Review of interdisciplinary courses feasibility within architecture and interior design pedagogy

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ABSTRACT

It is essential that educational establishments like universities, especially those in the GCC, continue to reevaluate the goals of the architectural and design degree programs they provide. Academics embarked on a project to reevaluate the pedagogy and practice-based impact of professional design education at the beginning of the 1990s. Their goal was to get a better understanding of the requirements imposed by the regional design sector. These evaluations, which were carried out in collaboration with educational establishments in the US and the UK, were carried out to identify helpful practices and underlying concerns in undergraduate and graduate design education. For this study, a survey of programs that provide degrees that span many disciplines, including architecture and interior design, was carried out. Most programs employ faculty members who have experience in fields such as architecture, project planning, landscaping, interior, and graphical design. The purpose of the research study is to analyze how the program encourages interdisciplinary coursework as well as how administrative support and financial resources influence the pedagogical structure and goals. From the point of view of the many design fields, which are all covered by the interdisciplinary design courses offered by schools that focus on architecture and interior design, there is a high demand for designers who can investigate design processes and systems and communicate across a wide range of design fields, both in the academic and in contemporary design industry.

1.0 INTRODUCTION

Interdisciplinarity enhances various design professions, Metropolitan Magazine (2004), Several industry experts feel that overcoming global multidisciplinary design issues, required collaboration across disciplines, **Flick, U. (2007)**. To establish an engaging pedagogy, design educators must stimulate cross-disciplinary cooperation in the classroom, it investigated interdisciplinary design methodologies "Designers must know different fields," It is critical to understand the social sciences, engineering, and management together. The emphasis on interdisciplinarity must extend beyond design education when considering design pedagogy, as interdisciplinarity, **Bayazit (2004).**

Professional standards for design innovation and educational discourses on knowledge restructuring have influenced the design ecosystem. Academic institutions throughout the globe are developing new postsecondary programs. Academics and designers are curious about the connection between design practice and research. Since Bayazit, design research and education have been inextricably linked. Even though there are stronger educational links between these parts, there aren't many multidisciplinary design education opportunities, **Bayazit (2004).**

Cross also observes that the advantages and applications of design thinking in design have risen in the last decade, **David Cox (2000)**. Design research must use both transdisciplinary and discipline-specific methodologies at the same time. Design professionals contribute to the refinement of the study framework. This strategy enhances both design theory and practice, **López-Fidalgo et al. (2009)**. This is possible because academic contexts utilize more interdisciplinary approaches and efforts when dealing with interdisciplinary design.

1.1 Scope and purpose

This research investigated how an interdisciplinary course may benefit design education. The courses integrate information from a variety of architecture and interior design disciplines to improve our built environment. The outcomes seek to foster interprofessional design education, the collaboration between interior design, architecture, and other associated professions, that enables interdisciplinary learning and instruction.

1.2 Significance of the study

This study provides an overview and feasibility analysis of interdisciplinary design courses and their difficulties. The study has a small target, but its techniques and conclusions may have wide-ranging implications. The study looks at the problems, opportunities, methods, and other factors for architecture and interior design, and concludes the benefits of interdisciplinary courses for both disciplines.

1.3 Objectives of the Research

Several objectives have been set to carry out the research study. However, primary objectives include.

1) To understand the value of interdisciplinarity in architecture and interior design programs.
2) To investigate the importance of interdisciplinary pedagogy in higher educational systems.
3) To examine the perspectives of the targeted group about interdisciplinary design pedagogy.
4) To explore the faculties' perspectives on interdisciplinary design courses.
5) To analyze the connections and variations in interdisciplinary design courses and pedagogy by conducting literature reviews, online web-based surveys, and questionnaires.

2.0 RESEARCH METHODOLOGY

This article discusses interdisciplinary design courses at various GCC-based universities. The study will present a literature review, collected data online, and distribute a questionnaire. The research examines architecture or interior design discipline course structure. The surveys employ quantitative and qualitative analysis, table 2 shows the study's structure. Each column indicates a different technique for answering the questions. Then, we'll discuss quantitative and qualitative methodologies and examine the collected data. As shown in the graphic, a literature review examines the value and relevance of interdisciplinarity in design education. Web-based data is collected to study interdisciplinary design pedagogy. The questionnaire examines how the sample faculty group teaches interdisciplinary courses' benefits and feasibility for architecture and interior design education.

