INTERACTION BETWEEN DESIGN STUDIO AND CURRICULUM COURSES: Bilkent University Case

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Abstract

A major aim of the design studio is to educate students to be well-equipped designers. To do so, a student should be able to grasp the divergent information of various courses and integrate that knowledge into their design problems. But are students aware of the emphasis placed on incorporating different curriculum courses into the design studio? Do they find it beneficial while developing a design project? To what extent do they think this integration has an impact on their success in the design studio and in their adaptation to professional practice? This paper seeks to find out whether the integration between the design studio and other curriculum courses is productive from students' perspectives and determine if there is a consensus between students and instructors on the significance of transferring knowledge from curriculum courses to design projects. In addition, the paper examines the position of the design studio as an integrative medium between education and practice in the Turkish context.

Keywords: *Design Education, Design Studio, Curricular Integration, Lecture Courses.*

INTRODUCTION

Interior design/architecture[1] curricula is composed of various courses that ponder historical, social, cultural, aesthetic, technical, and other related subjects along with the design studio, which is usually assumed to be the core of the curriculum. The basis for this assumption is widely rooted in an understanding of the design studio as a potentially productive environment in which students can incorporate different components of the curriculum within the body of a project. A major aim of the design studio is to educate conscientious future designers who can think critically and are well equipped in the areas of design. Arguably, a design project fed with technical, social, cultural, aesthetic, historical, and related knowledge attained from different curricula courses better prepares students for their contributions to the built environment. This preparation is especially critical in professional degree programs, where students are granted the right to practice upon graduation without further qualifications such as post-graduate internships and licensing or qualification exams. Turkish architectural and interior design/architecture schools exemplify programs that educate students as immediate contributors to the built environment. This situation raises the question of whether the concepts of interior design/architecture education (e.g., principles and elements of design, space planning, human factors [ergonomics, anthropometrics], construction systems, lighting design, interior materials and finishes, product and furniture design/theory/history) are being properly addressed to prepare students for real-life situations (Gürel and Potthoff 2006). For both educational and professional purposes, it simultaneously raises another question of whether the formats of the lectures, where these essential concepts are taught, need to be restructured. Gelernter points out the difficulty of students' relating their experiences in the lectures to their experiences in the studio. He argues that even though students are confronted with various courses, such as building technology, culture, human behavior, few of that knowledge is affecting directly their projects in design studios (Gelernter 1988).

Furthermore, to educate students as immediate contributors to the built environment intensifies a concern with regards to bridging the so-called gap between education and professional practice (Mitgang 1999; Boyer and Mitgang 1996) and sparks discussions on the nature and the significance of this gap[2] (Bunch 1993; Bovill, Gardner and Wiedemann 1997; Cuff 1996). The curricular

[1] We use the terms interior design and interior architecture together, referencing the design and development of interior space. In Turkey, the term interior architecture is used.

[2] This concern was the theme of the 19th European Association for Architectural Education International Conference - Re-integrating Theory and Design in Architectural Education, Ankara, 2001.

structure and instructional methods provoke this gap. In this context, the instructors are 'accused of being too theoretical and unconcerned with the realities of practice' (Wilkinson and Salama 2007). Arguably, a design studio loses its value as an educative and creative medium if it functions as a replica of an architectural office (Teymur 1992). But on the other hand, a design studio runs the risk of abstraction from real-life situations if it operates autonomously; and if it merely focuses upon the hypothetical design problems in which many contextual variables that are influential on real life situations, are ignored (Salama 2008). Schön (1988) defines the studio as a 'practicum, a virtual world representing the real world of practice, but relatively free of its pressures and risks'. In point of fact, the interaction between a design project's artistic, theoretical, and realistic concerns has the capacity to enrich students' educational experiences. It also better prepares prospective professionals for practicing their profession. We suggest that a contextual study that examines the role of a design studio in a Turkish interior design/architecture program from the students' perspective would contribute to the discussion of the relationship between education and practice.

