البحث رقم (١١)

Connecting the Dots
Multicourse Collaborative Project Within Interior Design Program

ربط النقاط
مشاريع العمل الجماعي بين مقررات برنامج التصميم الداخلي

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الملخص

يعتبر العمل الجماعي عنصرا حاسما في مجال التصميم الداخلي. الغرض من هذه الدراسة هو التحقيق في كيفية استخدام مشروع تعاوني مزدوج بين مقررين دراسيين لتحسين مستوى التحصيل العلمي للطلاب في مقررات التصميم الداخلي. الهدف من هذه الدراسة هو جمع طلاب مقررين دراسيين مع بعض في مشروع واحد قائم، مقرر تصميم أماكن عامة (١) ومقرر منظور هندسي (١). تمت التجربة بإعطاء طلاب مقرر تصميم أماكن عامة (١) فكرة مشروع تصميم استراحة طلابية في كلية التربية الأساسية، حيث قاموا بعمل الهوية العامة للمكان، المخططات الهندسية وتوزيع الأثاث. ثم تم إدخال مقرر منظور هندسي في التجربة للمشاركة بالمشروع لعمل مناظير هندسية ثلاثية الأبعاد 3-D تتناسب مع طبيعة مشروع الاستراحة الطلابية. تعمل هذه الدراسة على كشف توجهات طلاب التصميم الداخلي اتجاه المشاريع التعاونية وتأثير تعليم التصميم الداخلي على العمل الجماعي، بالإضافة الى التعرف على آراء الطلبة في تجربة العمل الجماعي وكشف إيجابيات وسلبيات التجربة وكيفية تفادي السلبيات بالمستقبل من وجهة نظر المتعلمين. ضمت هذه التجربة (٣٤) طالبًا مسجلين في مقررين دراسيين من المستوى الأعلى في قسم التصميم الداخلي في كلية التربية الأساسية في الكويت. استخدمت الدراسة الاستبانة كـأداة مـن أدوات جمـع المعلومـات مـن المشاركين بالدراسة، باستخدام كل من الأساليب الكمية والنوعية بما في ذلك الأسئلة المفتوحة والمغلقة. لتقييم تصورات الطلاب ومواقفهم تجاه العمل الجماعي، استخدم الباحث مقياس ليكرت المكون من ٥ نقاط. أشارت النتائج أن الطلاب بشكل عام أن الطلاب لديهم مواقف إيجابية ورضا تجاه المشاريع التعاونية. أوضحت النتائج أنه يعتقد أن المشاريع التعاونية يمكن أن تعزز نتائج التعلم الاجتماعية والمعرفية للطلاب. تقترح الورقة توصيات لتنفيذ أساليب تعليم وتعلم متسقة في جميع مقررات ومشاريع التصميم الداخلي.

الكلمات المفتاحية: تعليم التصميم الداخلي، العمل الجماعي، توجهات، عدة مقررات

Abstract

Collaboration is regarded as a critical component of the interior design profession. The purpose of this study is to investigate how a dual collaborative project may be used to improve students' learning in interior design courses. The main objective of this project was to combine two different courses' students working on a project. In addition, participants' opinions regarding the collaborative project experiment were explored to know the advantages, disadvantages, and ways to improve the experiment in the future from their It investigates students' attitudes toward collaborative projects and the effect that interior design education has on collaborative learning. This multicourse experiment enlisted thirty-four (N=34) students enrolled in two upper-level core courses in the interior design department at the College of Basic Education in Kuwait. The study employed survey questionnaire, using both quantitative and qualitative methods and including both open-ended and closed-ended questions. This collaborative project aims to combine two different courses in the interior design program to work on one project. After developing eleven lounge design projects by Public Places Design students, Perspective Drawing students were assigned to those projects by their instructor. To assess students' perceptions and attitudes toward cooperation, the researcher used a 5-point Likert scale. The findings indicated that students generally have positive attitudes and satisfaction toward collaborative projects. Results communicated that it is believed that collaborative projects could enhance students' social and cognitive learning outcomes. The paper suggests recommendations for implementing consistent teaching and learning methods throughout interior design courses and projects.

