

# Success in Basic Design Studios: Can seat selection be an advantage?

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## **Abstract**

Socio-petal spaces have proven to be crucial for students' social life especially in outdoor spaces and common gathering areas; however, actual design studio seating deserves to be examined as well. In various studies, it is revealed that there may be a correlation between seat location, seat selection and student performance. As social interaction is among the essential qualities of design education where training is based on table critiques and face to face discussions, studios ideally should provide the desired interaction. This research explores the students' preference of seating assuming that it affects the consequent success of the student, in terms of social interaction and movement pattern, conducted in classically arranged rows and columns based studio layout, far from being ideal, where the movement pattern among the tables and the visual field become the most important modes of communication between students and instructors. The syntactic values of tables located adjacent to windows or aisles, middle rows, or back seats, front lines or wall corners help to determine the reason behind preference and selection of these seats.

Integration values along with mean depth data are used to explore the socially active and passive sections of the studio layout, while isovists are examined to analyse the visual scope of each assigned seat. The results indicate that when the medium is crowded the position of the tables located alongside of circulation path gains importance. When the medium is less crowded, students prefer to prioritize their visual scope rather than physical accessibility.

## **Keywords**

Social interaction, Space syntax, Spatial preference, Studio layout, Visual field.

### 1. Social interaction in studios

As is the case in all design programs, studio courses constitute the essence of architecture program. The data, inputs, outputs and problems of the spatial design issues are alike regardless of the scale differences. It is important for students to see at the beginning of their education that different variations may occur in designs and different results can be achieved. Since, it is essential that each student makes original design, drawing and presentation, in a design course multiple instructors may be present in order for each instructor to deal with the student individually and supervise the project development process, whereas the students can have the opportunity to acquire different design views. The design students are distinctive with their designed products, the equipment they use, working hours, patterns of behaviour and their perceived image. Thus, design students usually form *Gemeinschaft* society thinking, working, consuming and living together, as suggested by Dobriner (1969). This method of education necessitates a well balanced communication between the instructor and the student as well as a sociopetal form of behaviour where face to face seating arrangements may be used for both parties. However, in most cases the advantages of this unique method of teaching takes time for a first year student to notice and discover.

Previous researches conducted by Ünlü et al., (2001 and 2009) indicate that sociopetal spaces have proven to be crucial for students' social life especially in outdoor spaces and common gathering areas; however, actual design studio seating deserves to be examined as well. There are researches examining the students' seating preferences in relation to territorial behaviour in various classroom layouts (Guyot et.al, 1980; Pedersen 1994; Kaya and Burgess, 2007; Costa, 2012). In these studies, territoriality is regarded as a behaviour mechanism occurred in public territory (Altman & Chemers, 1980) which is in fact related with self protection or defence (Sommer, 1969) rather than visual control. Miura and Sugihara (2011) emphasize in their research that large-sized classrooms

may decrease the learning effect on the basis that as the distance between the teacher and the student increases, it would be difficult for the student to pay attention to the teacher. Another study within the context of economics courses conducted by Benedict and Hoag (2004) showed that in large lecture rooms, students who prefer to sit towards the front of the room, have higher probability of receiving good grades compared to the ones sitting at the back. Perkins et al. (2005) conducted a seating research in the context of a physics classroom, where they have found that the initial seat location significantly affected student attendance, performance and attitudes. Through these studies, it is seen that there may be a correlation between seat location, seat selection and student performance. However, these studies are usually executed within conventional lecture halls where students are assigned either tablet arm chairs or desks where they need to express their individuality by controlling their environment. In case of design courses however, the relationship modes of the students with the instructors and with their peers change extensively.

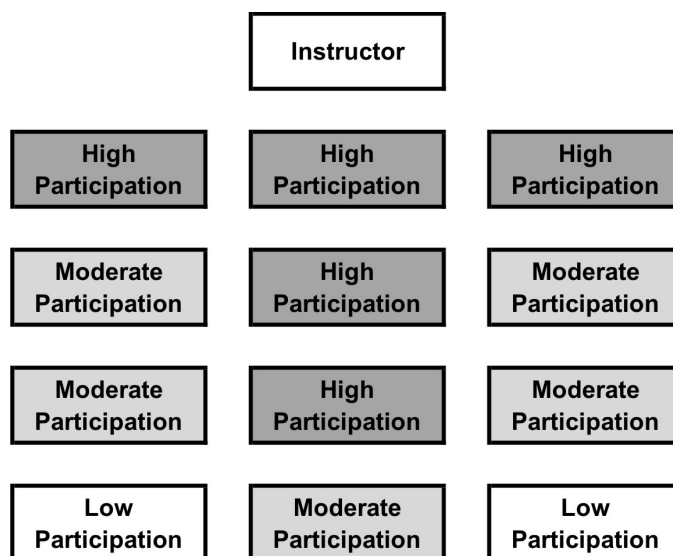
Miura and Sugihara (2011) define studio as a place where students constantly interact within a group, with their peers and mentors. As Webster (2008) and Dutton (1991) emphasize, architectural education orients students into some aesthetic and ethical values along with specific manners and language, in which peer motivation gains more importance compared to conventional lecture based methods. Social interaction is among the essential qualities of design education where training is based on table critiques and face to face discussions, therefore studios should provide the formation of desired interaction. Ideally architectural school layouts are supposed to provide the optimum settings as an exemplar for the design students. Especially design studio layouts equipped with movable drafting tables, computer stations, modelling spaces and reference shelves are considered to be a necessity for widening the scope of design intellect. However, especially in newly established institutions, limitations of

the classroom facilities and teaching resources necessitate cases where the pragmatic solutions are deemed to be crucial. In these cases the courses vary according to the weekly schedule within the limits of the same studio space, where classically arranged rows and columns based seating pattern is observed. This type of layout indicates a focus on the instructor similar to a theoretical lecture; on the other hand, students' seating also gains importance on the basis of providing concentration on the individual work or keeping uninterrupted eye contact with the instructor. Also, in classically arranged rows and columns based studio layout, the instructors' movement pattern between the tables and the visual field of students become the most important modes of communication between the students and instructors.