Both theoretical and technical lecture courses provide the essential knowledge without which design activity would be 'random and arbitrary' (Gelernter, 1988). Actually, for over a decade in our interior architecture and environmental design program, we have observed that those students who can transfer knowledge acquired in curricular coursework to their design projects build confidence that helps them in professional practice. Thus, we emphasize the value of the studio as an integrative medium that merges knowledge learned in different courses of the program. This value is especially underscored in the third- and fourth-year design studio courses, during and after students acquire an understanding of building systems, construction techniques, environmental control systems, fire prevention, acoustics, lighting, and the use of appropriate materials, finishes and objects, including furniture and fixtures. These years are also when students are exposed to coursework on social and cultural issues, history of the built environment, ergonomics, and anthropometrics. We encourage students to apply the knowledge from their curricular coursework through implementing course objectives and goals, requirements of the design project brief, design critiques, sketch problems, lectures, and the evaluation process that occurs throughout the semester and at the end of the course. In addition to these tools, we implement a rotation system that allows students to receive critiques from a number of instructors, usually with different areas of expertise (e.g., construction, lighting, and history of the built environment), of their design project. At the end of each semester we also aim to compose a heterogeneous final review committee or design jury that emphasizes all aspects of a project, ranging from conceptual formation and artistic integrity to whether the project is doable. This teaching approach seeks the balance between the content and concerns of design and the issues of the built environment that feed them and education in general. It aims to raise a student's awareness of the value that lies in this balance.

BRIDGING THE GAP BETWEEN EDUCATION AND PRACTICE IN THE STUDIO

Observing the construction activity in Turkey helps to understand why there is a need for integration between education and practice. Turkish cities are experiencing rapid urbanization due to the ever-increasing population and never-ceasing migration. For example, the capital city of Ankara, which had a population of 74 000 in 1927 (the date of Turkey's first census) (Tekeli and Güvenç 1986), in 2009 has a population of 4,5 million. The situation in Turkey's other major centers such as Istanbul, Izmir, Antalya, Bursa, and Konya is similar to Ankara's. Such enormous growth patterns depending on fortuitous locations and advantageous local conditions of some urban centers (Mulligan and Crampton 2005) invite reflection on the cities' physical characteristics. Because of the continuing demand for new housing and public buildings the construction sector has grown three times faster than the Turkish economy (YEM 2007). This growth activates the construction sector positively, however, demand is inadequately met, which has led to an output of low quality, low budget building stock that is often detached from the social, cultural, environmental, and urban context. Dense construction activities that are accompanied by problems of licensing, building codes and standards, and political mismanagement, inevitably result in a built

environment of low quality. This picture, then, may ask design education to be more concrete and to focus more on the social, cultural, and environmental facts. As Norberg-Schulz (1988) states, students should understand that 'building' means more than constructing houses of a certain number of meters square. He suggests that education should enrich the ability of integration, analysis, and experience. He adds: '…[education] must also furnish the general, cultural background necessary to give the intentions of architectural production an adequate depth' (219).

In his study on knowledge integration in architectural design studio, Salama (2008) asks a critical question of whether the current system integrates different types of knowledge needed for the successful creation of the built environment. If the aim is obtaining integrative knowledge, it is to be critically thought upon how more effective teaching -learning methods can be developed and how 'real life issues' can be established in lecture courses. He stresses the important role of learning from the actual environment and argues that 'real life' experiences offer students opportunities to comprehend the practical realities and different variables affecting 'real life' conditions. However, as Salama states, in design studios, students are mostly offered hypothetical design problems, where inevitably a number of contextual variables are neglected. In countries like Turkey ignoring real-life conditions in the design studio marks a fallacy. Accordingly, the design studio, where future practitioners are educated, should position itself in a dominant role of improving Turkey's physical environment. The demand for 'more relevant and responsible practice' (Schneekloth and Shibley 2000) is logically consistent if a multi-dimensional design understanding including social, cultural, technical, and historical matters, gains currency in the design studio. When connected to those dimensions in each step of design process, the design studio could claim a wide-ranging effect on real life. Socially conscious, environmentally concerned, and historically informed future designers seem to fit the profile for responsible design activity. No doubt such designers will contribute to positively shaping the future physical environment and constitute a powerful body for influencing the existing one.