Keywords: collaboration, interior design education, attitudes, multicourse

Introduction

In the education and professional world, collaboration is considered one of the essential soft skills (Kim et al., 2008). Collaborative learning refers to "an instruction method in which students at various performance levels work together in small groups toward a common goal" (Gokhale 1995, p. 22). This requires students to work cooperatively to design a project or seek solutions to an issue. Collaboration is one of the effective ways to enhance students learning

by making them share knowledge illustrating the real-life situation in professional business (Kim et al., 2008).

The purpose of this cross-sectional study is to examine the antecedents and consequences of student learning outcomes through a multicourse collaborative project within the interior design courses. Specifically, an investigation of students' attitudes and opinions toward collaborative projects were examined. The main objective of this project was to combine two different courses' students working on a project. In addition, participants' opinions regarding the collaborative project experiment were explored to know the advantages, disadvantages, and ways to improve the experiment in the future from their perspectives. A multicourse collaborative project was developed to achieve these research objectives for redesigning a student lounge at the College of Basic Education (CBE) - The Public Authority for Applied Education and Training (PAAET) - in Kuwait. Two interior design fundamental courses, Public Places Studio and Perspective Drawing, were combined to work collaboratively on a project. In this project, students spent four weeks in the semester on a collaborative project.

Literature Review
Multidimensionality of Collaborative Learning Outcomes

Humans tend to learn from each other more effectively through collaboration, known as the social learning theory. The dynamic interaction of collaboration improves students' communication skills and engagement (Kim et al., 2008). The researchers found that team-based projects increased students' engagement and social skills, improving project quality. Same majors' students tend to share ideas and thoughts more and develop relationships easily when grouping in a project (Winter et al., 2008). Therefore, teaming up students in the same department to work together would benefit not only students but also the final design project. Kim et al. (2008) argued that students' learning and teamwork commitment could be enhanced when a group of students share similar interests and have positive team interactions.

Cognitive Learning Outcomes

Cognitive learning refers to the development of awareness and critical thinking. The latter is improved within the social aspect (Ma & Pendergast, 2010; Johnson & Johnson, 1986; Sandahl, 2010). Working

in a collaborative project tends to improve students' cognitive learning due to peer learning from their classmates (Ma & Pendergast, 2010). Further, students' understanding of subjects has improved when collaborating on a project compared to students who work individually (Gokhale, 1995). Hence, collaboration has a positive influence on students learning outcomes as well as personal skills.

Importance of Collaboration in the Industry

One of the most critical personal skills for interior designers is to work collaboratively with others. In their study, Alansari and Alnajadah (2018) surveyed interior designers and architects in Kuwait, aiming to bridge the gap in the literature regarding the competencies sought by entry-level interior designers in the Kuwaiti market. The researchers found that the top first personal skill that interior designers need to possess is collaborating with other interior designers and professional allies. The results were anticipated given the fact that interior designers have to work in congestion with other professionals in the built environment.

In her study, Scarton (2012) aimed to bridge the gap between interior design education and entry-level employees in the United States based on the knowledge and skills in professional areas sought by design professionals. The researcher surveyed the top 200 interior design firms in the United States with an online survey. The study illustrated that the top first skill sought by entry-level interior designers is working in a team environment with a high mean score and low standard deviation, showing the importance of holding collaboration skills for emerging professionals.

Researchers examined students' attitudes toward collaborative projects. The researchers surveyed a total of eighty-five undergraduate students, both upper and lower divisions, to determine the influence of interior design education on students' attitudes toward collaborative learning. Results of the study revealed that lower-division students had more favorable attitudes toward collaborative projects than their counterparts. The researchers encouraged educators to play an essential part in influencing emerging professionals' attitudes and behaviors to collaborate in academia to be better prepared for the workforce (Gale et al., 2014).