2.1 Qualitative, Quantitative, and mixed Research Design

Qualitative research uses various philosophical assumptions, inquiry methods, data collection, analysis, and interpretation methods. Qualitative processes involve text and image data, different data processing phases, and different research methods. Qualitative researchers must first understand their biases and prejudices. Thus, the researcher may improve the study environment, **Creswell, (1998).** Scientific research uses qualitative or quantitative methods. Qualitative data collection, analysis, and interpretation are based on philosophical and methodological assumptions. Qualitative processes are similar to quantitative ones but have different data processing phases and research approaches. Qualitative researchers must identify their values and prejudices before starting. Researchers may improve the study environment, **Creswell, (2013).** Mixed approaches are used to improve research efficiency. "In qualitative research, words carry meaning, whereas, in a quantitative study, data are employed," **Berger, R. (2015)**.

Research Methodology	
Structure of research problems	
Research problem & Objectives	Methodology to be adopted
To understand the value of interdisciplinarity in architecture and interior design programs.	Relevant literature review
To investigate the importance of interdisciplinary pedagogy in the higher educational systems.	Web-based data collection
To examine the perspectives of the targeted group about multidisciplinary design pedagogy.	Preliminary questionnaire
To explore the faculties' perspectives on interdisciplinary design education.	Primary questionnaire
To analyse the connections and variations in interdisciplinary design courses and pedagogy by conducting literature reviews, online surveys, and questionnaires.	Data analysis (Qualitative and quantitative)
Conclusion, suggestions, and scope of future research for the relevant area	

Table -1: Structure and research methodology adopted in the study. (Source: Author)

3.0 LITERATURE REVIEW

The concept of interdisciplinary aspects of design courses has been explained in several ways by scholars, researchers, and many professionals from a wide variety of disciplines. Interdisciplinary studies in architecture and the sciences are critical, **Seipel Michael & Cho, Y. (2006, 2017)**.

3.1 Interdisciplinary aspect of design courses

The interdisciplinary aspect of design pedagogy and courses requires an understanding of architectural technology, history, philosophy, and criticism. As with other fields, design has its language and standards. Some design disciplines are more related than others. Interdisciplinary design course pedagogy promotes knowledge and engagement across other associated design disciplines. Interdisciplinary design helps architecture and interiors connect, in terms of skills enhancement and resolving multi-model project problems, **Margolin, et al (1996).** Design should be an interdisciplinary subject accessible to anyone participating in the construction of the physical environment or architectural masses. Professional designers and learners have productive discussions regarding the quality of their project work. These learners and professionals may discuss their personal experiences and get fresh insights about how they might interact more successfully as creatives. They expect that including non-design sectors would be able to widen design ideas and thinking, **Simpson, et al (2010).** Educators must collaborate with students, colleagues, and community members to develop an interdisciplinary study program. Interdisciplinary courses demand additional administration due to their specific themes and structure. Developing a good educational model with many views may make it challenging to coordinate curriculum or course design among schools or departments' **K. Fixson (2009).**

3.2 Meaning of Interdisciplinary

Interdisciplinary means cross-disciplinary cooperation, this conversation may range from a minimum idea exchange to a huge integration of ideas, methodologies, processes, epistemology, terminology, data, exploration, and learning frameworks. Individuals with varied expertise (disciplines) who work together to solve a problem, **Lattuca, et al, (2001).** Interdisciplinary design methodologies collaborate with other forms of design to help and understand the design processes, results, and explanations comprehensively. The historical, spiritual, political, socioeconomic, ethical, and logical motives that impact design education is complicated and called interdisciplinary characteristics, **M. Borrego and S. Cutler (2010).** Interdisciplinarity is a problem-solving method for addressing a difficult issue or researching a topic (or object-based approach). The issue or thing is not only a projection of one's mind or an abstraction, **Simpson, T. W et al (2008).**

