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THE EFFECT OF SPATIAL CONFIGURATION ON SOCIAL INTERACTION: ASSESSMENT OF SOCIAL INTERACTIONAL SPACES SPATIAL QUALITIES IN A FACULTY BUILDING¹

MEKÂN KONFIGÜRASYONUNUN SOSYAL ETKİLEŞİM ÜZERİNDEKİ ETKİSİ: BİR FAKÜLTE BİNASINDA SOSYAL ETKİLEŞİM MEKÂNLARININ MEKÂNSAL NİTELİKLERİNİN DEĞERLENDİRİLMESİ

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ÖZET

Bireysel gelişimde psiko-sosyal gereksinimlerin karşılanabilmesinin bir yolu olan sosyal etkileşim, insanın temel ihtiyaçlarından biri olarak ifade edilebilmektedir. İnsanların içinde hareket ettikleri, birbirleri ile karşılaştıkları ve etkileşimde buldukları mekânların birbiri ile olan ilişkisini tanımlayan mekân konfigürasyonu, insanların etkileşim düzeylerini etkileyebilecek hareket örüntüleri geliştirebilmektedir. Bu çalışmada mekân konfigürasyonunun sosyal etkileşime olan etkisi irdelenmiş, gözlem, mekân dizimi analizi ve bu analizler sonucu elde edilen bulguların karşılaştırmalı olarak değerlendirildiği SPSS analizi yöntem olarak kullanılmıştır. Alan çalışması için, Selçuk Üniversitesi Güzel Sanatlar Fakültesi binası seçilmiştir. Alanda, gözlem ile sosyal etkileşim etkinlikleri, bu etkinliklerin gerçekleştiği mekânlar, kullanıcı sayısı ile etkinliklerin frekansları, mekân dizim analizi ile planlar üzerinde belirlenen noktaların sentaktik değerleri belirlenmiştir. Bu iki analiz sonucu elde edilen bulgular arasındaki ilişki SPSS analizleri ile karşılaştırmalı olarak sorgulanmıştır. Sonuç olarak, mekânın sentaktik özelliklerinin sosyal etkileşim etkinliklerinin gerçekleştiği mekânlar üzerinde etkili olduğu belirlenmiştir. Sosyal etkileşim mekânlarının mimari nitelikleri de incelenmiş ve bir mekânın erişilebilir, hareketli, diğer mekânlarla bağlantılı, çevresiyle geniş ve kesintisiz bir görüş alanına sahip ve daireselliğe yakın bir mekânsal kurgusunun olmasının, o mekânın yoğun etkileşimsel bir mekân olmasını sağladığı tespit edilmiştir.

Anahtar kelimeler: Mekân dizimi, çevre-insan davranışı, mekân konfigürasyonu, sosyal etkileşim, fakülte binaları

ABSTRACT

Social interaction is mentioned as one of humans' needs because it is a way to fulfill psycho-social requirements in individual development. Spatial configuration can develop movement patterns giving opportunity for social interaction as it defines relationship between spaces where people move, come across and interact with each other. In this study effect of spatial configuration on social interaction is investigated and a research model composed of observation, space syntax analysis and SPSS analysis is used. For case study, Faculty of Fine Arts in Selçuk University is selected. Social interaction activities, spaces

¹ This article is prepared by making use of the PhD thesis of Süheyla BÜYÜKŞAHİN SIRAMKAYA under the supervision of Prof. Dr. Dicle AYDIN named as "Syntactic analysis of the effect of spatial configuration on social interaction in faculty buildings".

preferred for these activities, number of people in these activities and frequency of them are determined by observation. The syntactic values of places are determined by Syntax 2D analysis. The relationship between findings of two analysis is assessed comparatively through SPSS. As a result, it is determined that syntactic characteristics of space is effective on social interactional spaces. The architectural quality of social interactional spaces are also investigated. Consequently, it is expressed that, if a space has a spatial configuration which is accessible, active, connected with other spaces and has a wide and uninterrupted visual area with its surrounding, that space can easily become a dense social interactional space.

Keywords: Space syntax, environment-human behaviour, spatial configuration, social interaction, faculty buildings.

1. INTRODUCTION

Social development is the process of learning to behave in a way to be accepted by the society that the individual lives in. Socialization on the other hand is having impressions belonged to human relations and directing these gained impressions to them. These impressions can be on intellectual, emotional or physical level (Kulaksızoğlu, 1998). Social interaction is placed in Maslow's (1970) hierarchy of human needs as a need and includes actions and feelings such as belonging, connecting, joining a group, loving, being loved, accepted and etc. Social interaction provides important contribution on psychosocial development of young individual, getting a space in society, expressing him/herself and shaping him/her personality. Faculty buildings -as the most important mediums for getting a profession- are one of the building types where the university students spend most of their academic lives and complex social organizations composed of social, structural and functional components. Faculty buildings need to have supportive spatial arrangements for the basic needs of the young people in university age (improving personality, making friends, safety, being an individual, having distinctive characteristics, feeling belonged to a group or society) and designing faculty buildings in a way to give opportunity to social interaction is directly effective on young to become healthy individuals. Students will be able to widen their social connection areas with their environment and interact with each other and adults via social interaction.

Although there are many factors affecting human behaviors, the interaction between manners, behaviors and physical environment is handled in scientific studies and it is expressed that there is a two way interaction between human and the physical environment. While the physical characteristics of space forms the behavior of the individual using that space, human behaviors change and transform the space in time. The movements of people in the space, the ways they use the space and their spatial preferences are important in architectural sense as they form design input. Spatial configuration, which exists in the connection of spaces with each other and the movement patterns the people follow between these spaces and expresses the order these places come together, can prepare the ground for supportive or prohibitive movement patterns in human behaviors and their interactions with each other.

The definition of what the spatial qualifications should be in the mediums where social interaction is important and necessary is significant for the designers. In this study handling the investigation of the effect of spatial configuration on social interaction in architectural design, it is examined that if there is social interaction in faculty buildings or not, what the effect of the spatial configuration on this interaction is and it is aimed to reach the architectural characteristics of the spaces giving opportunity for social interaction by syntactic analysis of the plan scheme.