Design can be viewed as a practical form of inquiry by which the ideas of dwelling and settlement are realized and shaped (Rowe 1991). According to Johnson (1994), for flair and creativity, architects need to be practical above all. The architect's role has always been to combine artistic and practical aspects. Johnson stresses that the challenge of architectural education is to achieve a balance between these aspects. As Jones (1996) states studio teaching is an integrative process through which various aspects of the discipline, technical or cultural, should be considered. Also, all of these aspects and design should be comprehended in relation to each other. He rightfully mentions that in the design studio 'knowledge is tested in context, in active engagement with a task'.

If enriched by the knowledge attained from other curriculum courses, the design studio, as the core of design education and where artistic aspects are addressed, develops a remarkably deeper sense of real-life conditions. These conditions are pertinent to the education of other professional disciplines such as medicine and law (Wheelwright 2004). Various studies point out the importance of emphasizing user needs, human factors, and technical, aesthetic, environmental, cultural, and social issues, as well as historical and urban contexts in the design studio (Kim 2006, Cunningham 2005, Chi 1999, Kucker 1997, Davies 1996, Siedel 1981). A design studio that is abstracted from any of these considerations fails to cope with the complexity of the practice. Integrating coursework with the studio equips students with the ability for synthesis that seems to be an essential resource for practice. Examining their projects through the lenses of various topics helps students experience the projects from these various viewpoints and on various scales. For instance, historic artifacts can be investigated for design purposes in order to obtain a socio-cultural framing of the studied project (Antoniades 1992). Based on these arguments, interaction among courses is not merely an educational tool; rather, it can help establish a relationship between the field of education and the realm of practice.

As discussed above, a design studio must be adequately connected to real-world conditions (Huge 2009) to become an instrument for change. And, the knowledge attained from other courses must make students better understand the client needs, construction problems, property values, public concerns, contractors, regulations, standards, and many other components (Schermer 2001) of a project. Understanding the importance

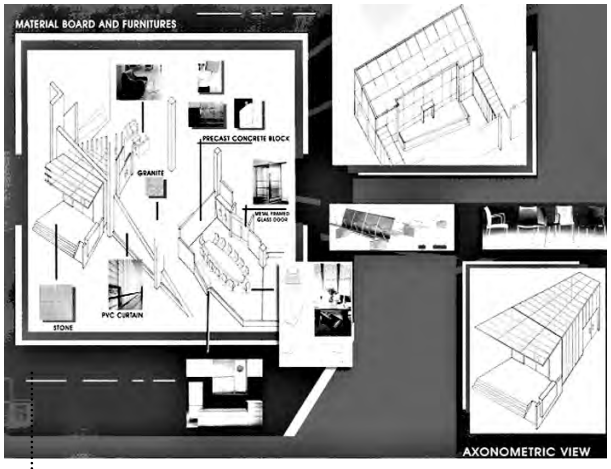


Figure 1. Presentation of construction and materials and detailing in a design proposal

