual perception plays a significant role in both the creation and appreciation of visual art. It encompasses the process by which our brains interpret and make sense of visual information from the surrounding environment. [21] Artists utilize various elements, such as colour, form, and composition, to craft visual experiences for viewers. Colour theory holds excellent importance in visual perception within visual art. Artists employ colour to establish contrast, harmony, and balance in their works. Contrasting colours, such as red and green, can evoke tension, while analogous colours like blue, green, and violet, can create a sense of harmony. Colour is also utilized to add depth and dimension to the artwork. Form is another key aspect of visual perception in visual art, referring to objects' three-dimensional shape and complexity. Artists use the form to create the illusion of depth and volume in their pieces. Techniques like shading and perspective are employed to establish a sense of depth and spatiality. [22]. Composition, or the arrangement of elements within a work of art, is crucial in shaping visual perception. It significantly impacts how viewers interpret and engage with the artwork. Below figures (3) are samples of the

students' outcomes, providing insight into their final projects and demonstrating their understanding of compositional techniques. Artists employ composition to guide the viewer's eye across the piece, establishing balance, harmony, and visual appeal. [23] Strategies such as the rule of thirds and dividing the image into thirds, both horizontally and vertically can be employed to achieve a balanced composition.

Fig. 3: Samples of the student's final designs, where they applied the principles of the Mondrian style to create simple shorts and t-shirts. These designs reflect their understanding of Mondrian's use of geometric forms and primary colours, translating abstract art into wearable fashion.

In conclusion, visual perception is a vital component of visual art. Artists utilize colour, form, and composition to create visual experiences, while viewers interpret and appreciate artworks using their visual perception. The interplay between artists' creative choices and viewers' perceptions contributes to visual art's rich and dynamic nature.

2.2. Learning By Making in Visual Arts

The design studio holds significant importance in art education, serving as a crucial element. Scholarly literature emphasizes that architecture students should engage in active learning, encompassing hands-on practice, reflection, critical thinking, and problem-solving. [24] The design studio effectively integrates all of these processes, providing a platform for students to apply the knowledge acquired from various subjects and workshops, while also nurturing their creativity. [25]

The approach of "learning by making" in the visual arts entails a teaching and learning method that prioritizes hands-on exploration and creation as a means of acquiring artistic skills, comprehension, and knowledge. [14] This method is rooted in the belief that students achieve optimal learning outcomes when actively engaged in creating art rather than passively observing or studying it. "Learning by making" proves to be a practical and enjoyable approach to visual arts education. Through the process of artistic production, children are empowered to explore their creativity, experiment with different materials and techniques, and develop their problem-solving abilities. [26]

In the visual arts, creating art encompasses both physical and cognitive learning. Students actively employ their hands to manipulate materials while simultaneously utilizing their

cognitive faculties to make choices regarding composition, colour, and other elements of their artwork. [27]. When students are opportunity allowed to engage in artmaking, they embark on a journey of trial and error. They can experiment with different strategies and approaches, and through this process, they learn from their mistakes. Exploration and experimentation serve as vital avenues for students to cultivate their artistic abilities, develop their skills, and foster self-assurance in their capabilities. [28]

Another advantage of acquiring knowledge by doing in the visual arts is that it fosters critical thinking skills among students, prompting them to reflect upon their surroundings. Students often derive inspiration for their artwork from personal experiences, observations, and emotions. By contemplating and expressing these experiences through art, students can develop a deeper understanding of themselves and the world in which they live. This process of reflection and exploration enables students to engage in meaningful self-discovery and gain insights into the complexities of their surroundings. [26]

As a result, engaging in hands-on learning by doing in visual arts can be a fulfilling and enjoyable experience for students. [29] Creating art provides a source of amusement and self-expression, allowing students to experience a sense of joy and fulfillment as they bring their artistic visions to life. It serves as a platform for students to take pride in their accomplishments and develop a deep sense of satisfaction with their artistic endeavors. [30]

The author of this paper is an instructor at a private university in Cairo, Egypt, tasked with teaching a visual arts course that includes Visual Studies (1) and (2). Our research focuses specifically on Visual Studies (2), which aim to explore the manipulation of colour through various pedagogical approaches. The course's main objective is to teach the principles underpinning colour theory, providing students with essential knowledge and practical skills in the fields of visual communication and representation.

A key component of the course is an introduction to the techniques and methods for forming colour schemes in interior design. Students are trained to identify and analyze different colour schemes and to present drawings that demonstrate a deep understanding of visual properties such as contrast, balance, and harmony.