2. LITERATURE REVIEW

2.1. Social Interaction As a Human Need

Social interaction, named also as social inclusion and social unity, is the free togetherness situation or level where the people with different physical and mental abilities have equal opportunities for interaction. Social interaction can also be named as the participation of the individual to the human relations patterns in the society. Rummel (1976) defined social interaction as behavior, action and practices of two or more individuals directed face to face towards each other. In other words, social interaction is a result of humans' "face to face direction" towards each other. Moreover, Rummel (1976) emphasized that social interaction can also be defined as a kind of physical relation, physical distance and behavior.

While Krueger (2011) defines the social interaction as a form of the social consciousness with the self-restructuring of "human and space", Gökçe (2007) states that social interaction carries the meaning of people being in relation with each other and their environment and forming a cultural, behavioral and sensory dealing medium. The social interaction concept of Durkheim (1964) specifies a mechanism

working to create social solidarity and devotion between human groups. In this sense interaction is a cooperation model behaving as a cultural binding mechanism strengthening and solidifying the social bonds between individuals. According to Durkheim's theory, when the individuals feel themselves belonged to a group or they join a group they benefit mentally, emotionally and physically. Without this connection feeling the individuals may live psychological disturbances like depression and isolation that will prevent those living efficient and happy lives.

In the formation process of social interaction, communication model of the group, the symbol they use to communicate, space relations and personal identity is important. In this sense, it is necessary to form social interaction areas for providing the contact between individuals. Spaces for interaction are generally related with proximity, privacy, legitimacy, accessibility and functionality concepts. Interaction can happen by incidental encounters or in premeditated ways (Ferguson, 2007). Briefly for interaction, it is necessary to find an appropriate space and distance and opportunity to contact with other individuals (Skjaeveland and Garling, 1997).

2.2. The Relationship Between Social Interaction and Spatial Configuration

Environmental designers mention that architecture feed social interaction. In this sense spatial configuration is assessed in the scale of physical and functional distance between people, groups and activities. The arrangement of rooms, walls, doors and separators affect the opportunity of people to see and hear each other and react to each other. Barriers, openings, road locations and physical arrangements may provide opportunity for social interaction or form obstacle (Wells, 2009).

Gibson's (1966) "Affordance Theory" gives important clues about social interaction and space. Gibson (1966) investigated the interaction between physical environment and individual. According to this, the thing which give opportunity to the individual to interact with his/her environment is the characteristics of the physical environment and the circumstances. Affordance Theory, focuses on how the physical environment can encourage the individual to make cognitive activities. In this sense, different environmental patterns support different behaviors, in other words support some behaviors and restrict others (Yıldız and Şener, 2006).

The formation or grade of social interaction is directly related to the physical conditions of the space. In this sense, there are situations which prevent or support social interaction in the space that the individual uses (Figure 1). While some factors such as walls, long distances, high speed between people restrain social interaction, short distances, low speed, right locations can support social interaction (Gökçe, 2007).

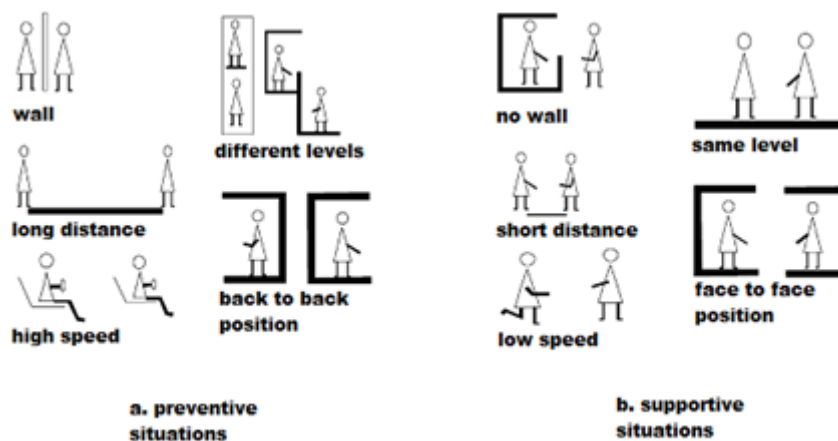


Figure 1. Supportive and Prohibitive Situations for Social Interaction Depending on the Physical Environment (Adapted From Gehl (1987) (pp 64)).

The built environment can be defined as an area for existing together, being aware together and encountering from the social point of view. The borders that separate the built environment and the connections combining it regulate behaviors, activities, the ways people come together and stay separate from each other. The boundaries, envelopment, contiguity, inclusiveness, subdivision, accessibility and visibility features in the space create relationships (Peponis and Wineman, 2002). In the researches; the

spaces are defined as “low interactional (sociofugal)” and “intense interactional (sociopetal)” environments, according to their features that determine the social interaction level (Sommer, 1969). The sociofugal and sociopetal concepts are the concepts which were first revealed by psychologist Humphry Osmond to explain the quality of space. According to Osmond (Osmond, 1957) “the spaces providing conversation distance and eye contact possibilities between people” are called *sociopetal*. As opposed to this; *sociofugal* arrangements are the arrangements in which people in conversation distance are prevented from interactions by causing them to look at different directions from each other. Ünlü (1998) expressed that, low interactive environments are spaces where can be described as “concrete architecture” that personalization is extremely difficult; while intensive interactional environments offer some options proper to the patterns of personalization at the level of behavior. Brand (1998) expressed that the process of how to design the space for a useful and productive social interaction is very complicated and requires intensive knowledge accumulation. In this complex process, the personal and cultural features of the individual, the spatial features, perception of the space and evaluation of the social relation characteristics in social structure as a whole for social interactional supportive space design are quite important.

3. METHODOLOGY

The research methodology has been formed in three stages intended for investigating the effect of spatial configuration on social integration: i. Observation, ii. Space Syntax Analysis, iii. The analysis of the obtained numerical data with SPSS 16.0 (Figure 2). The research area is determined as faculty buildings and Selçuk University Faculty of Fine Arts, which has a courtyarded gridal plan scheme, has been examined. The “low interactive” or “intense interactive” spaces have been confirmed based on observation in the faculty building that is designed to provide opportunity for students to become socialized as much as take education and the features of spatial configuration that allow or disallow to become socialized are described by evaluating via syntactic parameters.