Collaboration in the Interior Design Education

Interior design education highly values collaborative learning. In fact, collaborative learning is emphasized in Standard 2 [Global Perspectives], Standard 5 [Collaboration], and Standard 7 [Professionalism and Business Practice] in the 2014 Council for Interior Design Accreditation (CIDA) professional standards for program accreditation (CIDA, 2013). This shows the necessity of collaboration that needs to occur among interior design students. Also, Design Intelligence ranks America's top architecture and design schools by surveying the nation's engineering, architecture, and design firms that best prepare their students for success in the workforce. The survey contains several aspects related to the designer's professional skills, one of which is teamwork. Their survey disclosed that collaborative design is an emerging issue in the profession (Design Intelligence, 2013).

Collaboration and Training

Several students tend to have adverse reactions toward collaborative projects. This may have resulted from lack of communication, poor coordinating schedules, lack of control, and insufficient workload (Webb & Miller, 2006). Webb and Miller (2006) surveyed Interior Design Educators Council (IDEC) members, including 15 faculty and 214 students from different programs in the United States, to determine educators' perceptions of team training and its success for collaborative projects accomplished in interior design studio-based courses. The researchers found that students tend to have positive studio collaboration attitudes when educators train and coach students' effective collaboration strategies and teamwork structures. Hence, training students with collaboration techniques and teaching them teamwork structures and roles positively impacts collaborative learning attitudes and perceptions.

Research questions:

1. What is interior design students' attitudes towards collaborative projects?
2. What is interior design students' perceptions of collaborative learning?

Methodology
Sample and Procedure

Working in a collaborative project provides students with a great deal of mutual learning and building social skills (Kim et al., 2008). In order to gauge various perspectives and knowledge levels in a group, students enrolled in two fundamental interior design courses, upper-division undergraduate, were sampled to collect data in the collaborative project. Eleven students (n=11) from Public Places Design Studio course were selected. Additionally, twenty-three (n=23) students from Perspective Drawing Course were selected for the study. Hence, a purposive sampling technique was deployed in the study. The deliverable project included floor plans, Sections, 3-dimensional drawings, Mood Boards, and lighting plans. Participants completed the questionnaire in the class at the end of the semester after students submitted their final projects.

The shared goal of the collaborative project was to successfully establish a comprehensive student lounge interior design at the College of Basic Education in Kuwait. Students were informed at the beginning of the semester regarding the collaborative project. Students enrolled in Public Places Design Studio were responsible for designing the student lounge, including data gathering, interviewing students, site location and measurements, color selections, furnishing selections, lighting specification, and space planning, developing the floor plan and section. In contrast, Perspective Drawing course students were responsible for developing three-dimensional (3-D) drawings of the project.

Collaboration Experiment

This collaborative project aims to combine two different courses in the interior design program to work on one project. After developing eleven lounge design projects by Public Places Design students, Perspective Drawing students were assigned to those projects by their instructor. Every two students from the Perspective Drawing course were assigned to each project. To fit the number of students from the Perspective Drawing course, one project had two Perspective Drawing students to work on. Public Places Design students were the moderators for the collaborative projects. They were responsible for managing the team members. They were provided information and guidelines by their instructor in how to manage and lead the team members because they have the main projects, student lounge projects. Since lectures of both courses were at the same day and time that enabled the instructors to

gather the students at the same time. Students from both courses met in class together two times over two weeks with their instructors, and they were asked to communicate outside the class. Contact information for students from both courses were shared, and students developed a WhatsApp group as a mean of communication. Students from both courses were instructed by their two instructors to inform them about deliverables and guidelines. Each Perspective Drawing student was asked to develop a three-dimensional drawing based on the project, reflecting and following the design concept and identity. Hence, each student lounge design received two perspective drawings. Finally, the final projects of each group for both courses were sent on the same day for assessment and final evaluation (see figures 1-8 examples of Public Places Studio design projects; Figures 9–14 examples of Perspective Drawing course).