The layout of the physical setting and the seating arrangements, are interrelated with the user behaviour patterns such as participation, social interaction and consequent success. Tables located adjacent to windows or aisles, middle rows, or back seats, front lines or wall corners have all various syntactic values in terms of integration. For example, in a study investigating the relation between privacy preference and the location of selected seats in a classroom Pedersen (1994) indicate that, students who chose to sit in the back of the classroom desire to be out of the visual field and wanted less

involvement with others. On the other hand, seating pattern studies searching the best layout for prevention of cheating by Pomales-Garcia et al. (2009) have concluded that concentric rectangles and look away arrangements are better alternatives to traditional classroom seating. Prevention of cheating necessitates non-contact between the students; so this situation is just the opposite of what is expected and desired in a design studio. Sommer (1969) found out that in row-and-column arrangements student participation in the front row and in the middle of each row is the highest as it is indicated in Figure 1; while for example, in the U-shaped arrangement the class participation was the highest among students sitting directly across from the instructor. Kaya and Burgess (2007) on the other hand compare traditional setting and U-shaped arrangement in the context of social interaction. They emphasize that U-shaped configuration in classroom layouts generates an increased sense of community, eases discussion and promotes social interaction while, the traditional rows and columns layout helps the concentration especially on teacher centred lecture based courses. In their research, they have also concluded that in rows and columns layout, seats that are located on the sides are territorially claimed compared to middle seats. This finding may be similar to the situation of this research where the assumption includes that the tables located alongside the movement axis are considered as syntactically integrated and therefore are likely to be preferred by the students.

Wang, et al. (2010) emphasize that the needed knowledge in architectural design studio, is dynamic and complicated, in a way that an individual student's knowledge is no longer sufficient to complete a good design project. McCormick, (2004) mentions the importance of knowledge sharing and resource exchange in dealing with complex design projects, whereas, Chiu and Shih (2005) emphasize the notion of peer to peer learning, indicating the importance of cooperation in a design studio as a learning alliance. These aspects are crucial to differentiate the seat



**Figure 1.** Student participation in a classic row and column layout (Adapted from Sommer, 1969).

selection of a design student who has to keep communication and social interaction both with the instructors and the peers, in order to come up with a good design. However, during the first few weeks of the freshman year, this social interaction is usually not settled yet. Ünlü et al. (2001) remark that social intelligibility of a space is not fully linked to social interaction level among users, but it is correlated to visual capacity of the environment. Thus, the research hypothesis assumes that regarding inexistent habitual attachment to specific seats, the low levels of acquaintances and yet lacking friendship bonds, the students are free to choose the seats they will occupy. Therefore, this research explores the students' preference of seating on the basis that it affects the consequent success of the student, in terms of social interaction and movement pattern of instructors. The mentioned social interaction both with peers and instructors and the movement pattern of instructors are tested in an actually unfit medium for design studio with fixed physical layout of rows and columns.

## 2. Case study area and limitations

Physical characteristics of studios in terms of shape or size, drafting table layouts, position and width of the circulation axes are among the important aspects of social interaction between the students and thus, seat selection. Referring to Georgiadou's (2003), research done in the context of child care centres, in settings where internal configuration produces easily supervised

areas, there seems to be less rigorous control needed and so autonomy for children can be offered.

This situation is similar in a design studio context; indeed it is observed that in studios with smaller dimensions and smaller cohort sizes, it is easier to maintain social interaction through discussions. However this is unfortunately not the case for this research. In this research, an actually unfit medium for design studio with fixed physical layout of rows and columns is tested on the basis of students' social interaction and the movement pattern of instructors.

The case study is conducted with the freshman year basic design studio students of Architecture and Interior Architecture departments of Cyprus International University; a privately owned university with a student population less than 10.000 located on a single campus. As mentioned before, lack of physical resources necessitates the studio to be kept in traditional row-column layout to enable theoretical courses to be conducted in the same location as well. As a combined hall of two smaller units, B221 (Figure 2) is the largest design studio of the Fine Arts building with dimensions of 7.8 m by 24.5 m almost totalling an area of 200 m<sup>2</sup>. Although it faces a western sun, lacks acoustic comfort and ease of control for the instructors, with 76 numbered drafting tables, studio embodies the largest groups of students. The studio also has a white board on the northern wall and ceiling fixed computer controlled equipment pro-