3.1. Observation

The observation was carried out in the time period that not includes the first and last weeks of the 15 weeks semester, the exam weeks and the official long-term holidays. *The intense social interactional spaces* except the classrooms that the students used intensively, spent time, interacted with the environment and other friends in their free time, and *the low interactional spaces* that students spend more time personally and does not provide opportunity to interact with each other and the environment, were determined by the observation method. The behavioral modes of users in the space, which zones they prefer in social interactional areas, the frequency and duration of using the space were also confirmed by observation. As a result of observation study documented by constant photographing on a specified route, the activities of the users (sitting, standing interaction, etc.) are processed into architectural plans with the classification of the space where the social interaction is seen and not seen.

Observed behaviors are classified depending on:

- Activity patterns
- The preferred areas
- Time

parameters.

3.2. Space Syntax Analysis

The plan of the building was drawn into the “Syntax 2D” licensed program of the University of Michigan to perform space syntax analysis. Quantitative data were obtained by analytically evaluating the spatial configuration with space syntax analysis. The potential of the users to come together has been determined by superposing movement and view areas on the plans of selected building. Points were identified to understand the characteristics of different areas on the plans and to obtain comparable values. These points are selected from the areas that are thought to be fictionalized and used as social interaction areas, from the spaces that are important components of the spatial configuration (entrance or entrances, circulation (nodal point, corridors, endpoints of the circulation) and functionally defined main spaces (exhibition-rest, canteen, foyer) within the spatial organization of the faculty building. The

parameters to investigate are selected according to the previous studies made on social interaction in different building types with different users. These values of integration, depth (mean depth), connectivity, isovist perimeter, isovist area and circularity parameters of the determined points were obtained by means of the program. The value of the integration of the spaces is presented by both numerical and graphical representations² obtained from the “Syntax2D” program while other parameter values are only presented numerically on the table.

3.3. Statistical Analyses

The syntactic values of “low interactional” and “intensive interactional” spaces have been found by overlapping the values come from space syntax analysis and the findings obtained from the observation. In this context, the findings obtained by observation are integrated and developed by space syntax analysis. The parameter values of space syntax were converted into nominal values and made three classifications from small to grand. Behavioral modes determined through the findings obtained from the observation were also digitized and tabulated. Whether the nominal values in this table have a meaningful relationship with each other were compared with simple regression and Chi-Square tests on SPSS 16.0 program and the results were commented.

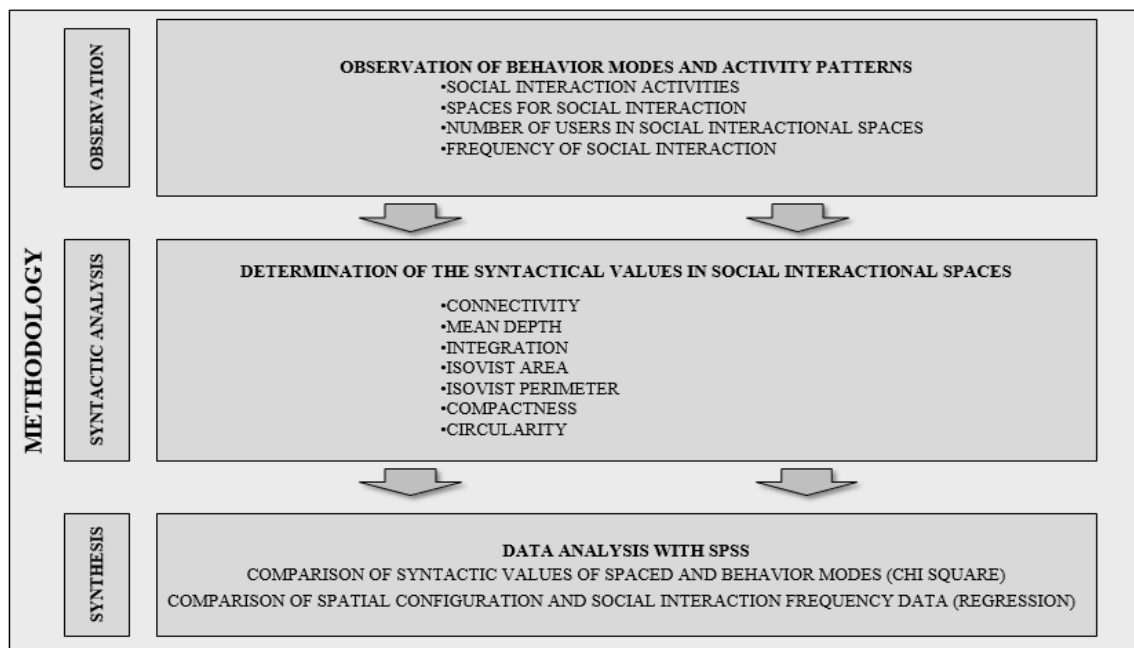


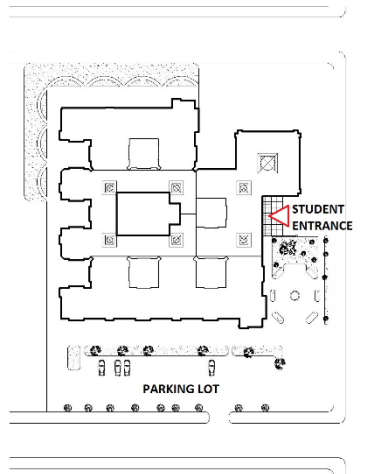
Figure 2. Methodology of Research

4. RESULTS

4.1. Analysis of Faculty of Fine Arts

The construction of the Faculty of Fine Arts (FFA) with an area of 14900 m² located at the south end of the Alaaddin Keykubat Campus was completed in 2010. There are 70 lecturer rooms, 48 workshops, 1 conference hall, and 1 cafeteria. The building, which is formed of ground +2 floors, has an open courtyarded gridal plan scheme (Table 1). Lessons in the faculty, which have an art-oriented training program, are mainly carried out in workshops.

² In these graphical representations according to the color scale continuing from blue to red, the red areas in the plan represent the most integrated areas and the blue areas represent the deep spaces where the spatial integration is the lowest. While the areas with high integration value (expressed in red color) represent regions where the movement become intense and give opportunity for social interaction, the areas with low integration value (expressed in blue color) define the regions where the movement is low.