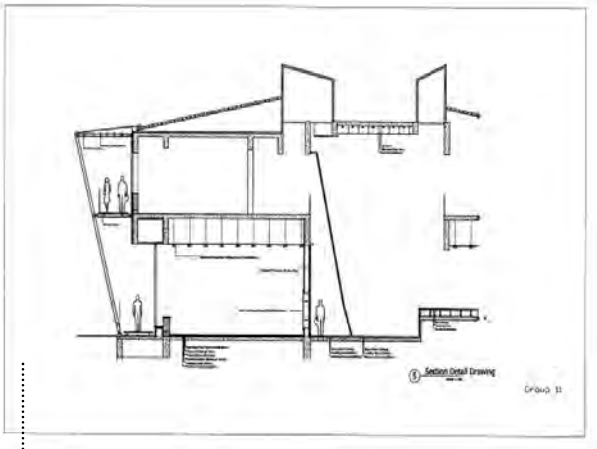


Figure 2. Presentation of detailing in a design proposal

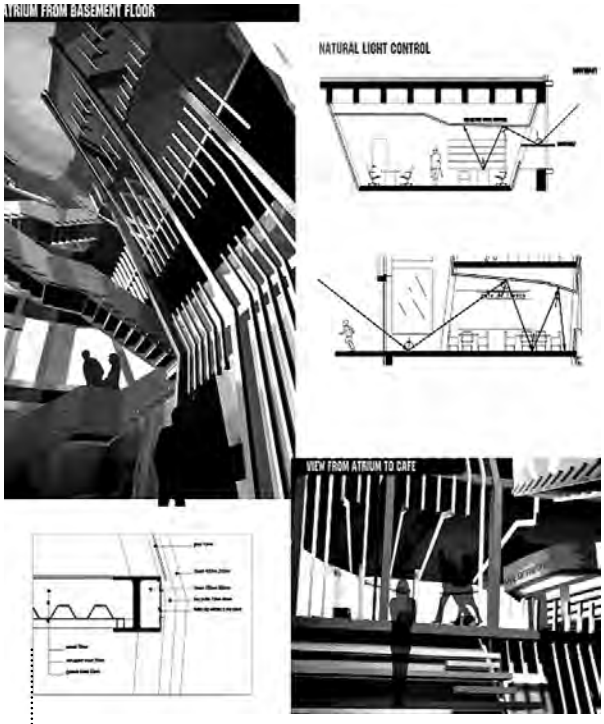


Figure 3. Presentation of lighting, construction and detailing in design proposal

of these components prevents design from being perceived as an isolated activity in the minds of students, and blurs the distinction between the design studio and the real world. Academia in general, and design studios in particular, should feel the pressure of responsibility to better the quality of the built environment. This brings out the question: Through which mechanisms can a fruitful integration be achieved?

INTEGRATION AND STUDIO DYNAMICS

In our institution a great amount of effort is invested to realize the integration discussed above. A major focus is on the rotational teaching method. This system reinforces a pluralistic learning environment by replacing the traditional master-student relationship. It exposes students to knowledge and critiques from instructors who specialize in various fields such as history, theory and technical issues. Engagement of their different backgrounds (such as; architects, interior architects, industrial designers) with their specializations, studio instructors propose various visions to students.

Another mechanism of integration is the project briefs prepared by the instructors that include objectives for each level. These objectives emphasize the transfer of the accumulated knowledge of various courses to the design projects of that year. For example, in the third-year studios, students are expected to refine design solutions by drawing design details on various scales, which is taught in Detailing Studio. Similarly, in the fourth year, students are expected to generate production drawings in the studio as they learned them in the course of Interior Design Documentation (figure 1, 2 and 3).

Another way of integrating studio and coursework is including topics such as lighting, construction, and human factors, directly to the studio agenda. This can be achieved by inviting a guest to speak. Interweaving the projects with a subject gives the student a strong message that design is not an isolated operation. For instance, when the student



Figure 4. Discussion in a design jury

examines her/his design project in terms of 'lighting' general manipulations about the lighting quality of the designed space evolve into specific considerations. Studying an aspect of the design project in related curriculum course complements integration. A small part of the coursework can be dedicated to applying the subject matter to the design project. Such an application helps students to better understand the course subject as they find occasion to connect the theoretical knowledge with their projects.

'Final jury' is the last stage of the design process in the studio, in which the student explains her/his project via an oral and visual presentation, and responds to questions and objections from a jury of instructors (figure 4). The process and the final stage are intimately linked, and neither can be formulated and carried out independent from the other. Tendency towards the integration of the design studio and other courses is also a matter of final jury composition. The effort to make a heterogeneous jury member composition is rooted particularly in the prevailing consensus on the understanding of integration. Jury members with a varying range of scholarly interests and intellectual concentrations stimulate the jury process with fresh viewpoints. One of the chief advantages of such plurality is that it inevitably provides for an expanded realm of evaluation. It diverts attention from the customs and commitments of the studio to different domains, and those insights force the student to consider her/his proposal in various contexts even at this final stage.