Instrument

Through using surveys, both quantitative and qualitative research methods were employed in this study through close-ended, 5-point Likert type scale, and open-ended questions. The measurement items for each variable are shown in Table 1. Some of the items used in this study were adapted from existing scales, while others were developed for the purpose of the study.

Attitudes toward the collaborative project were measured by six items adapted from two papers: Byun et al. (2012), and Gale et al. (2014). Students' project satisfaction was measured by four items employing a 5-point Likert scale (1= Strongly disagree and 5=Strongly agree). One of the items was borrowed from (Byun et al., 2012), while the researchers developed the remaining questions. Students' Social and cognitive learning outcomes about the collaborative project were measured by two questions. One of the questions was adapted from (Byun et al., 2012), and the researchers developed the other question. Participants' opinions regarding the collaborative project were measured by four open-ended questions developed by the researchers. The questions are as follows:

- In your opinion, what are the benefits of the collaborative project?
- What are the disadvantages of the collaborative project?

- What are the issues that occurred with your peer from the other course?
- In the future, how can we alleviate those issues to occur when developing a multicourse collaboration?

Finally, respondents' demographic information related to the class were addressed through closed-ended questions (Appendix A).

Validity and Reliability

A pilot test was conducted through face-to-face structured interviews with five interior design students outside the study sample. The pilot test confirmed that the instrument statements were clear and understandable from students' perspectives. After conducting the pilot study, the researchers refined the research instrument. Cronbach's alpha (α) reliability coefficients were used to check the reliability of the research instrument. Cronbach's alpha coefficients of attitude toward collaboration scored α =.89, project satisfaction α = .90, and social learning outcomes of α =.80, which exceeded the desired level (Tabachnick & Fidell, 2007).

Data analysis
Quantitative Data

The quantitative data were coded and analyzed using the Statistical Package for Social Sciences (SPSS). To maintain validity, the data were double-checked upon each entry. This ensured that the data collected and analyzed were reliable in presenting factual and practical findings. Cronbach's alpha coefficients were used to measure of internal consistency of the variable scales.

Qualitative Data

The qualitative data were analyzed using an open coding technique. During open coding, the data were categorized into discrete parts. Open coding is a technique that allows the researcher to read the manuscript closely and code similar words and concepts into themes and patterns, using Braun and Clarke's (2006) procedures for thematic analysis. The process of finding similar concepts grouped around the phenomena is called categorizing. The discovered themes represent the key points illustrated by the survey results.

Research Results

A total of thirty-four surveys were collected from both groups resulting in a 94% response rate, and all respondents were female. Two surveys were eliminated due to incomplete responses. The mean of the respondents' age was 21 years old with a range of 19–26. Eleven students enrolled in Public Places Design Studio (32%), and twenty-three (67%) participants enrolled in Perspective Drawing Course.

Descriptive Statistics

Attitude Toward Collaborative Learning

Students had positive attitudes toward teamwork. The findings show that students feel that collaborative project is good for them (M= 3.77), collaborative project is helpful for them (M=4.03), collaborative project is a worthwhile (M=3.74), the collaborative project is valuable for them (M=3.84), the collaborative project is positive for them (M=3.87), the collaborative project is favorable for them (M=3.29) (see Table1).

Table1. *Attitudes Toward Collaborative Projects*

Measurement items	M	SD
Bad—Good	3.77	1.1٥
Useless—Useful	4.03	1.3
Worthless—Worthwhile	3.74	1.16
Not valuable—Valuable	3.84	1.15
Negative—Positive	3.87	1.36
Favorable – Not favorable	3.29	1.24

Note. (M = mean; SD = standard deviation). Attitude toward collaborative learning:1=strong negative attitude and 5 =strong positive attitude.