Table 1. Faculty of Fine Arts (FFA)

Site Plan



FFA north west facade



FFA north east facade

4.2. Findings From Observation

Behavioral modes based on social interaction of students were determined as “chatting as seated”, “chatting afoot”, “doing sports activity (playing table tennis)” and “watching sport activities and chatting” as a result of observation (Table 2). As a result of the observation, the first floor was left out of the research scope as there is no social interaction, only the ground floor was investigated for evaluation.

Table 2. Behavior Modes Depending on Social Interaction

Chatting as seated



Chatting afoot



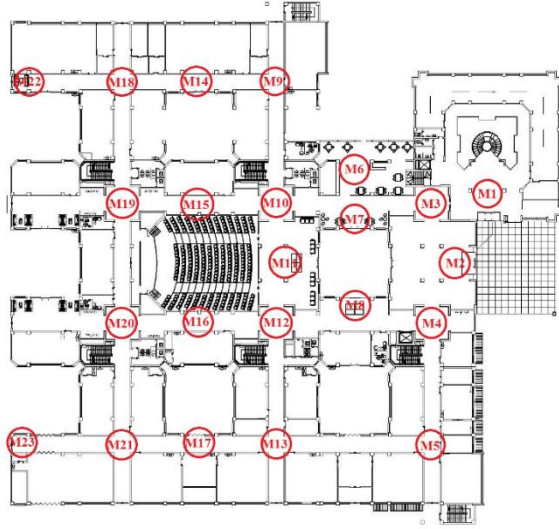
Doing sport activity



Watching sport activity and chat.

Behavioral modes were observed in 23 points defined on the ground floor plan to determine the features of different points and to obtain comparable values and shown in Table 3 such as the entry points, in the circulation areas and in the spaces defined as the exhibition, rest, canteen and foyer.

Table 3. The Points Determined on the Ground Floor Plan of FFA for Analysis and Their Functions

	ENTRANCES Dean Entrance: M1 Student Entrance: M2
	CIRCULATION SPACES Node points: M3, M4, M5, M9, M10, M12, M13, M18, M19, M20, M21 Corridors: M14, M15, M16, M17 Circulation end points: M22, M23
FUNCTIONALLY IDENTIFIED MAIN SPACES Exhibition-Rest: M7, M8 Canteen: M6 Foyer: M11	
Distribution of the points determined on the ground floor plan of FFA	

The spaces preferred by students for social interaction activities, behavior modes based on social interaction, the intensity of students participating in interaction and frequencies of social interaction were determined, the average values of the data obtained from the observation analysis are shown in Table 4.

Table 4. Behavior Modes, Number of Participants and Interaction Frequency in the Determined Points in FFA

		Total Activity	Chat. seated	Chat. afoot	Sport activity +chat	FR-Total Activity	FR-Chat seated	FR-Chat afoot	FR-sport activity +chat
M1	D.E.	0	0	0	0	0	0	0	0
M2	S.E.	4	0	4	0	0,1/hour	0	0,09/hour	0
M3	N.D.	0	0	0	0	0	0	0	0
M4	N.D.	0	0	0	0	0	0	0	0
M5	N.D.	0	0	0	0	0	0	0	0
M6	Canteen	51	44	7	0	1,4/hour	1,2/hour	0,2/hour	0
M7	E.R.	34	28	6	0	1,0/hour	0,82/hour	0,17/hour	0
M8	E.R.	2	0	0	2	0,2/hour	0	0	0,17/hour
M9	N.D.	0	0	0	0	0	0	0	0
M10	N.D.	3	0	3	0	0,2/hour	0	0,17/hour	0
M11	Foyer	9	0	0	9	0,8/hour	0	0	0,78/hour
M12	N.D.	0	0	0	0	0	0	0	0
M13	N.D.	0	0	0	0	0	0	0	0
M14	Corridor	0	0	0	0	0	0	0	0
M15	Corridor	0	0	0	0	0	0	0	0
M16	Corridor	0	0	0	0	0	0	0	0
M17	Corridor	0	0	0	0	0	0	0	0
M18	N.D.	0	0	0	0	0	0	0	0
M19	N.D.	0	0	0	0	0	0	0	0
M20	N.D.	0	0	0	0	0	0	0	0
M21	N.D.	0	0	0	0	0	0	0	0
M22	C.E.P.	5	5	0	0	0,2/hour	0,17/hour	0	0
M23	C.E.P.	0	0	0	0	0	0	0	0

(D.E.: dean entrance, S.E.: student entrance, N.D.: nodal points, E.R.: exhibition-rest, C.E.P.: circulation end points)

As a result of observation analysis, the spaces preferred by students for social interaction activities were determined among 23 points as student entrance (M2), nodal point (M10), canteen (M6), exhibition and resting spaces (M7,M8), foyer (M11) and the end point of circulation (M22) (Table 5).

Table 5. Social Interactional Spaces Determined in FFA

4.3. Findings From Space Syntax

The integration, mean depth, connectivity, isovist perimeter, isovist area and circularity values of the 23 points that defined on the plan are determined. As shown in the graphical representation of the analysis (Figure 3), the areas with high integration value (expressed in red color) are representing regions where the movement become intensive and provide opportunity to social interaction, the areas with low integration value (expressed in blue color) are representing the regions where the movement is less. The most integrated spaces (red color) shown in Figure 3 are the nodal points which are intersection points of the main circulations. When the overall plan is considered, it is seen that the spaces on the longest horizontal axis have the highest integration values, the integration value decreases along the way towards the endpoints of the circulation and spaces become deeper.

When the graphical expressions of the spaces determined by observation that students prefer for social interaction and the obtained syntactic values are superposed; it is seen that the regions with the highest integration value and the social interaction spaces preferred by the students match on the exhibition – rest (M7), nodal point (M10) and foyer (M11) spaces but do not match on the student entrance (M2), canteen (M6), exhibition – rest (M8) and the end point of circulation spaces (M22). In addition, it is observed that the social interaction spaces (M6, M7, M11), which are intensively used by the students, are whether on the horizontal axis with high integration value (M7), or directly connected to the axis (M6) or closely located to the axis (M11).