Interdisciplinarity is a comparative structural development aimed at comprehending the underlying system or conceptual wholeness that unites all disciplines; **Hoffman et al, (2017).** The integration of data from several domains. Comparing and integrating data and ideas from other disciplines is a crucial aspect of this process, **Self, J. A et al, (2019).** The study of a subject within a single discipline using methodologies from a range of other areas is referred to as interdisciplinary, **Kaygan, P. (2014).** Interdisciplinarity incorporates data from a broad range of research domains to have a better understanding, **Klein, J.T et al (2001).**

3.3 Benefits of interdisciplinary courses

Interdisciplinarity is the only method to create a strong and effective connection between many forms of design, **Nadler, Gerald (1987).** Usually, the interdisciplinary course structure is developed in several ways: for example,

incorporating interdisciplinary critique into fields' ideas, approaches, or topics and criticism of how knowledge is divided into disciplines, **Salter et al. (1996), Borrego, M. et al (2009).**

3.4 Design Studio Pedagogy and interdisciplinarity

Learning by doing is a tried-and-true approach to instruction in the design studio. Architecture and interior design are inherently challenging. Every design instructor has a unique way of teaching, based on their ideals and perspectives. Interdisciplinary pedagogy in design education and studio employs a variety of disciplines, specializations, and teaching methods. various studios emphasize ethnic diversity in issues and creative solutions. Interdisciplinary studios may diversify their products. Technology may transform studio learning. They may improve linguistic, cultural, and classroom engagement, **Salama, A, (2006).**

3.5 Design Pedagogy in the Middle East region

Cairo's Parisian heritage influences Arab design education. Cairo and Alexandria's universities established architecture departments. Both departments were French for decades. 1940–1960 Arab states. Damascus University started Syria's first architecture school in 1967, after Aleppo Fine Arts School in 1958. 1980s engineering schools closed. The 1960s saw Iraq's architectural school established. European-trained Iraqi, Syrian, and Jordanian architects returned in the 1930s. In 1950, 1957, and 1964, Egyptian institutions Al Azhar, Assiut, and Ain Shams established comparable programs. 1962 was created by Architectural Engineering faculty. The American University of Beirut began architectural training early. Both institutions supported Arab nations beyond Lebanon. **Attia, A. S., Ashraf Salama (2005, 2019).** Cairo's first architectural school was "Mohandeskhana". Both institutions provided summer architectural courses. In 1839, the School of Public Works connected two schools. It resembled Paris Polytechnic. 1866. Many Egyptians studied architecture in Paris. "Beaux-Arts" architectural instruction also gained popularity, **Ashraf Salama et al. (2005).** In the late 1970s, a dearth of Saudi architects required the quick development of architectural projects. When Saudi and UAE scholars returned from completion of design studies in the western world, they delivered tremendous design projects in the middle east, **Akbar J (1986).**

3.6 Accreditation

A few decades ago, the idea we now refer to as "accreditation" did not even exist. There has been a major movement toward the introduction of high-quality ideas into instructional practices as a direct result of this massive transformation**.** (PHIE) (Professional and industry-oriented higher education in (GCC) generally follows British, Indian, and American traditions. Tertiary institutions' vision, purpose, and goals change often. Teaching tends to trump critical thinking's problem-solving abilities, **Walters, T, et al. (2010), and Noori, N et al. (2013).** formalized their regional alliance (GCC). The GCC's local, regional, national, and global support for higher education has not kept pace with this increase. An aging high school indicates that the GCC needs a cohesive education plan. AICAD only accepts organizations accredited by NASAD, **Shimizu, R. (2013), and NCAAA, (2018)**.
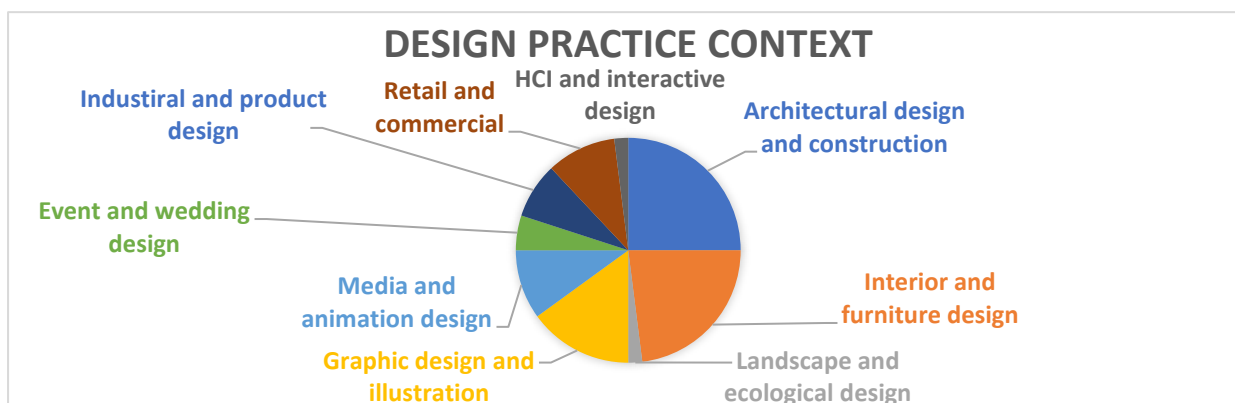
Figure - 1, Design Practice context in Middle East GCC countries (Source: NCAAA, annual reports)