Evaluating the studio process (through sketch problems, pre-juries, and the final jury) is important to convey certain messages. In our program, developing the design ideas with the knowledge gained in the curriculum courses seems to be the most important component of success in our design studio. Objectives of design studios that are introduced in the project briefs can only be thoroughly fulfilled by the achievement of the integration between courses. Accomplishing the multi-faceted objectives improves academic quality in the design studio and plays an important role in evaluating the design project.

METHOD

Interviews with design studio instructors

Improving academic quality requires a consensus on the teaching/learning system between instructors and students. This study aims to determine if there is a consensus on the significance of transferring knowledge from curriculum courses to a design project. In order to do this, we interviewed third- and fourth-year design studio instructors. They were asked whether they expected students to transfer knowledge attained from other curriculum courses to their design projects to improve the mentioned relation, if this affected students' performances in the studio and their suggestions for the improvement of this integration.

Questionnaires and interviews with students

Students have an active role in applying any method of instruction (Littmann 2000). Recognizing the importance of this active role, the study concentrates on third- and fourth-year students' opinions through a questionnaire and interviews that seek to determine the students' awareness of the significance of integration. The study excludes first- and second-year students because those students' recognition of the studio as an integrative medium is likely to develop only at the end of their second year.

A survey of five questions was distributed among 121 students. The first question seeks to determine if, according to the students, there is a relationship between the design studio and other curriculum courses. The second question asks whether the students transfer knowledge from other curriculum courses to the design studio. The third question aims to clarify whether the knowledge attained in other curriculum courses affects their

performances in the studio. The fourth question investigates whether students recognize the instructors' expectations of integration. Lastly, the fourth-year design students are asked to rank courses according to their impact on a project's development.

Interviews were held with students grouped according to their performance in the studio. The interview was composed of six questions. The first question aims to discover if there is a significant difference between students' successes in the design studio and other curriculum courses. The second question asks if there is a relationship between their performance in the studio and other courses. The third and the fourth questions are related to the students' observations of the instructors' positions in the studio. They investigate if the instructors' backgrounds affect the way he/she approaches the development of a design project and if it influences his/her set of criteria in the evaluation process. The fifth question asks students to indicate the courses that support the development of a project. The last question investigates other factors that influence the success of developing a project.

FINDINGS

Interviews with design studio instructors

The results of the interviews show that the third- and fourth-year studio instructors recognize the importance of integration in students' performance in the design studio. They state that lack of integration results in less-developed design solutions, however, they observe that students often experience problems in connecting curriculum courses with the design studio. An instructor proposes that students should not be allowed to take a design studio before finishing previous years' required departmental courses. One suggests that demonstrating the knowledge attained from other departmental courses should be a criterion during a project's final evaluation. An instructor identifies the lack of connection problem as compartmentalization of knowledge; that is, locking knowledge in one domain and not transferring it to another. An instructor shared a recent observation that students could not apply lectured information to their design task, which immediately followed the lecture. Issues such as environmental and socially responsible design should be central in the studio, but this can only be

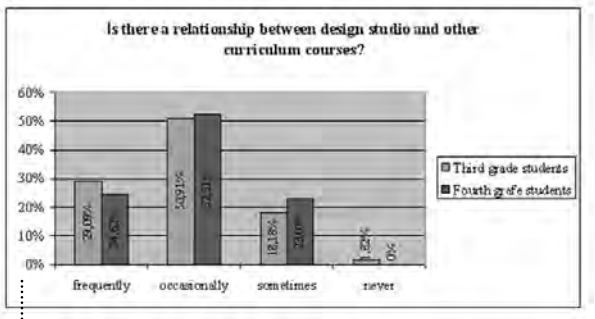


Figure 5. Is there is a relationship between design studio and other curriculum courses?

achieved with the support of corresponding departmental courses. On the other hand, another instructor points out that while the design studio should embrace the curriculum knowledge it should give priority to creative thinking. While all of the instructors agree on the importance of integration among courses, they also point out that the integration should be among all courses of the curriculum. This is to say that integration should not only be expected in the design studio, but also in other courses. Design studio issues can be examined through sketch problems or different types of exercises.