The course has the following aims:

- Develop a comprehensive understanding of visual perception, the vision system, and the nature of color within the optical spectrum.
- Explore key color properties, including hue, value, and saturation, providing a scientific foundation for color theory.
- Strengthen students' practical abilities by introducing them to major theories of color organization, including the systems developed by Faber, Munsell, and Chevreul.
- Teach principles of color harmony, focusing on chromatic harmony, monochromatic harmony, triadic harmony, and complementary harmony.

The course was attended by 59 students, all in their first academic year, second semester. At this stage, the students had not yet engaged in model fabrication or advanced architectural design work, and many lacked experiences in conceptualizing or executing their ideas in

drawing form. Before undertaking this project, the students' work predominantly involved small-scale drawings on A4 or A3-sized paper, as shown below in Figure (4).

Fig. 4: Students' outcomes for the first part of the academic year.

The project, as outlined below, marked the students' first experience with full-scale (1:1) designs, a dramatic shift that challenged their ability to transition from small theoretical designs to larger, practical applications. For many students, this shift from paper-based drawings to real-world projects presented a significant challenge. The complexity of working at full scale demanded higher levels of innovation, creativity, and technical execution, pushing students out of their comfort zones and requiring them to grapple with real-world spatial and visual challenges. This research explores the outcomes of this pedagogical approach, assessing the extent to which students were able to apply colour theory principles in large-scale designs and how this experience influenced their overall development as future architects and visual artists.

The staff members for this course consisted of one assistant professor and four teaching assistants, governing a total of 59 students. These students were divided into two study groups, attending sessions on Tuesday and Thursday from 8:30 AM to 14:10 PM. The culminating assignment of the course tasked students with designing and implementing the course objectives through the creation of a wooden chair, known as "كرسي القهوة". This project required students to select a celebrity figure, either from the world of cinema or real life, and conduct an in-depth study of their character, preferences, and lifestyle. The core aim was for students to gain insights into the individual’s persona, identify elements that resonate with them, and use this information to create a mood board reflecting the celebrity's characteristics.

The project unfolded across four phases. The first phase involved research and analysis, during which students gathered information about the chosen celebrity's lifestyle and preferences, translating their findings into visual and conceptual ideas on the mood board. In the second phase, students were tasked with transforming these conceptual ideas from sketches or written notes into a tangible, physical design strategy that could feasibly be implemented. The third phase marked the beginning of the implementation process, where students commenced the actual construction and design of the chair, working to bring their creative vision to life. Finally, in the fourth phase, students prepared for the final submission and presentation of their work.

The whole project spanned a duration of four weeks, with each phase receiving concentrated attention on a weekly basis. Students worked in groups of 4 to 6, fostering collaboration and shared responsibility for the final product. During the last two weeks of the selected semester, students dedicated substantial time to the project, working on the university rooftop (The students' work is carried out on the roof because the spray used contains volatile compounds that could affect their health if applied in a closed studio. Therefore, the chairs must be sprayed outdoors in the fresh air for safety reasons). Photographic documentation of the process is limited, but the images that were captured showcase the students' efforts, particularly during the implementation phases. The step-by-step process for the initial fabrication stage is illustrated in Figure (5).