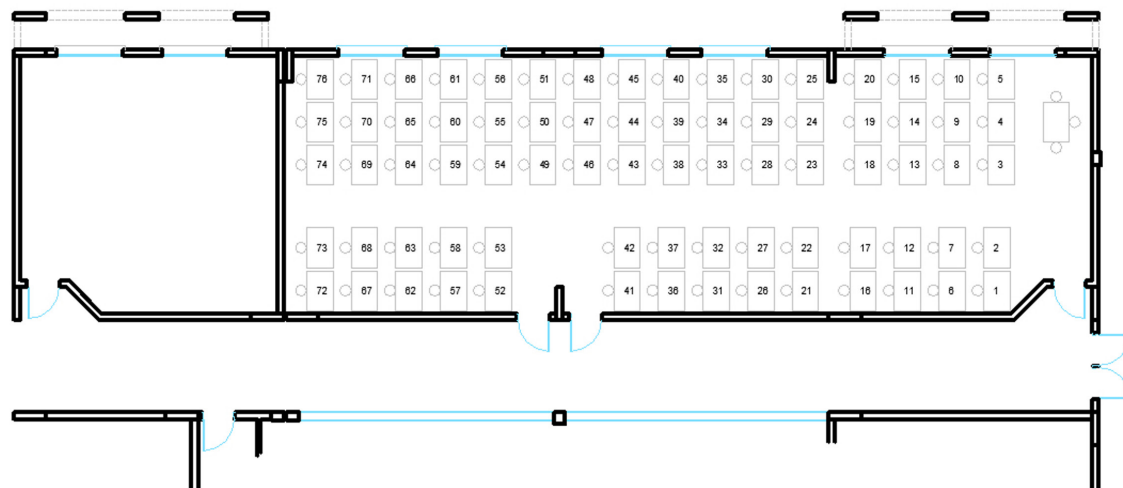


Figure 2. Studio B221 existing layout.

jecting on this white board as well. Therefore, in this context, any comparison between different studio layouts with differing drafting table organisation is impossible to explore. However, behaviour patterns of two different groups of students of two following years are compared in a longitudinal study.

In this aspect it is also important to mention that in this research, the instructor group delivering the course and the studio remained the same while students changed. The data concerning the seating preference of the students gathered from weekly photographs taken throughout the first few weeks of the basic design studio courses in the 2009-2010 and 2010-2011 fall semesters. Photos from the 3rd, 6th, 9th and the 12th week of the semester are matched with the drafting tables the students preferred to sit and the grades that they have for that specific week's studio assignment. The selection of these weeks based on the exclusion of initial and final weeks to ensure attendance and midterm exam weeks because of a different time schedule. Keeping the distance of three weeks apart between the photos also made it possible for students to forget about the photo shooting and select their seats in a more randomly manner.

The sample groups were all students of architecture and interior architecture departments however, cohort size of 2009-2010 was twice larger than the following year. This is due to the academic decision of separation of lectures into groups for a more flexible weekly schedule. When the number of students enrolled is smaller than the number of available seats, their scope of preference widens, and it would be possible to differentiate the logic behind seat selection. However when the cohort size is just barely equal to the number of seats available, then the first come first served rule applies, as it was

seen in the case of 2009-2010 fall semester students' seat selection.

Basic design studios introduce a totally new world for the student with its own values and behaviours. It is important for students to see at the beginning of their education that different variations may occur in designs and different results can be achieved. As the studio is conducted with three to five instructors depending on the number of students, instructors take turns on attending to each student individually and students can have the opportunity to receive different design opinions. Thus, receiving critics from different instructors consolidates what the instructors have been pointing out. Therefore, students' interaction and visual contact within the studio space, both with peers and instructors were the crucial aspect of the research. There were two policies of the researched basic design studio; one of them was to integrate basic design with space using short-term and daily studies that would create a design identity on an individual basis and the second one was to plan longer-term projects of team work that would create a sense of belonging, shown in Table 1. Therefore, it is assumed that for the daily assignments students would seek social interaction with the instructors by means of table critiques. On the other hand, the assumption is opposite for the short term group studies. The students select seats within close vicinity of the group-members to bond with them, while they disregard social interaction with the instructors. However, in this research only the results of daily assignments are explored.

Students who have failed in attendance and the ones who had not submitted more than one of the assignments of the observed week were excluded from the sample set. A total of 72 student grades from 2009-2010 fall semester and 36 student grades

**Table 1.** *Basic Design Studio conception.*

Studio Aims	Design Methods	
	Individual Work	Teamwork
	Development of a Designer Identity	Development of Sense of Belonging



from 2010-2011 fall semester are compared on the basis of their daily individual applications, and the syntactic values of the seat positions that they have selected with regression analysis and Spearman's rho correlation test in SPSS.

### 3. Space syntax methodology and analyses

Space syntax is defined as the set of rules that generate different spatial arrangements (Hillier and Leaman, 1974; Hillier et al., 1987). Space syntax is also used as a theory and a method in order to define the structural environment. According to this theory, there are relations among the exterior forces and the social forces, which generate the forms. As for the architectural point of view, space syntax helps to understand the interaction of design objectives and characteristics with social restrictions and formal possibilities. The essential concept of syntactic approach assumes that the interior and exterior geometry of spaces are shaped according to certain cultural considerations and these forms also affect social relations in one way or another. According to Hanson & Conroy Dalton (2007), space syntax is built on three distinct spatial units, each having a different representation. These are the axial lines, convex spaces and visual fields called as isovists. Axial lines denote movement as movement is essentially a linear activity. Social interaction on the other hand, necessitates a convex space in which all points of space can be seen from all other points, or users. Using convex shapes, and axial lines, space syntax data can be calculated mathematically in order to represent, quantify and interpret spatial

configuration and visual perception. The University of Michigan registered software, Syntax 2D is used in for the analyses of the mentioned syntactic properties. In this research integration values along with mean depth data are used to explore the socially active and passive sections of the studio layout. In an architectural layout, integration denotes the socio-petal aspects, whereas the depth denote the opposite, almost hidden sections of the layout. On the other hand, visual scope that describes the visual area and the visual boundary of the users is another determinant to be considered. An isovist is the directly visible area within the space and the visual field changes when people move around in spaces. Therefore, both the visual scope of the instructors if seated on the assigned seat and the visual scope of the students on the preferred seats reveal the seen/unseen sections of the layout.