Questionnaires and interviews with students

Findings in the second phase of the study (questionnaires to and interviews with students) demonstrate that students largely understand the significance of the interaction between the studio and other curriculum courses. Responses to the first question (Is there a relationship between the design studio and other curriculum courses?) show that 26,85 % of all students 'frequently', 51,61 % 'occasionally', 20,62 % 'sometimes', and 0,91 % 'never' relate the design studio to other curriculum courses (from now on the given percentages are an average value of all the students' responses) (Figure 5). Correlations related with the first question are valid only for the fourth year students. This shows that students at higher levels are able to develop an understanding for the various impacts of transferring knowledge on the design studio.

Responses to the second question (Do you transfer knowledge from other curriculum courses to the design studio?) indicate that 17,06 % of all students 'frequently', 45, 52% 'occasionally', 35,73 %'sometimes', and 1,68 % 'never' transfer knowledge from other curriculum courses to the design studio (Figure 6). There is a significantly positive

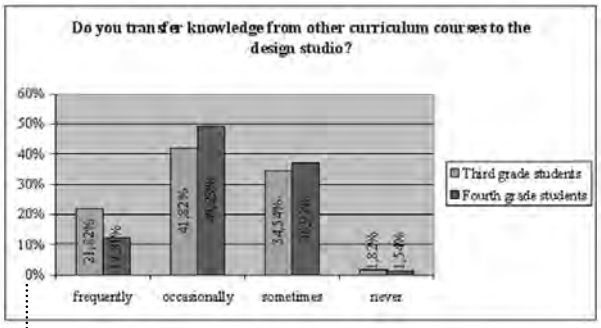


Figure 6. Do you transfer knowledge from other curriculum courses to the design studio?

correlation between the first and the second questions for the fourth year students (Table1). Consequently, if students connect the design studio with the content of another course, they are more likely to transfer knowledge from that course to the design studio.

Responses to the third question (Does the knowledge attained in other curriculum courses affect your performance in the studio?) show that 21,05 % of all students 'frequently', 40,42 % 'occasionally', and 38,53 % 'sometimes' think that the knowledge attained in other curriculum courses affects their performance in the studio (Figure 7). None of the students indicate 'never' for this question. The correlation between the second and the third question is positive and statistically significant both for the third and the fourth year students. Those students who state that they transfer knowledge from other curriculum courses to the design studio also state their awareness of the influence of transfer of knowledge to their performance in the studio (Table 1 and Table 2) The first and the third questions are positive and statistically significant only for the fourth year students (Table 2).

Table 2 shows that if students relate the design studio to other curriculum courses they also claim their awareness and comprehension of the

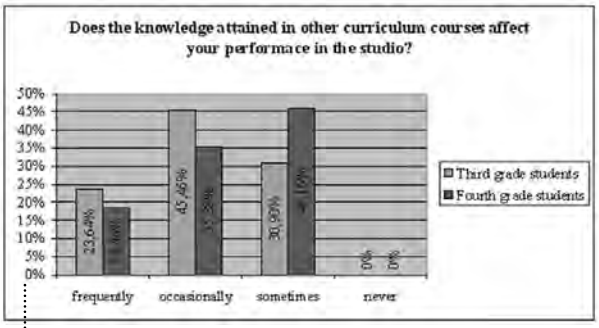


Figure 7. Does the knowledge attained in other curriculum courses affect your performance in the studio?