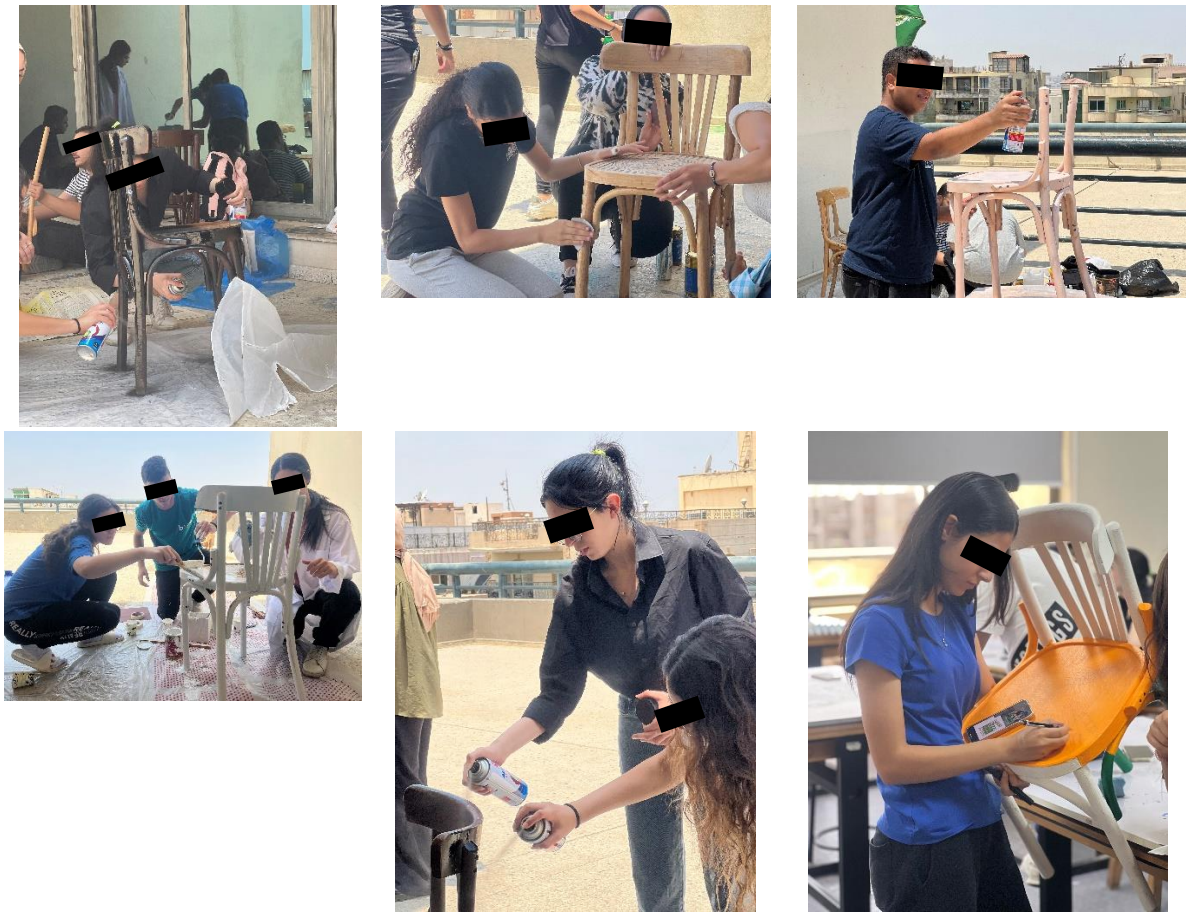

Fig. 5: Students participating in the fabrication.

This research follows a qualitative approach, which primarily relies on the descriptions provided by both the researcher and participants, with no use of quantitative or statistical analysis. The experiment's results were assessed from multiple perspectives, including feedback from the teaching staff, the examiner, and the students. As with any qualitative research, the outcomes revealed both strengths and areas for improvement. The findings indicate that the project was largely successful, with success being measured across several vital dimensions.

One of the main achievements was fostering team collaboration, particularly as many of the students had not previously worked together, being new to the architecture program and unfamiliar with group-based projects or the social dynamics involved. The project also facilitated a transition from conceptualizing ideas on paper to constructing a full-scale 1:1 model, allowing students to physically manifest their creative ideas. Additionally, students gained valuable practical experience, including sourcing materials such as fabric, experimenting with various painting techniques, and exploring new aspects of material selection and application. This hands-on experience broadened their understanding of how different materials and techniques influence the final design, enhancing their comprehension of both the aesthetic and functional aspects of their projects. Moreover, the process of presenting and defending their design concepts to the examiner played a pivotal role in fostering their professional development.

However, alongside these successes, the project also revealed several challenges, as noted by both the students and the examiner. The most significant challenges were related to the functional performance of the chairs. While many designs were visually compelling, they often lacked the necessary structural integrity, rendering them impractical for actual use. Material selection was another area of difficulty, as students encountered discrepancies between their expectations and the final results. For example, the colours chosen were often either too intense or too subdued, and the textures of the fabrics used did not match their original vision, which impacted the overall aesthetic coherence of the designs. Furthermore, group dynamics posed considerable challenges. Many students, accustomed to working individually prior to university, struggled with the collaborative process. Issues related to communication and task allocation within the groups affected their overall efficiency. The evaluation process was also constrained by the limited availability of examiners, as only one staff member was available to assess the projects due to the compressed timeline during the exam period.

Despite these challenges, the students took great pride in their work and actively shared their final products on social media platforms such as Facebook and Instagram. Their enthusiasm and satisfaction with the outcomes were evident through their engagement on these platforms. Figure (6) below illustrates the final outcomes produced by the students. These findings were obtained through an informal, unstructured interview with both students and the examiner, providing an opportunity for open discussion and reflection on the final submissions.

Fig. 6: A sampling of Student outcomes.