Project Satisfaction

The majority of the participants seem to be satisfied with the collaboration project experience (see table 2). More than half of the students were satisfied with the collaboration project (64%, n= 20), and nearly two-thirds of the participants worked hard because their projects depended on their college's project (68%, n=21), about half of the participants were stressed since their grades may be influenced by their peer's work (52%, n=16). More than half the students faced difficulties in the collaborative project related to personal communications, design ideas, and understanding the project (61%, n=19).

Table 2. *Collaboration Project satisfaction*

Statement		SA	A	DK	D	SD	Total
I am satisfied with the collaborative project.	N	3	17	6	2	3	31
	%	10	54	20	6	10	100
I worked hard because my project depended on my college projects.	N	11	10	9	1	0	31
	%	36	32	29	3	0	100
I was stressed since my grades may be influenced by my peer's work.	N	4	12	9	4	2	31
	%	13	39	29	13	6	100
I had difficulties in the collaborative project (communications, design ideas, understand project).	N	8	11	5	4	3	31
	%	26	35	16	13	10	100

Note. **Project satisfaction: 1 =strongly disagree and 5 =strongly agree (SA = strongly agree; A = Agree; DK= Don't Know; D = Disagree; SD = strongly disagree).**

Social/Cognitive Learning Outcomes of the Collaborative Project

Participants seem to be more positive in the social learning outcomes of the collaborative project with other classes (see table3). The majority of the students believed that collaborating with other classes helped them learn more about the subject (71%, *n*=22), and most of the students think that collaborating with other classes allowed them to improve their social skills (74%, *n*=23).

Table 3. *Social/Cognitive Learning Outcomes of Collaborative Project*

Statement		SA	A	DK	D	SD	Total
Collaborating with other classes helped me learn more about the subject.	N	10	12	4	3	2	31
	%	32	39	13	10	6	100
Collaborating with other classes allowed me to improve my social skills.	N	7	16	6	2	0	31
	%	23	51	20	6	0	100

Note. **(SA = strongly agree; A = Agree; DK= Don't Know; D = Disagree; SD = strongly disagree).**

Qualitative Analysis

In this section of the questionnaire, students were asked open-ended questions to express their thoughts and experiences of the teamwork

project. Participants were asked about the advantages, disadvantages, challenges, how to overcome issues in the future, and their opinion in general. The findings are highlighted to the following points:

Advantages

Students reported that collaborative projects had many advantages. For instance, students reported that they developed design and social skills. Also, students had acquired knowledge of the other studio courses in general and in interior design specifically. Students' learning experiences were improved as they were happy with the class engagement and discussion. Students acknowledged positive experiences to increase communications and collaboration between their group mates.

Disadvantages

Students claimed that collaborative project experience had some disadvantages. Some of the students reported difficulty in meeting with their peers. Also, students reported that the main issue was that their classes' time schedules were different, making it difficult to meet frequently. Also, a few students reported that their peers were difficult to convince on design ideas, uncooperative, and careless.

Issues related to experiment

The students also perceived certain limitations and challenges to the collaborative project experience. Students reported time constraints since students started to team up at the end of the semester, which was one of the main challenges. More than half of the participants reported communication difficulties as one of the main challenges they faced. Project time management was one of the limitations expressed by students. While one student was about to finish a task, the other had just begun working on the task. One student reported the frustration of burnout she faced as challenging in the teamwork experience. Additionally, some students reported their peers were not responsible, which really caused some frustrations for them.

Solutions for Future Project

Several numbers of participants provided solutions for a future collaboration project. Some of the ideas suggested planning the course time, such as doing collaborative projects between two or three courses

scheduled at the same time and day of the week. Students believe providing more time for collaboration would positively improve the collaboration experience and reduce stress. For instance, planning the integration of the work at the beginning of the semester or explaining the teamwork project early when the semester starts would contribute to the success of the collaborative project. One student thought that the teamwork project needed more planning from the instructors.