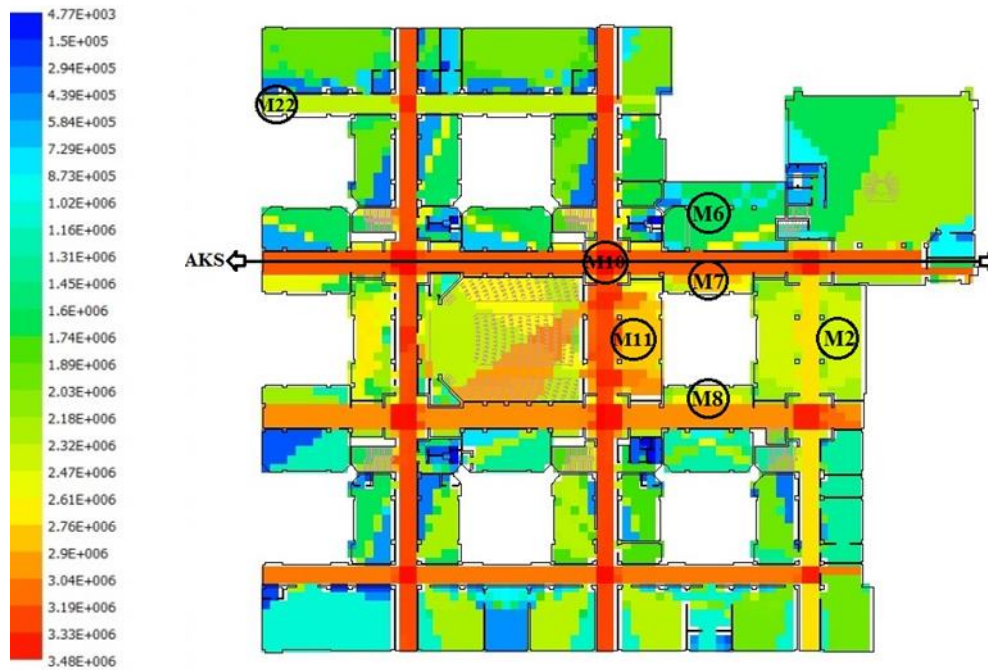


Fig. 3 Integration-n Graphic of FFA Ground Floor Plan and the Relationship of Social Interactional Spaces Determined by Observation

4.4. Comparison Between Space Configuration and Social Interaction Behavior Modes Data- Social Interaction Frequency Data

The relationship between the syntactic values of the points determined on the plan and the nominal values of the social interaction behavioral modes (Table 6) are analyzed by the Chi-Square test.

Table 6. Syntactic Values and Behavior Modes in the Determined Points in FFA

		Connectivity	Mean Depth	Integration-n	Isovist area	Isovist Perimeter	Circularity	Behavior Mode
M1	D.E.	533	2,63	3,20	5,14	2,57	127	-
M2	S.E.	173	3,16	2,30	1,73	1,25	90	Chatting afoot
M3	N.D.	415	2,43	3,41	4,09	3,86	364	-
M4	N.D.	364	2,50	3,39	3,53	3,16	283	-
M5	N.D.	199	2,86	3,09	2,26	2,28	229	-
M6	Canteen	102	3,64	1,63	1,07	0,81	63	Chatting seated
M7	E.R.	87	3,08	2,82	0,93	0,86	80	Chatting seated
M8	E.R.	101	3,12	2,31	1,02	0,97	92	Sport+chat
M9	N.D.	169	2,90	2,99	1,84	1,76	168	-
M10	N.D.	405	2,29	3,47	3,98	3,55	317	Chatting afoot
M11	Foyer	215	2,77	3,06	2,21	2,06	192	Sport+chat
M12	N.D.	300	2,68	3,19	2,74	2,73	272	-
M13	N.D.	224	2,71	3,18	2,41	2,69	301	-
M14	Corridor	89	3,26	2,30	1,09	1,02	96	-
M15	Corridor	240	2,72	3,19	2,21	1,82	150	-
M16	Corridor	210	2,88	3,01	1,95	1,55	124	-
M17	Corridor	134	2,90	3,08	1,65	1,46	130	-
M18	N.D.	153	2,84	3,00	1,75	2,23	284	-
M19	N.D.	166	2,71	3,24	1,64	2,27	314	-
M20	N.D.	275	2,64	3,27	2,63	2,77	292	-
M21	N.D.	213	2,64	3,26	2,39	2,32	227	-
M22	C.E.P.	87	3,26	2,29	1,08	0,99	90	Chatting seated
M23	C.E.P.	137	2,90	3,08	1,66	1,64	162	-

(D.E.: dean entrance, S.E.: student entrance, N.D.: nodal points, E.R.: exhibition-rest, C.E.P.: circulation end points)

According to the analysis results; the values of depth ($x^2=12,316$, $df=3$, $p=0,006 < 0,05$), integration ($x^2=11,794$, $df=3$, $p=0,008 < 0,05$) and isovist perimeter ($x^2=13,465$, $df=6$, $p=0,036 < 0,05$) of the space are determined to have an effect on the formation of social interaction in that space. It is seen that the values of connectivity ($x^2=7,800$, $df=6$, $p=0,253 > 0,05$), isovist area ($x^2=8,079$, $df=6$, $p=0,232 > 0,05$) and circularity ($x^2=7,800$, $df=6$, $p=0,253 > 0,05$) of the space have no influence on the realization of social interaction in the space.

The space syntax parameter values of the social interactional spaces and the frequencies of social interaction activities occurring in these spaces (Table 7) is analyzed by simple regression test to execute the importance of relation.