3. Comparison with other studies and conclusion

Visual arts education that emphasizes hands-on learning by doing and active engagement places a strong emphasis on practical experimentation as a means of developing artistic skills, comprehension, and knowledge. [29] Through a wide range of activities such as drawing, painting, sculpture, printmaking, photography, and digital media, students can explore diverse materials and techniques, thus enhancing their artistic abilities and facilitating creative self-expression. This approach encourages students to delve into their unique creative ideas and processes, fostering individuality in their artistic pursuits. Furthermore, the learning-by-making approach in visual arts education imparts valuable transferable skills that extend beyond the realm of art. Students acquire essential problem-solving, critical thinking, communication, and collaboration skills that can be applied in various aspects of their lives. This holistic approach not only cultivates artistic talents, creativity, and self-assurance but also hones practical skills that possess broader applications outside of the art field. [31]

When comparing the results of this research with other studies, it is evident that there is a strong alignment with similar findings and no notable discrepancies. This is particularly significant given the qualitative nature of this research, which relies heavily on descriptive analysis. However, each study operates within a different context or scenario. For instance, this research highlights how COVID-19 influenced instructors to shift from physical to

virtual instruction and how students adapted to this transition. The findings suggest that the change had a positive impact, with students receiving the same materials and achieving the same level of understanding and engagement as they would have in a physical classroom setting. [32]

A second study (2) explored the integration of Facebook as a platform for extended interaction between tutors and students. This approach increased the number of contact hours beyond the traditional in-person classes and office hours by facilitating virtual meetings and discussions. The study found that this method significantly enhanced feedback timing, allowing for more dynamic exchanges of ideas and solutions, particularly through Google searches and other online tools. This approach was highly recommended for architecture tutors to improve student engagement and access to timely feedback.[33]

A third study (3) focused on implementing Shape Grammars, an innovative approach often used in computational software for structure analysis before real-world application. In this case, the instructor deviated from the typical use of digital tools and instead employed cardboard to create multiple 1:1 scale pavilions without software. The results were highly successful, especially considering that the students in this study were of similar age and experience levels to those in our research, possessing limited knowledge of architecture and minimal experience in model fabrication.[34]

The regulations governing the visual arts remain unchanged, and perspectives on their teaching are not set in stone; they can evolve with time. [35] The adoption of innovative pedagogical tools in contemporary educational practices, along with the improvement of academic quality and the departure from traditional lesson structures, brings about numerous benefits. Engaging in experimental approaches within these processes also proves advantageous. Currently, a noteworthy undertaking is to enhance training effectiveness across all higher education institutions. [36].

The approaches of "make to learn" and "learn by doing" underscore the significance of active, hands-on learning. Rather than relying solely on memorization, these approaches encourage students to engage actively with the subject matter by creating something or resolving problems. Through processes of trial and error, students have the opportunity to learn from their experiences and enhance their understanding and skills. [37]. By experimenting with various approaches and witnessing the outcomes of their efforts, students can attain a deeper comprehension of the material while honing their critical thinking and problem-solving abilities. [38] Additionally, the "make to learn" and "learn by doing" approaches foster creativity and innovation by empowering learners to think outside the conventional boundaries and explore new ideas. This cultivates a growth mindset and a willingness to take risks, both of which are essential qualities for achieving success in any field. [39] Overall, these approaches can facilitate students in developing a deeper, more meaningful understanding of the material as well as the skills and knowledge required for future success.

4. Recommendations

Many significant recommendations are proposed to address the observed difficulties. First, greater focus must be placed on maintaining the structural integrity of design initiatives. Future projects could benefit from including technical workshops on material selection and structural analysis. This technique will help students understand the practical ramifications of their design decisions, ensuring their creations are visually appealing and functionally useful.

Second, improving the material selection process is essential. To connect students' expectations with actual outcomes, it is advised that hands-on sessions early in the course allow students to experiment with various materials. Giving students access to a variety of materials, as well as thorough instructions on how to utilise them, will allow them to make more informed decisions and achieve better results.

Another significant area for improvement is group dynamics and teamwork. The difficulties faced during team-based initiatives highlight the need for improved group cohesion and work management. Introducing team-building activities and setting clear frameworks for task distribution early in the project can help to increase communication and collaboration. Regular reflections on teamwork during the project may help improve group interaction.

Finally, increased examiner involvement may improve the feedback process. Due to the scarcity of examiners, enlisting additional reviewers or external specialists could result in more complete assessments. This would provide students with more opportunities to enhance their projects and learning results

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