Design Area/ Field of ID	Educational Program			
	UG	PG	Diploma	Certificate
Architectural design and construction	56	12	56	8
Interior and furniture design	22	8	2	0
Landscape and ecological design	22	10	0	0
Graphic design and illustration	30	5	187	42
Media and animation design	9	6	60	48
Event and wedding design	14	0	82	1
Product and industrial design/fashion/Textile and leather/	26	11	5	0
Retail and commercial	12	6	2	1
HCI and interactive design	2	2	1	0

Table 2: Comparison of Design educational context in Middle East GCC countries, (Source: NCAAA, annual reports)

3.7 Perspective of Interdisciplinary Courses

Interdisciplinary design pedagogies are developing as a dynamic practice in design education because of growing attention and respect for their created works. Their work encompasses urban design, architectural design, interior design, and engineering. Multidisciplinary design, which involves numerous professionals from many design subfields examining a problem at the same time, may provide greater outcomes, **Lee, Y. (2013).** The students' design project consists of a wide assortment of responsibilities, some of which are also carried out in the conventional studio. It is useful to assess the abilities learned in the interdisciplinary studio. A collaborative background can be applied to larger interdisciplinary project initiatives, **Saxena, S. (2001).**

4.0 ANALYSIS

This research paper combined methods for the analysis of primary and secondary data. Quantitative research generates a pile of raw data that must be interpreted. It's feasible that we'll be able to employ well analytic techniques in the advancement and testing of new hypotheses. **Punch, K. F. (2013)**. Collecting and analyzing data until "theoretical saturation," when fresh evidence doesn't add to your new theory, **Delve (2021).**

The questionnaire assesses the usefulness of multidisciplinary architecture and interior design education. All architectural and interior design faculty at the 10 institutions received the main questionnaire through email.

5.0 RESEARCH OUTCOMES

Architectural and interior design pedagogical differences and similarities. The research can detect where the two groups overlap and diverge by comparing the categories' replies to the identical questions in each topic. Teachers and educators, for example, may have a similar pattern of responses. However, in this context, the words "professor" and "associate professor" do not signify the same thing. The tenured professors are distributed among the several academic units in a manner comparable to what is found elsewhere. Respondents recommended a balance between architectural and interior design courses. Studio and lecture classes are the most popular. As the second question suggests, studio culture is generally limited to students studying the same subject. This problem also pertains to interdisciplinary design education development.

Question No (1-5)	Summary of the findings of Questionnaire 2B, Quantitative approach			
Q1. Names of the courses	Urban Design	Community Design	Inclusive Design	B.S in Design/Others
Architecture	52.9%	11.8%	11.8%	23.5%
Q1. Names of the courses	Visual Communication	MEP Services in Interior design	Inclusive practices in Interior Design	Aesthetics and animation/Others
Interior Design	28.6%	57.1%	7.1%	7.1%
Q2. Disciplines associated	Urban Study/History	Sociology	Ergonomics/Anthropology	Engineering
Architecture	52.9%	11.8%	11.8%	23.5%
Interior Design	28.6%	28.6%	35.7%	7.1%
Q3. Interdisciplinary course taught (Team)	Studio-based interdisciplinary courses	Theory-based Interdisciplinary courses	Lab-based	Seminar based
Architecture	70.6%	11.8%	11.8%	5.9%
Interior Design	57.1%	0%	42.9%	0%