Table 7. Social Interaction Frequencies and Syntactic Values of Social Interactional Spaces in FFA

		Total activity	Chatting as seated	Chat. afoot	Sport activity and chatting	FR- Total activity	FR- Chatting as seated	FR- Chatting afoot	FR-sport activity+chat
M2	S.E.	4	0	4	0	0,1/hour	0	0,09/hour	0
M6	Canteen	51	44	7	0	1,4/hour	1,2/hour	0,2/hour	0
M7	E.R.	34	28	6	0	1,0/hour	0,82/hour	0,17/hour	0
M8	E.R.	2	0	0	2	0,2/hour	0	0	0,17/hour
M10	N.D.	3	0	3	0	0,2/hour	0	0,17/hour	0
M11	Foyer	9	0	0	9	0,8/hour	0	0	0,78/hour
M22	C.E.P	5	5	0	0	0,2/hour	0,17/hour	0	0

(S.E.: student entrance, N.D.: nodal points, E.R.: exhibition-rest, C.E.P: circulation end points)

		Connectivity	Mean depth	Integration - n	Isovist area	Isovist perimeter	Circularity
M2	S.E.	173	3,16	2,30	1,73	1,25	90
M6	Canteen	102	3,64	1,63	1,07	0,81	63
M7	E.R.	87	3,08	2,82	0,93	0,86	80
M8	E.R.	101	3,12	2,31	1,02	0,97	92
M10	N.D.	405	2,29	3,47	3,98	3,55	317
M11	Foyer	215	2,77	3,06	2,21	2,06	192
M22	C.E.P	87	3,26	2,29	1,08	0,99	90

(S.E.: student entrance, N.D.: nodal points, E.R.: exhibition-rest, C.E.P: circulation end points)

According to the results of the analysis, it has been confirmed that integration ($r=0,765$, $p=0,008 < 0,05$), depth ($r=-0,693$, $p=0,006 < 0,05$), connectivity ($r=0,997$, $p=0,010 < 0,05$), isovist perimeter ($r=0,997$, $p=0,010 < 0,05$), isovist area ($r=0,997$, $p=0,010 < 0,05$) and circularity values ($r=0,997$, $p=0,010 < 0,05$) of the space have an effect on social interaction activities to occur long-term and on space to become an intensive interactive space.

5. DISCUSSION

The analysis results of the relation between syntactic values of the space and the social interaction are matched in Table 8 together the behavioral modes.

Table 8. Evaluation Table

Space Syntax Analysis - Social Interaction Relation															
Syntactic Values of Space	Behaviour Mode			Total Activity			Chatting as Seated			Chatting Afoot			Sports + Chatting		
	effective	inclined	ineffective	effective	inclined	ineffective	effective	inclined	ineffective	effective	inclined	ineffective	effective	inclined	ineffective
Connectivity			◆	◆				◆				◆			◆
Mean Depth	◆			◆			◆				◆				◆
Integration - n	◆			◆				◆				◆			◆
Isovist Area			◆	◆				◆				◆			◆
Isovist Perimeter	◆			◆				◆				◆			◆
Circularity			◆	◆				◆				◆			◆

The *connectivity* value is ineffective on a space to be a social interactive space, but it is effective positively on the long duration of activities (total activity duration) that occur in a social interaction space. It is supportive for long-term social interactional activities in a space to have a direct connection with the spaces in its neighborhood, to serve as a transition area and to have high number of connected

spaces. The connection of spaces with each other in the space configuration provides spaces to become intensive interactional spaces.

The *mean depth* value of the space has a strong effect on the realization of the social interaction activities in that space and becoming intensive interactional space. The level of social interaction decreases when the mean depth value of the space gets higher as it affects the level of movement in negative direction. The shallow spaces with high accessibility, low depth value confront as intensive interactional spaces.

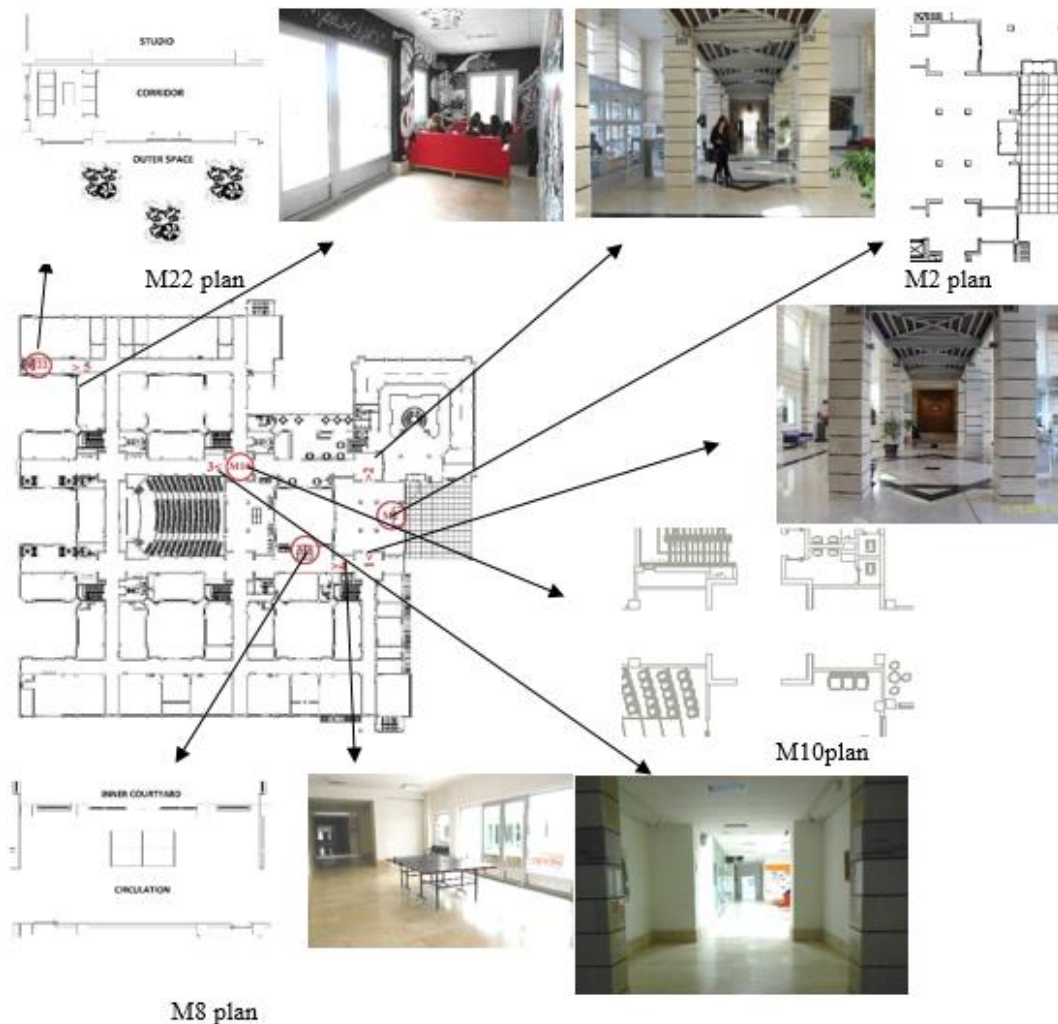
The *integration* value has a direct effect on the realization of social interaction activities in the space. The integration value, which is an expression of easy and direct access to the space, increases the intensity of the use of space by positively affecting the movement in the space and the level of people's confrontation. Highly integrated spaces within the space configuration are spaces with social interaction possibilities because it increases the users' potential to come together.