When working with syntactic aspects, the initial concern was the movement of instructors and the accessibility of drafting tables by peers or instructors. The assumption was that the instructors can give table critiques or the student may stand up and go to the instructor or any other peer's table for interaction. In this scenario, the position of the unmovable tables within the rows and columns layout was important. The drafting tables acted as blocking walls and they can only be reached by moving the assigned stools in front of them. Therefore, the integration analysis of the studio layout is calculated according to the blockage of the drafting tables (Figure 3). The tables just adjacent to circulation path in the centre and the ones with a room in

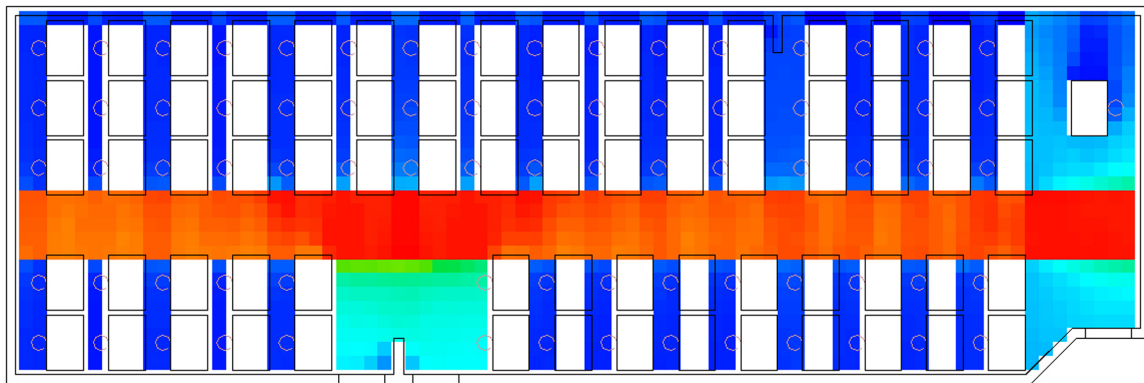
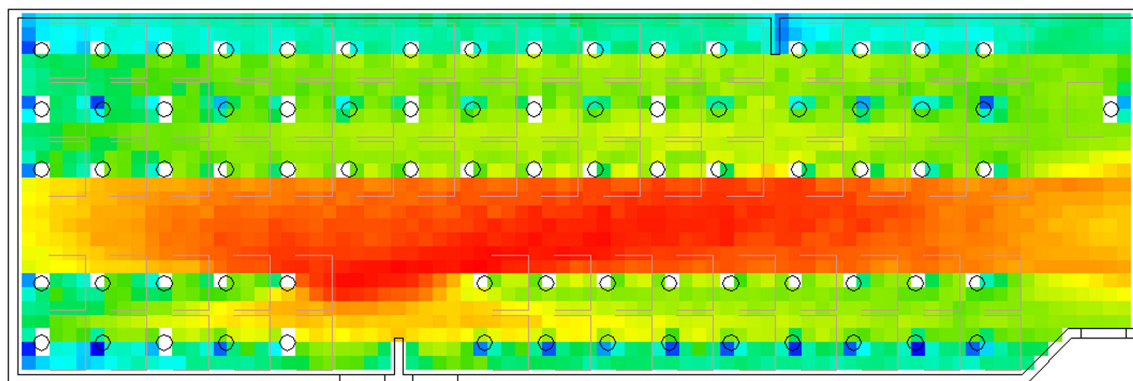
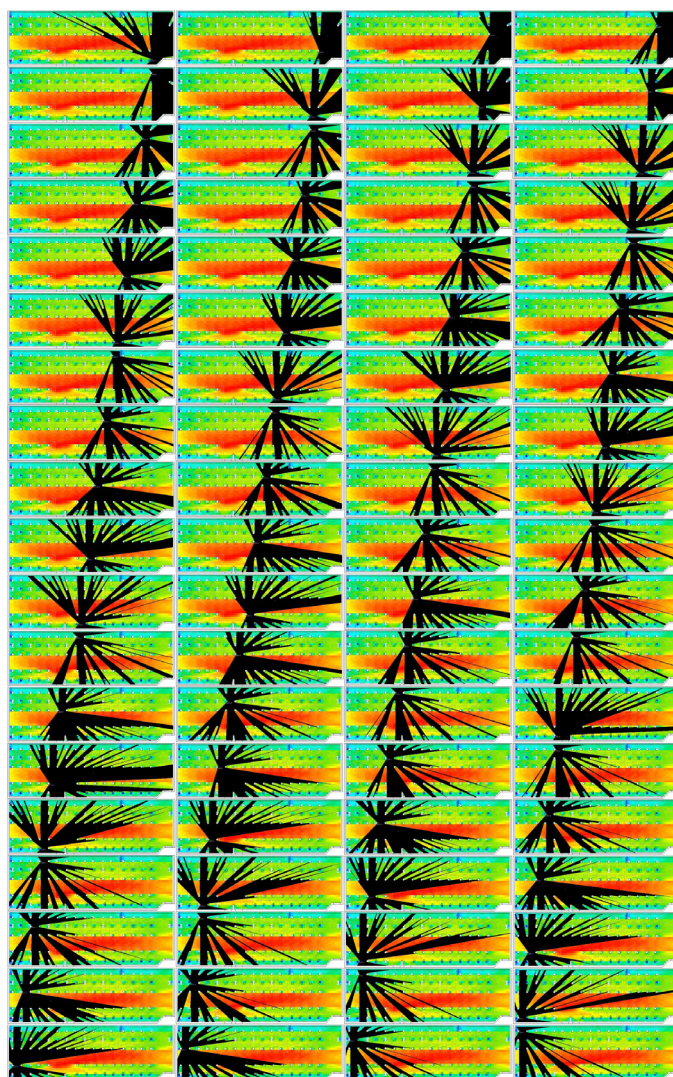


Figure 3. Studio B221 integration analysis.