Q3. Interdisciplinary course taught (Single)	Studio-based interdisciplinary courses	Theory-based Interdisciplinary courses	Lab-based	Seminar based
Architecture	0%	88.2%	5.9%	5.9%
Interior Design	14.3%	57.1%	7.1%	21.4%
Q4. Teachers field	Architecture core	Sociology/Art	Ergonomics/Anthropology	Engineering /Science/Others
Architecture	76.5%	7.1%	7.1%	11.8%
Q4. Teachers field	Interior design /Design core	Engineering/ Science	Ergonomics	Visual study / Others
Interior Design	85.7%	5.9%	5.9%	0%
Q5. Course (Seasons)	Fall	Spring	Summer	Self-oriented free semester
Architecture	70.6%	11.8%	11.8%	0%
Interior Design	78.6%	5.9%	5.9%	5.9%

Table 3: The summary of the questionnaire (Quantitative approach), Source: Author

Question No (6-10)	Summary of the findings of Questionnaire 2B, (Open-ended question related to interdisciplinary courses) Qualitative approach			
Qualitative Approach	**WHAT**	**WHY**	**HOW**	**HENCE**
Significant considerations		To solve difficulties and complicated problems (5.3%)		
	Recognized the relationship between collaboration in learning		Adopt a common code (5.3%)	specialized knowledge. (5.3%)
	Encourages interaction between learner's groups (7.9%) Encourages interaction between learner's groups (7.9%)		Promote the ideas sharing (13.2%)	learner for beyond studio (7.9%)
	Initiates students into the study (15.8%)		Group work (18.4%)	

Table 4: The summary of the questionnaire (Qualitative approach), Source: Author

6.0 DISCUSSION

Interdisciplinarity's creativity, practicality, and teamwork may boost design education. **Grimaldi, R., et al. (2011) and Brodack, F. et al. (2017)** argue knowledge is either common or nonexistent. He felt everyone should discuss and honor scientific and artistic accomplishments. Collaborative learning helps pupils overcome challenges and learn. Interaction, broadening perspectives, and improving critical thinking and communication abilities help pupils learn more, **Stompff, G., et al. (2016).** The study found that outstanding transdisciplinary design must also absorb design concepts. Most respondents agreed with the literature's conclusion that all disciplines must embrace interdisciplinarity's unique traits to succeed. Interdisciplinary design courses promote cross-disciplinary collaboration to improve design knowledge. The study questionnaire emphasized transdisciplinary design education. As per the outcome, a total of 80% of early survey respondents believed working with students from other disciplines is useful. All disciplines should highlight interdisciplinary topics like architecture, interior design, product design, and others. Multidisciplinary skills may address long-standing design difficulties in architecture, interior design, and others, **Szostak, R. (2015).**

8.0 CONCLUSION

This research examined the pros and cons of multidisciplinary design education and its barriers to growth. This research revealed multidisciplinary design course issues. The curriculum is not fully integrated since many students are not required to attend architecture or interior design studio or lecture sessions. Each of these subjects benefits from the studio's training. The studio is solely open to students in each course, thus other students seldom get to experience it. If their education doesn't involve a more flexible teaching style than the studio, students may struggle to engage in transdisciplinary design's interactive learning. The educators appreciate student cooperation across disciplines. Interdisciplinary design education is good and should be enhanced so students may learn more about design and identify design difficulties that can be addressed by working with architecture and interior design. This will help students comprehend the design and how architecture and interior design can address design difficulties. It must be taken a variety of courses to get a degree in any design-related field. Professional design requires students to collaborate across disciplines.

8.1 APPLICATION AND RECOMMENDATIONS

The findings of this research have implications that may be drawn across a wide range of design fields. This study will be useful for professors of design disciplines who establish and organize interdisciplinary design classes as a resource for what is required to provide interdisciplinary courses and how to develop this class structure. This study will help design professors set up and run classes that bring together ideas from different fields and help to achieved program learning outcome as per industry requirements and prepare graduates to resolve current architectural and interdisciplinary project challenges.

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