The *isovist* value, which can be measured in the space as area and perimeter, is the parameter that determine to where and in which distance the space configuration provide access for the user. The possibility of movement and view is important in terms of control sensation in the space. The high level of isovist value is directly effective on the possibility of social interaction. The users prefer spaces with wide angle of view for long-term social interaction activities.

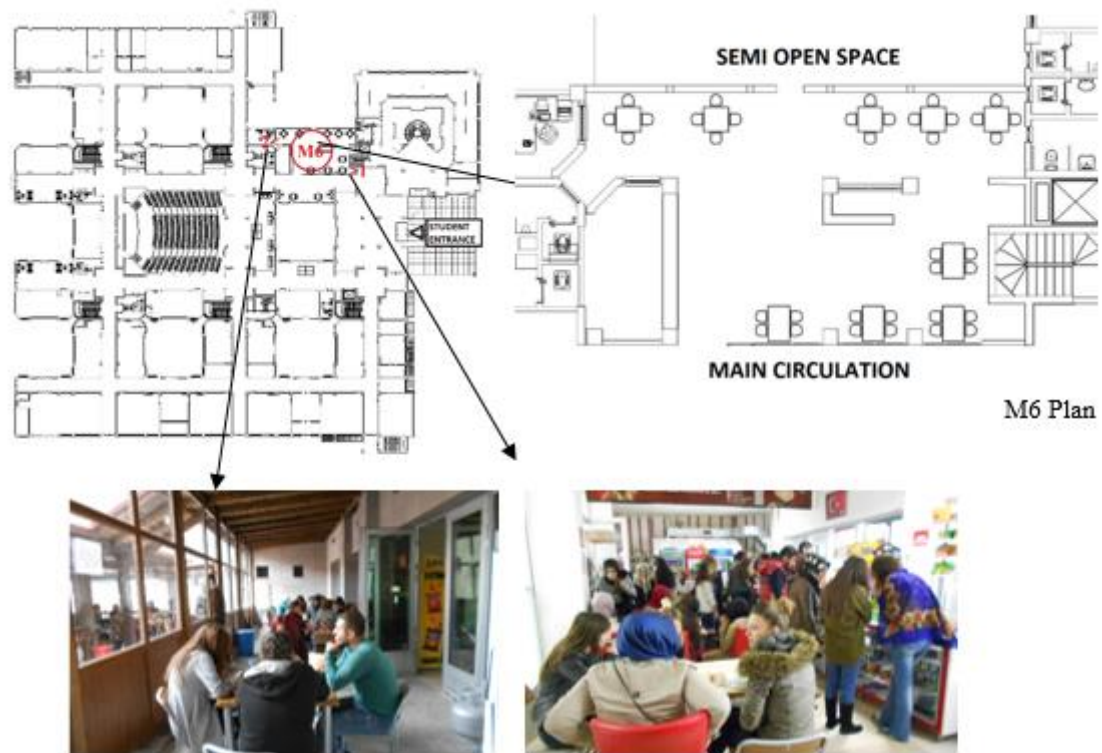
The *circularity* value of the space is directly effective on the space to be an intensive interactional space. The circularity value of the spaces that users prefer for long-term social interaction activities is high. The situation of the circularity value, which is an expression for the space to have a circular scheme, to be high positively affects the users to interact with each other and the environment.

In the light of this data, it is possible to evaluate the social interactional spaces in the Faculty of Fine Arts in detail. When the overall plan is considered, it seems that there is a plan scheme that has high integration value, a clear and integrated circulation network and small number of deep spaces. This faculty building, which is built on a courtyarded gridal plan, is a building with high number of spaces with social interaction possibilities as shown by space syntax values. Considering that these values are analyzed on the basis of movement; it is possible to say that having a regular circulation network formed of linear and clear lines provide the plan scheme to be integrated in the whole.