**Figure 4.** Integration analysis with people blocking the view.



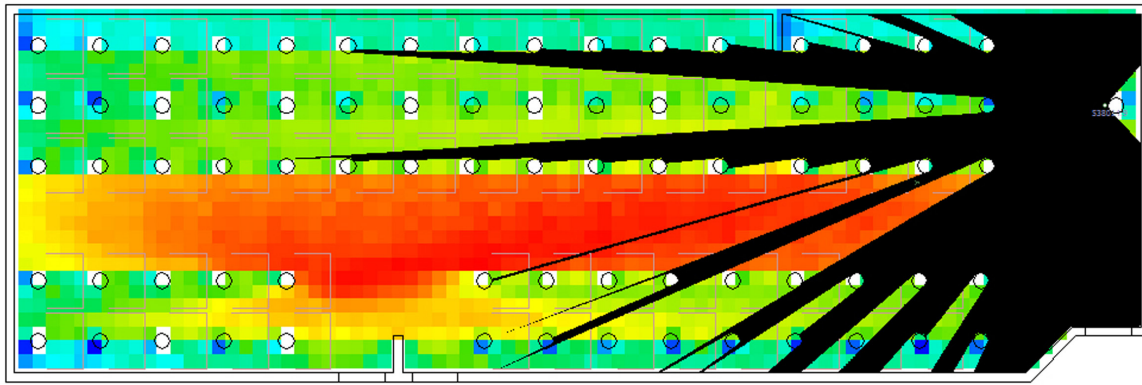
**Figure 5.** Visual scope of each seat assigned for students.

front of them for an instructor to stop by and comment are assumed to be more accessible and therefore, should be initially preferred by students who seek interaction with the instructors or peers through movement.

The second concern on the other hand, was the visual scope of each stool, i.e., the students themselves, in

relation to instructors or peers (Figures 4 and 5). In this scenario, the sitting mode was taken into consideration. Thus the positions of tables are neglected, as if the floor was raised to table height, while the position of the stools and so the students sitting on them, gained importance. The assumption here is again the students who seek interaction especially with the instructors would select the seats with wide visual range or other seats to keep an eye on the peers in case they come up with something interesting or such. Although the isovists have the capability of showing a visual scope of 360°, selected isovist nodes are all positioned to face the board, thus the instructors. In order to maintain this, the stools are considered as the blocking objects with students sitting on them. Therefore student's default visual field is set to be towards the front to communicate with the instructors and sideways to communicate with peers.

The last concern here was the actual visual scope of the instructor in sitting mode (Figure 6). Although this specific position provides a single datum, it was considered important especially for the social interaction between the instructor and the students selecting seats from the front rows. Therefore, this analysis is conducted solely with the thirty four seats that are within the visual scope of the instructor. However, it is also interesting to see that as the students sitting next to the corridor seats at the back of the studio can still keep their eye contact with the instructors as well as their peers (Figure 5) consistent with the high integration values of these seats and longer isovist perimeters. On the other hand, students on



**Figure 6.** Visual scope of the instructor.

the back seats are completely hidden from the instructor's view while their large isovist area enables them to keep visual contact with their peers.

#### 4. Conclusions and discussion

The integration results show the accessibility of the tables, while the isovist parameters show visual scope of the students, as well as the instructor. Correlation results from the daily assignment average on the predetermined weeks vs. the related seat's syntactic values are conducted separately for the fall semesters of both academic years. In all of the analyses, the students' grades are considered as dependent variables, while the syntactic values are independent. The results of the

regression analysis are shown in Table 2. Regression analysis is investigated with the R values with significance between -1 and +1. It is assumed that the third week results would indicate a rather random range owing to lack of lesser prior experience, while following weeks would fall into a better range of correlations.

Therefore, according to Table 2, integration level and success relationship is only seen on the relatively crowded group's early settlement. The isovist area values of the seats present no correlation with grades, while isovist perimeters, i.e. the farthest distance that can be seen while working on the table are worth noting. Although the values shown in the table can be regarded

**Table 2.** Fall semester regression analyses from both academic years with  $df=75$ .

		integration	isovist area	isovist perimeter
3rd week grades	2009-2010	R=0.225 (p= 0,05>0,05)	R=0.131 (p= 0,26>0,05)	R=0.101 (p= 0,384>0,05)
	2010-2011	R=0.146 (p= 0,208>0,05)	R=0.093 (p= 0,422>0,05)	R=0.189 (p= 0,101>0,05)
6th week grades	2009-2010	R=0.017 (p= 0,887>0,05)	R=0.062 (p= 0,595>0,05)	R=0.221 (p= 0,055>0,05)
	2010-2011	R=0.143 (p= 0,218>0,05)	R=0.034 (p= 0,770>0,05)	R=0.335 (p= 0,03<0,05)
9th week grades	2009-2010	R=0.07 (p= 0,551>0,05)	R=0.001 (p= 0,996>0,05)	R=0.093 (p= 0,423>0,05)
	2010-2011	R=0.134 (p= 0,248>0,05)	R=0.02 (p= 0,863>0,05)	R=0.144 (p= 0,215>0,05)
12th week grades	2009-2010	R=0.201 (p= 0,082>0,05)	R=0.073 (p= 0,529>0,05)	R=0.306 (p= 0,007<0,05)
	2010-2011	R=0.159 (p= 0,169>0,05)	R=0.062 (p= 0,596>0,05)	R=0.305 (p= 0,007<0,05)



as mild correlations, the significance of isovist perimeter values versus the grades of sixth and twelfth weeks of both years is interestingly striking.