Research Discussions

It is noticeable that when asking participants regarding hard work because their project depends on their college projects, nearly two-thirds of the participants agreed on that, and only one student disagreed. This demonstrates the commitment of the students to the collaborative projects and understanding the responsibility behind the project. The findings showed that the multicourse collaborative project allowed students to clarify complex concepts through group interaction in class, which allowed students to discuss the project inside and outside the classroom. Based on an analysis of the qualitative data, the teamwork approach seemed to have facilitated active learning by providing more opportunities for students to engage together as it is in real life. These results suggest that the multicourse collaborative approach enhances the student learning experience.

Students' attitudes toward multicourse collaboration were generally positive. In the close-ended questions of the attitude toward collaboration, students intended to have positive attitudes. The findings of the attitude section are similar to other studies (Byun et al., 2012; Kim et al., 2008). However, Gale et al. (2014) found that upper-division students tend to have negative attitudes toward collaborative projects due to the complexity in assignments which means students have to spend more time and effort, which is not the same case for this study. Another possible justification for this finding may result from coaching students and providing instructions in the matter.

Students tended to be satisfied with the multicourse collaborative project. In the 4-items of collaboration satisfaction, most of the students showed their satisfaction with the multicourse collaborative project. This finding is beneficial and essential since the interior design program has not included collaboration as one of the components in its