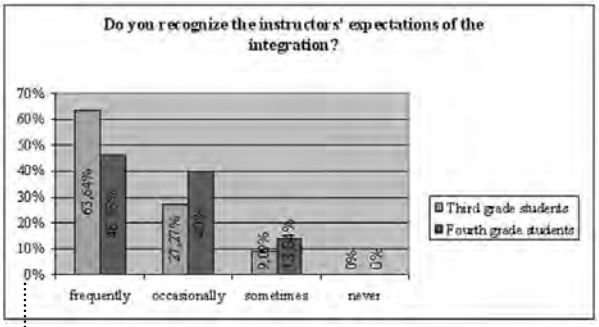


Figure 8. Do you recognize the instructors' expectations of the integration?

influence of transfer of knowledge to their performance in the studio. This relationship can also be observed in the final stage of the design process. In the final presentations the projects, which have the capacity to reflect their knowledge in other courses, can end up as successful proposals.

In response to the fourth question (Do you recognize the instructors' expectations of integration?) 54, 90 % of all students 'frequently', 33,63 % 'occasionally', and 11,46 %'sometimes' recognize the instructors' expectation of integration (Figure 8. The fourth and the second questions are significantly positive correlation, which is only valid for the fourth year students (Table 2). This shows that those

	Q1	Q2	Q3	Q4
Q1	1,00			
Q2	0,76	1,00		
Q3	0,280*	0,630**	1,00	
Q4	0,003	0,378**	0,22	1,00

*: Correlation is significant at the 0,05 level (2-tailed).

**: Correlation is significant at the 0,01 level (2-tailed).

Table 1. Pearson's correlation for the responses of the third grade students

	Q1	Q2	Q3	Q4
Q1	1,00			
Q2	0,439**	1,00		
Q3	0,377**	0,706**	1,00	
Q4	0,239	0,288*	0,293*	1,00

*: Correlation is significant at the 0,05 level (2-tailed).

**: Correlation is significant at the 0,01 level (2-tailed).

Table 2. Pearson's correlation for the responses of the fourth year students

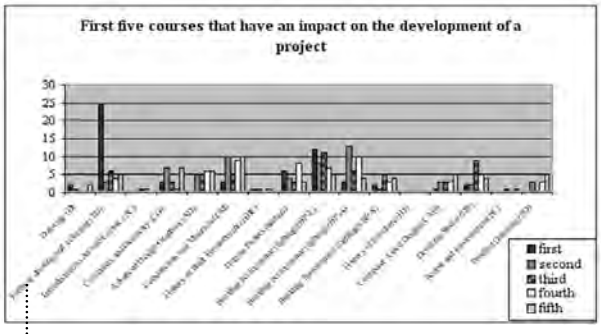


Figure 9. First five courses that have the most impact on the development of a project

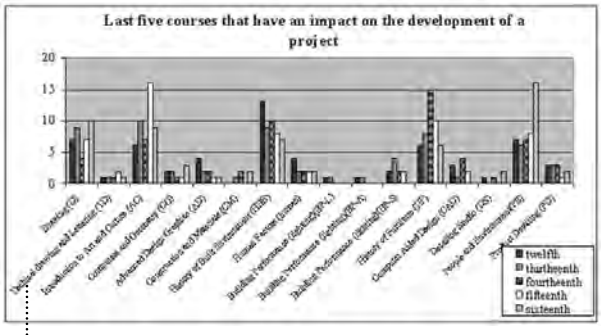


Figure 10. Last five courses that have an impact on the development of a project

students who state that they transfer knowledge from other curriculum courses to the design studio also state that they recognize the instructor's expectation of integration.

The findings of the last question (Name the five courses that have the most impact on the development of your project) indicate that students mostly feel the technical drawing courses have the most impact. This finding shows the importance of the visual presentation during the studio process (and correlates to findings of Gürel and Basa's 2004 study). Classes that equip students technically, such as construction and materials courses and building performance courses (lighting, acoustics, plumbing) are identified as second-most important to their projects. Even though most students prefer using computers for presenting their projects (Senyapili and Basa 2006), computer aided design courses are ranked third in importance. While the detailing of a project is a major issue in an interior architecture studio, the courses supporting this knowledge (such as detailing studio) are not considered of major importance in the design studio (Figure 9).