When we compare the outcomes in the Spearman's rho, the correlation between the 3rd week grades of the 2009-2010 fall semester with integration values shows a high significance with  $r(76) = 0.428$ ,  $p < 0.01$ , complying with the regression analysis results of Table 2. However, integration vs the grades of this year are striking. We see correlation between the integration and 6th week grades of the 2009-2010 fall semester as  $r(76) = 0.284$ ,  $p < 0.05$ , whereas 9th week grades and integration correlation is  $r(76) = 0.319$ ,  $p < 0.01$ , and lastly comparing 12th week grades, a strong correlation appears as  $r(76) = 0.456$ ,  $p < 0.01$ . This situation indicates that when the medium is crowded and early seat selection is crucial for interaction with instructors, then the position of the tables located alongside of the circulation path gains importance.

On the other hand, for 2010-2011 fall semester, where the seat selection options were more diverse than the previous year, there appears to be a strong negative correlation with isovist perimeter, in the 6th week grades  $r(76) = -0.359$ ,  $p < 0.01$ , indicating that the students have selected seats on the front rows and mainly next to wall or window. While the 3rd and 9th week results don't show significance again complying with Table 2, there appears to be another inverse correlation for isovist perimeter in 12th week as  $r(76) = -0.369$ ,  $p < 0.01$  indicating a similar seat selection with the 6th week. The similar situation is also seen in the comparison with grades of the 9th week of 2009-2010 fall semester; where it gives us a negative correlation of  $r(76) = -0.250$ ,  $p < 0.05$ . Inverse correlation means that there's a relation between the isovist perimeters and the failure of the students instead of success.

The instructor's visual scope as shown in Figure 6, however, has not presented the expected correlations. Spearman correlations between the syntactic properties of the 34 seats that fall within the scope of the instructor's visual field and the actual grades of the

students who have selected these seats initially showed that visual field of the students with respect to their proximity to seated instructors had no impact on the grades. While isovist area and isovist perimeter presented no connection to the obtained grades, isovist circularity showed a negative correlation of  $r(34) = -0.353$ ,  $p < 0.05$ , from the 6th week of 2010-2011 fall semester. Benedikt (1979) describes isovist circularity as another measure of compactness or complexity of the visual field like area and perimeter which don't change according to vantage point. This result may imply that if given a variety of seat choice, the students prefer to have a small amount of visual contact with the instructors rather than a full scope or none. While the extent of this visual contact is more important than the width of visual range, it still does not give any valid information about the success level of the student.

Although the unequal size of cohort may necessitate cautious interpretations, there are still some interesting results to be discussed. The results of the research imply a relationship between the seat selection and grades, in terms of physical and visual accessibility. The integration based correlations are seen mainly in the 2009-2010 fall semester where the student group is large, and sitting on the preferred table is a matter of coincidence, unless the student intentionally comes to the studio earlier. In the case of 2010-2011 fall semester however, since the number of students are almost half of the number of seats, the students of this group have a wider range of selection. It is seen that these students prefer to take first rows for a higher level of social interaction with the instructors, seats alongside the circulation axis for easy access and seats alongside the wall or window for longer visual scope.

It is also discerned that, different cohort sizes also seem to affect the success of the basic design education. The ideal ratio of design studio lecturer per student changes between 8-15 according to semester and level of design complexity, however, it is seen that meeting the quantity requirements does not automatically satisfy the desired design quality. Having a group with cohort

size not exceeding 35 opposed to a larger group also verifies the test results as well. When the students have an opportunity to select seats from a variety of tables, they prefer to prioritize their visual scope rather than accessibility; however this visual scope is mostly related with peer vision or general panorama of either studio or exterior space. While in design studios successful students show no significance in seat selection unlike theoretical lecture halls, average and upper average students prefer easy access to instructors' circulation paths and instructors' visual field by selecting front rows.

It was also assumed that the value of isovist area would be important as it denotes the width of the visual scope; however the results showed no significance. This would have been more important maybe in a lecture hall, where a clear view of the board or stage would be prioritized. However, the nature of any design studio also involves the movement of students as well as the instructors. Since usually, it allowed eating and drinking during the studio hours, the students select their tables for a longer period than any lecture based course. Therefore average or unsuccessful students seem to attach importance not to the easy accessibility of their tables either by the instructors or their peers but instead they prefer to have a longer visual axis, so as to control the instructors or their peers. That is why, for example if there is someone important for them, who is getting a critique from the instructors, they can easily come to listen as well, or check if someone is using a different material or having a better model. This situation also confirms the importance of information sharing and peer to peer learning through social interaction especially in design as denoted by Wang, et al. (2010); McCormick, (2004); Chiu and Shih, (2005). It may also be concluded that, regarding the student interaction thus desired peer to peer collaboration, traditional seating pattern with accessible movement routes, without walls and column like barriers that hinders visual scope can still be safely used in a studio layout.