curricula as of March 2019. Also, the findings showed that students have positive social learning outcomes of the collaborative project. This means that students benefited from collaborating with other classes in learning social skills and learn more about the subject.
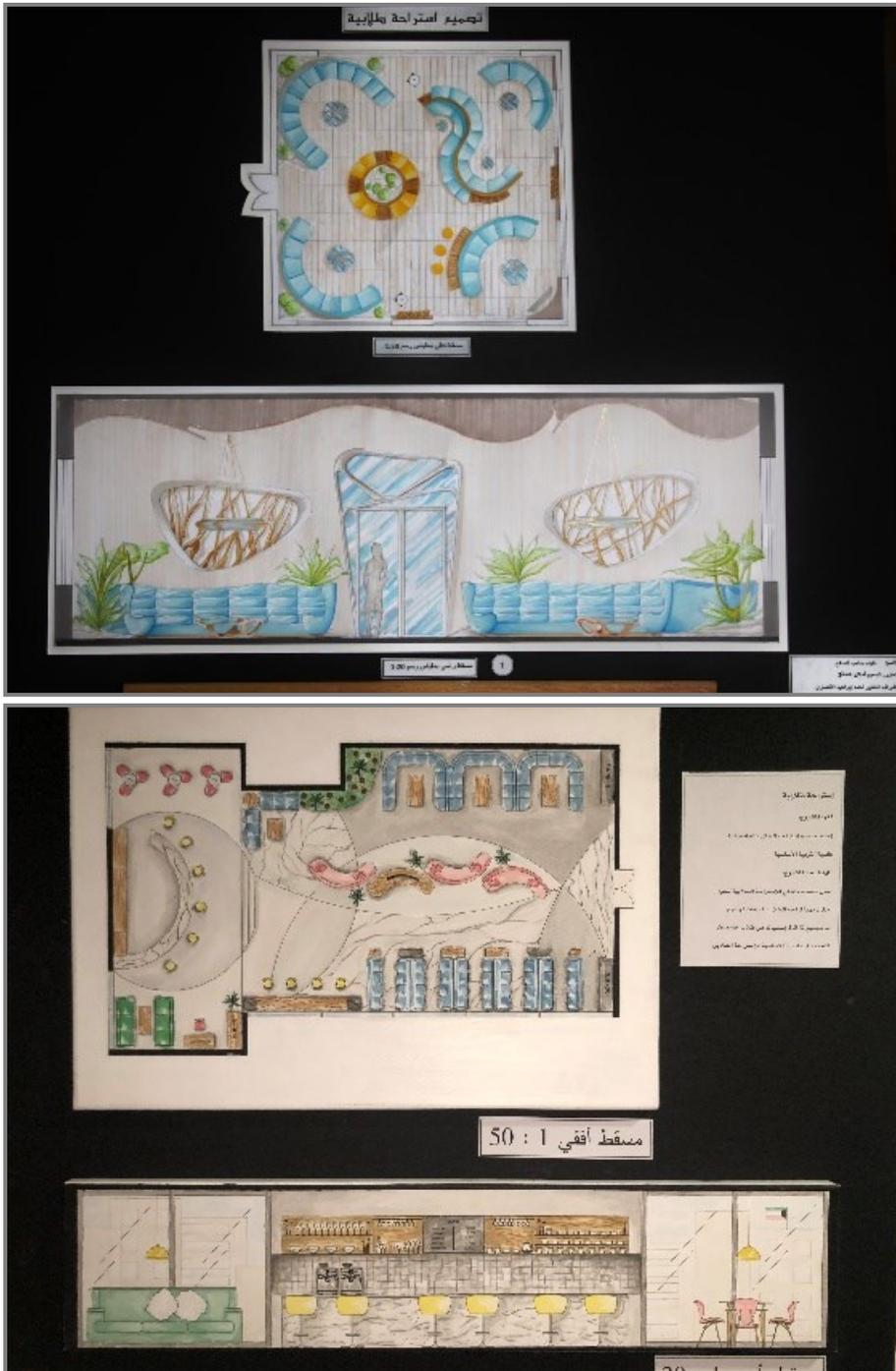
Figures 1 – 8. *Examples of Public Places Studio projects.*
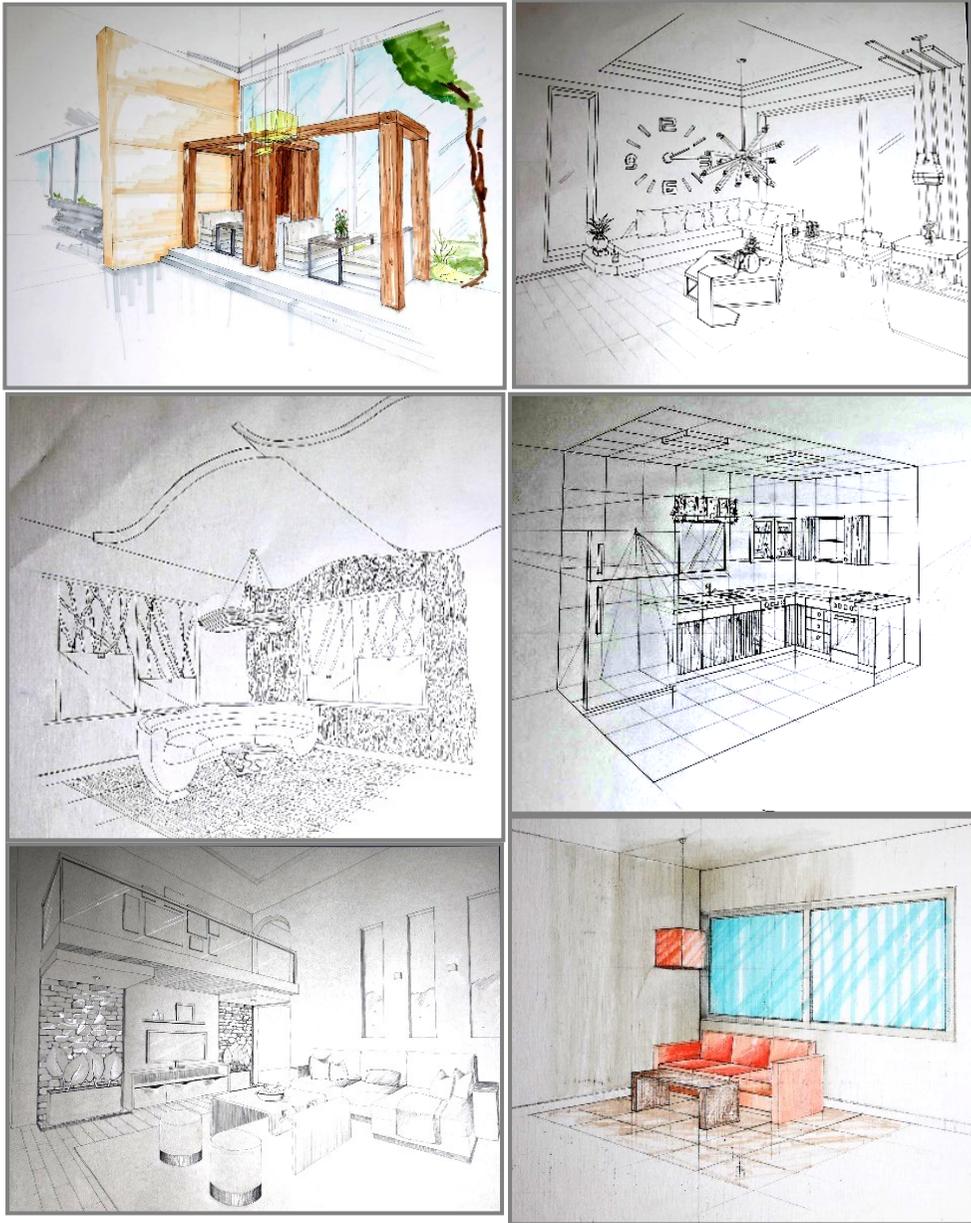
Figures 9 – 14. *Examples of Perspective Drawing course.*