Courses that equip students with historical, cultural, social, and environmental knowledge such as history of built environment, history of furniture, art and culture, and people and environment, are considered to have a lesser influence on studio performance (Figure 10). This outcome is striking since project briefs usually emphasize socio-cultural aspects that are discussed during the project development.

The interviews with students support the results of the questionnaire. During the interviews it is observed that students who are more successful in the design studio are usually successful in other courses as well. Students with a better performance in the design studio say there is a strong relationship between their performance in the studio and other courses. Most of these stated that having instructors with different backgrounds positively affect the development of their projects. Students do not feel that instructors' backgrounds influence their evaluations. They consider technical courses as the most supportive to a project's development. Students with a better performance in the studio argue that detailed research on the related subject and observation of the built environment are essential components of success. They also point out that social and cultural aspects are central to resolving a design project. The less successful students did not mention social/cultural courses as effective for the development of their projects.

CONCLUSION

This study explores the efficiency of design studio instruction that places great emphasis on incorporating curricular coursework in the design studio and aims to determine whether students are aware of the importance placed on this incorporation. The findings show that students largely recognize the importance of transferring the teachings of other curriculum courses to the design studio to generate a satisfactory project. Interestingly, students identify a strong connection between the technical knowledge acquired in courses such as construction, lighting design, and building services and producing a successful design project. They also acknowledge a significant connection between visual presentations and successful evaluation of their design projects. Students place secondary importance on how social, cultural, and historical considerations relate to their performance in the studio course. The interviews showed that while students recognized the importance of socially, environmentally, and historically connected design, they do not see a direct

relationship between the courses that teach these topics and their performance in the studio. This suggests that students assume transferring technical knowledge to a design project generates more concrete and visible results. The results of this study illustrate that students are not completing theoretical courses with enough understanding of the historical, social, and environmental factors although the knowledge will lead to future designers with positive contributions to the built environment. This article argues that design studio instruction and teaching methods that stress the transfer of knowledge from different curricula courses better prepare students for their contribution to the built environment. An emphasis on integration between the design studio and curricular coursework is especially significant in those professional degree programs that graduate designers as immediate contributors to the built environment. In Turkey this sector is undergoing intense construction activity and rapid growth, often accompanied by political mismanagement and/or exploitation of land resources, which has resulted in poorly built environments. To improve this environment and to effectively operate in the building industry requires high levels of knowledge, experience, and sensitivity to the problems caused by design and construction activities. As in many parts of the world, in Turkish universities students earn the right to practice immediately upon graduation without further experience or qualifications such as post-graduate internships and licensing or qualification exams. This places a big responsibility on professional architecture and interior architecture programs to educate individuals who can undertake such professional tasks.

The results confirm that the integration problem does not stem from students' attitudes. However, it persists despite a significant degree of student awareness and instructors' emphasis. It appears that Gelernter's (1988) sharp criticism on the curricular split between lectures and studios in schools of architecture is still valid after more than twenty years. As Gelernter points out, this split is the result of a misassumption that students first get the basic knowledge in lectures, and then use this knowledge in the studio. Design and lecture instructors' (as well as students') attempts to 'reconcile lectures and studio' may not sufficient to bridge the gap but their awareness suggests a demand for restructing various components in an integrative framework. Proposals for alternative curricular formations (Fernando 2007, Salama 2008, Teymur 1992, Gelernter 1988, Schön 1988) should be taken into consideration in order to obtain an alternative integrative medium of knowledge in the design education. However, in doing this it is important to remember that theory, social science, and technical based courses are 'equal partners' of the design studio and not the 'supporters' since, adjusting the content and the methodology of the courses according to the benefits of design studio would put them in a weak and 'less specific' position (Teymur, 1992). In this respect, keeping their equal status with the design studio, content and the application of lecture-based courses should be reconsidered. As this study showed an awareness of students and a demand from the instructors underscoring the need for integrative framework, it opens a discussion for improving interaction between design studio and curriculum courses.

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