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## **Temel Tasarım Stüdyolarında başarı: Yer seçimi bir avantaj olabilir mi?**

### **1. Stüdyolarda sosyal etkileşim**

Tüm tasarım programlarının esasını tasarım probleminin verileri, çıktıları ile sorunlarının incelendiği stüdyo dersleri oluşturur. Öğrencilerin eğitimlerinin başlarından itibaren tasarımda farklı çeşitlemelerin ve sonuçların olabileceğini görebilmeleri gerekir, çünkü öğrencilerin özgün tasarım, çizim ve sunum yapması esastır. Bu nedenle, tasarım stüdyolarında öğrencilerin özgün tasarım süreçlerini tek tek ele alacak, projenin gelişimini denetleyecek ve öğrencilerin de kendilerinden farklı tasarım görüşlerini alabilecekleri birden çok eğitimci bulunabilir. Bu tür bir eğitim yöntemi yüz yüze oturma düzenleriyle dışadönük davranışı olduğu kadar, eğitimci ile öğrenciler arasında dengeli bir iletişim kurulmasını da gerektirir. Ancak çoğu zaman, bu özgün eğitim yönteminin avantajlarının birinci sınıf öğrencile-

ri tarafından farkedilmesi zaman alır. Öğrencilerin üniversite binalarındaki sosyal davranışları, birbirleriyle olan sosyal etkileşimleri ve toplanma alanları özellikle tasarım programları açısından son derece önemlidir. Ancak, Miura ve Sugihara'nın (2011) öğrencilerin arkadaşları ya da eğitimci ile sürekli olarak etkileşimde oldukları bir yer olarak tanımladıkları stüdyoların oturma düzenleri de araştırılmaya değerdir. Sosyal etkileşim masaüstü eleştirilere ve yüz yüze tartışmaya dayanan tasarım eğitiminin temel özelliklerindendir, bu nedenle stüdyolar istenen etkileşimi sağlayabilmelidirler.

Öğrencilerin çeşitli sınıf düzenlerindeki oturma tercihlerini görüş alanından çok savunma odaklı egemenlik alanı davranışına bağlayan çalışmalar bulunmaktadır. Bu çalışmalarda büyük ölçekli sınıflarda öğrenci ile eğitimci arasındaki uzaklık arttıkça öğrenmenin güçleştiği, ön sıralarda oturan öğrencilerin arka sıralarda oturanlara oranla daha yüksek notlar aldığı,

yer seçimi alışkanlığının devamı ve performansına etki ettiği gibi sonuçlara varılmıştır. Ancak bu çalışmalar her öğrenciye kolçaklı bir sandalye verilen ve bireyselliği hedefleyen kuramsal içerikli derslerin verildiği geleneksel dersliklerde yürütülmüştür. Tasarım stüdyolarında ise öğrencilerin gerek arkadaşlarıyla gerekse öğretmenlerle farklı ilişkileri vardır.

Mimarlık okullarında stüdyo düzenlerinin hareketli çizim masaları, bilgisayar donanımları, maket tezgâhları ve referans kütüphaneleriyle öğrenciye örnek olması beklenmekle birlikte, özellikle tasarım eğitimine yeni başlayan kurumlardaki bazı kısıtlar daha yararlı çözümleri gerektirebilir. Aynı stüdyonun kuramsal dersler için de kullanıldığı geleneksel sıra düzeninde oluşturulmuş mekânlarda odak noktası eğitmendir ve eğitmenin masa dizileri arasında dolaşırken öğrenciler ile kuracağı göz teması önemlidir.

Fiziksel mekândaki oturma düzeni, sosyal etkileşim, derse katılma ve kullanıcının başarısı ile ilişkilidir. Pencere veya koridor yanındaki oturma elemanları, ön, orta ve arka sıraların her birinin bütünleşme değerleri farklıdır. Mahremiyet odaklı bir çalışmada Pedersen (1994) arka sıralarda oturan öğrencilerin görüş alanından ve diğerleriyle etkileşimden uzak olmayı tercih ettiklerini, Pomales-Garcia ve diğerleri (2009) ise, herkesin birbirinden farklı noktalara baktığı merkezi dikdörtgen düzenlerin kopya çekmeyi engellediğini öne sürerler. Oysa, bu tür bir düzen etkileşimi azalttığı ya da engellediği için tasarım stüdyosunda istenenin tam tersidir. Diğer yandan, geleneksel sıra dizisiyle oluşturulmuş dersliklerin U düzenle karşılaştırıldığı çalışmalarda (Sommer, 1969; Kaya ve Burgess, 2007), ön ve orta sıralardaki öğrencilerin derse katılımının daha yüksek düzeyde olduğu ancak bu tür ortamlarda odak noktasının eğitmen olduğu, U düzende ise eğitmenin tam karşısındaki öğrenciler daha katılımcıyken ortamın kendisinin tartışmayı ve sosyal etkileşimi özendirdiği savunulur.

Tasarım stüdyosunda gerek duyulan bilginin dinamik ve karmaşık yapısı nedeniyle öğrenciler arasında bilgi ve kaynak paylaşımının önemi artmakta (Wang ve diğ., 2010; McCormick,

2004) ve akranlar arası öğrenme ile mesleğin özündeki disiplinler arası çalışma alışkanlığı oluşmaktadır. Bu nedenle, gerek öğretmenler gerekse arkadaşlar ile iletişim kurmayı sağlayacak yer seçimi iyi bir proje ortaya koyabilmek açısından önemlidir. Ancak birinci sınıfın ilk haftalarında sosyal etkileşim henüz tam olarak kurulmamıştır. Bu araştırmanın hipotezi henüz belirli yerlere karşı oluşmamış olan alışkanlık, kurulmamış sosyal ve arkadaşlık bağları nedeniyle öğrencilerin yer seçiminde daha bağımsız olacakları ve sabit düzendeki bir stüdyoda kuracakları sosyal etkileşimin başarılarını etkileyeceğidir.