Research Recommendations
The study suggests the following recommendations:

- Integrate collaborative projects in the interior design curricula to meet the job expectations of entry-level designers and educators. In this era, with rapid change in technology and advancement of the body of knowledge in interior design, pre-service teachers and designers are expected to have cutting-edge information and competencies to be competitor employers.

- Interior design syllabi need to be reexamined by academics within the department of interior design with teams from well-established accreditation bodies, such as the Council for Interior Design Accreditation (CIDA), or National Association of Schools of Art and Design (NASAD), that have a strong history of building interior design programs for professionals or educators.

- Integrate collaboration into the curriculum. This integration should occur at earlier stages of the design program so that interior design students will have the opportunity to learn and practice collaboration in their design studio course or lecture-based in first-year students and sophomore levels.

- Interior design educators need to be engaged in training students for effective teamwork strategies. Before collaborative projects, educators need to explain the collaborative project and assign roles for students, such as group manager and mediator. This would facilitate the collaboration process.

- Providing the opportunity for students to pick their partners with whom they want to collaborate, rather than randomly assigning students with partners they do not feel comfortable with. This situation would influence students' satisfaction in the collaborative experience.

- Studio courses for multicourse Collaborative projects should be scheduled on the same day and time. To eliminate teamwork communication difficulties, students' classes should be scheduled at the same time and day of the week. This would facilitate peers' meetings and eliminate their time management issues.

Conclusion

As the industry evolves to increase collaboration between professions, interior design educators should focus on collaboration projects. This will place focused attention on the integral role that interior design educators play in improving collaboration. Consequently, too much collaboration may have adverse outcomes, such as job stress. Therefore, interior design curricula and pedagogy should emphasize teamwork and collaboration to enhance emerging designers' success.

Limitations and Future Studies

There were several limitations in the study despite the crucial findings and implications. One significant limitation is the social desirability bias. This form of bias occurs when individuals answer questions in a way that favorably presents them. Other limitations include the purposive sampling from a university in Kuwait, limiting the generalizability of the findings. Moreover, all the study participants were female students, which may differ when grouping male and female students.

Further study may look at different interior design students at other institutions. Further research may conduct to include collaboration between interior design students from different schools. This would enable students to learn more from their culture and background. Also, further study may use focus groups as a method for data collection. This study would get in-depth information about the phenomena. Another study may be conducted using three class groups to collaborate in one single project, including male and female students, to compare their attitudes toward collaboration and satisfaction and social learning outcomes.

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