## 2. Araştırma alanı ve kısıtlar

Kolayca denetlenebilen sınırlı ortamlardaki küçük gruplar arasında sosyal etkileşimin oluşması daha kolaydır ve tasarım stüdyoları açısından da bu istenen bir özelliktir. Ancak bu araştırma için seçilen alan tüm bu ideal şartların dışında kalan bir stüdyodur. Geleneksel sıra düzeninde 76 çizim masası alabilen 200 m<sup>2</sup>'lik bu stüdyo, özel bir üniversitenin birinci sınıf mimarlık ve iç mimarlık öğrencileri ile ardışık iki yıl yapılan temel tasarım dersinde kullanılan ve kısıtlı fiziksel kaynaklar nedeniyle kuramsal derslerin de aynı yerde yürütüldüğü bir mekândır. Eğitmen grubunun aynı kaldığı, 2009-2010 ve 2010-2011 güz yarıyıllarını içeren çalışmada, 3, 6, 9 ve 12. haftalarda çekilen fotoğraflarla öğrencilerin yer seçimleri belirlenerek bu haftalara ait uygulamalarda aldıkları notlarla karşılaştırılmıştır. İncelenen iki yarıyıldaki önemli bir fark da 72 ve 36 öğrenci ile ikinci yıla ait öğrenci sayısının ilk yılın yarısı kadar olduğudur. Yer seçimi havuzunu etkileyen bu fark sonuçlara da yansımıştır. Öğrencilerin öğretmenlerle ve arkadaşlarıyla farklı sosyal etkileşim alanını kullanacağı varsayılan günlük uygulamalar, stüdyo oturma düzeni, öğretmenlerin dolaşım aksı ile görüş açılarının dizimsel değerleri regresyon analizi ve Spearman korelasyonları ile karşılaştırılmıştır.

## 3. Mekânsal dizim yöntemi ve analizleri

Mekânsal dizim çeşitli mekânsal düzenleri üreten kurallar dizisi olarak ta-



nımlanabilir (Hillier ve Leaman, 1974; Hillier ve diğ., 1987). Hanson ve Conroy Dalton'a (2007), göre mekânsal dizimde farklı gösterim biçimleri olan üç birim bulunur; bunlar hareket belirten aks çizgileri, sosyal etkileşim belirten dışbükey mekânlar ve görsel kapsamı belirten eşgörüş alanlarıdır. Mimari düzende bütünleşme değerleri dışadönüklüğü, derinlik ise gizli alanları belirtir. Bu çalışmada çizim masalarının dolaşıma ve erişime olanak sağlayan düzenlerini araştırmak için bütünleşme değerleri, sosyal etkileşim için ise gerek öğretmenlerin gerekse öğrencilerin oturur durumdaki eşgörüş alanları dikkate alınmıştır. Çizim masalarının erişilebilirliği ve öğretmenlerin masalar arasındaki dolaşım aksının bütünleşme değerleri için masalar sabit kabul edilmiş, her bir taburenin görüş alanı için ise masaların konumu gözardı edilmiş ve en geniş görüş açısı araştırılmıştır. Öğretmenin görüş açısına giren masalar ayrıca analiz edilmiş ve özellikle stüdyonun arkalarında yer alan masalardaki öğrencilerin öğretmenin görüş açısından tamamen gizlenmelerine rağmen arkadaşlarıyla göz kontağı kurmaya devam ettikleri için bu masaları tercih ettikleri görülmüştür.

#### 4. Sonuçlar ve tartışma

Yapılan analizlerde öğrencilerin notları bağımlı değişken, dizimsel ve-

riler ise bağımsız değişken olarak ele alınmıştır. Tablo 2'de verilen sonuçlara göre, başarı ve bütünleşme değeri ilişkisi ancak kalabalık grubun ilk haftalarında görülmüştür; buna rağmen öğrenci sayısının neredeyse masa sayısına eşit olduğu bu dönemde sonuçlar rastlantısaldır. Bir sonraki yılda ise, seçenek çok daha fazlayken, orta düzeyin üstündeki öğrencilerin öğretmenlerle etkileşim için öndeki masaları, kolay erişim için dolaşım hattı boyundaki masaları, geniş görüş açısı için ise pencere veya duvar kenarlarındaki masaları tercih ettikleri görülmüştür. Öğrencilerin seçenekleri fazla olduğu zaman fiziksel erişim yerine geniş görüş alanını tercih ettikleri; ancak bu geniş görüş alanının önceliğinin arkadaş ya da manzara olduğu, öğretmen etkileşimiyle ilişkili olmadığı görülmüştür.

Öğretmenlerin eşgörüş alanlarının öğrenci yer seçimi ve başarısıyla belirgin bir ilişkisi görülmezken, stüdyo kuramsal derslere oranla içinde daha çok zaman geçirilen bir yer olduğu için, eşgörüş çevresi her iki yıl sonuçlarında da özellikle orta ve düşük düzeyde başarılı öğrencilerin tercihleri açısından anlamlıdır. Bu araştırma tasarım süreci açısından ideal olmamakla birlikte, erişim kolaylığı sağlanabilen geleneksel masa düzeninde oluşturulmuş stüdyoların da hâlâ kullanışlı olmaya devam ettiğini göstermektedir.