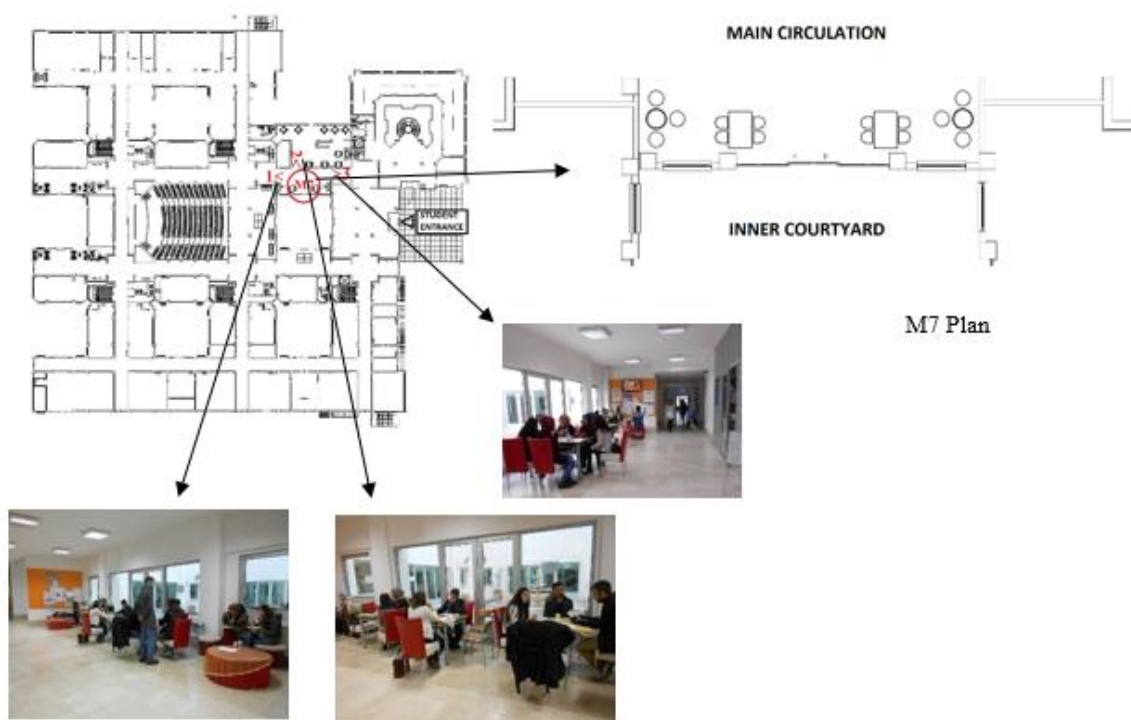
If we will evaluate low interactional spaces together; although the *M2 student entrance* has a low depth value, it is seen that the level of social interaction is low due to the effect of other syntactic values to be negative. Students use this space as a transitional space rather than a social interactional space. In general configuration of the space, the spaces with the highest integration values (the reddest) meaning the spaces with the highest opportunity for social interaction are the nodal points as seen in the previous sections in the integration graphic of space syntax analysis. *M10 space*, which is the only nodal point where the social interaction is observed among these nodal points, is also one of the low interactional spaces. Depending on the results of the analysis; no social interaction activity with high frequency is observed at this nodal point, which has all the numerical and locational values that support social interaction. It is possible to comment on its reason such as the space has deficiencies of space comfort like being designed just as a transitional space, not having sufficient dimensions to arrange different social interactional equipment (seating arrangement, sports equipment, etc.) and the lack of natural light. Another low interactional space *M8 exhibition-rest space* is arranged with appropriate equipment for social interaction activities (table tennis, sitting group), but still no social interaction activities with high-frequency is observed there. Although it is a shallow space with low depth value, the low level of other syntactic values negatively affected the level of social interaction in the space. Although it has negative conditions in terms of the syntactic data, the sitting space defined as the *M22 end point of circulation* has become a space preferred for short seated conversation among the students as it is furnished with a sitting group in front of a large transparent surface in direct visual connection with the outside. The factors such as its close location to 4 painting workshops, being a luminous and well-furnished space with seating groups facing one another supporting social interaction provide the realization of social interaction in a low degree despite it is a space located at the farthest point to the main circulation axis (Table 9).

Table 9. Low Interactional Spaces Found in FFA

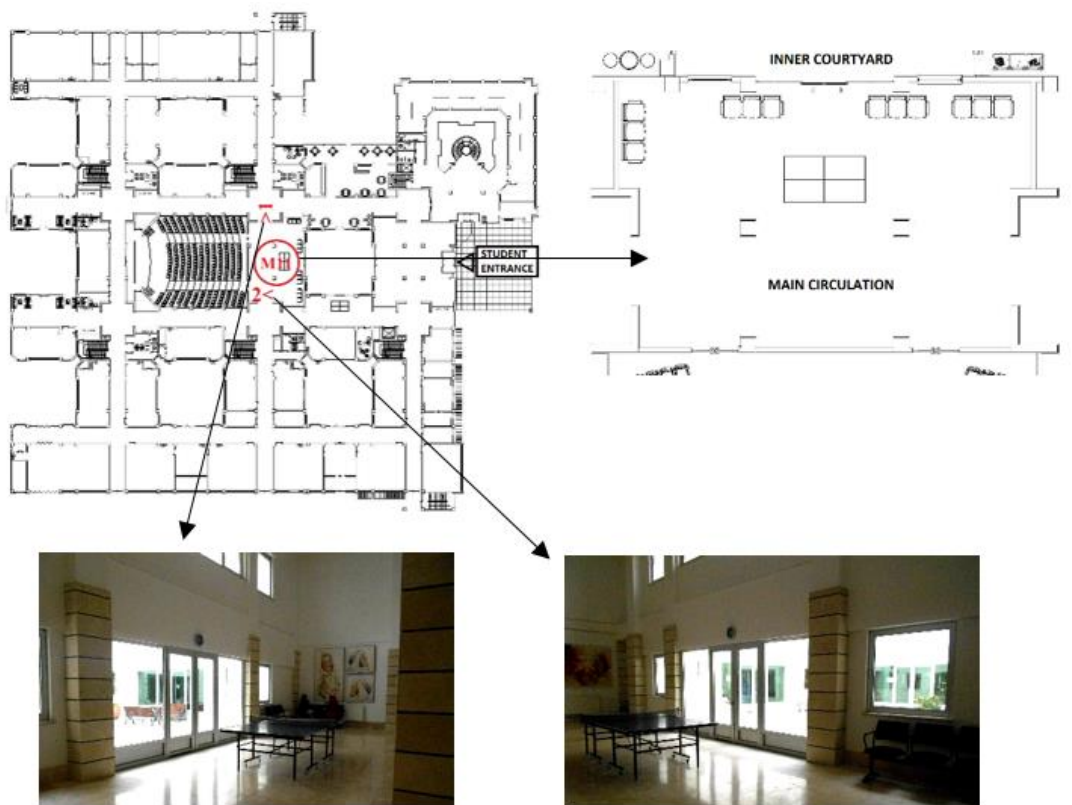
M6 canteen space with negative syntactic values for social interaction in spatial organization has been confirmed as an intensive interactive social interactional space in observation analysis. The canteen space, where is accessible with high depth value, but far from being integrated with low integration and isovist perimeter values, is a highly preferred space for social interaction by the students because of its functional attractiveness, being directly connected to the main circulation axis on one side and having a semi-open space on the other side. The canteen, which fulfills the basic need of the students such as eating - drinking, has the equipment (seating groups) appropriate for chatting as seated activity that occurs at the highest frequency, confronts as a proper space for long-term social interaction in this sense. It is positive that the canteen is a luminous space as there is natural light coming from both the transparent surface on the main circulation axis and the back façade directly opening to the outside. There is a direct visual connection with both inside and outside at the same time (Table 10). In this sense; it is possible to say that the spaces with low integration and isovist perimeter, high spatial depth values can only be transformed into social interactional spaces by giving the appropriate function.

Table 10. M6 (Canteen) space in FFA

M7 exhibition-rest space, which is an intensively interactive social interactional space, confronts as a shallow space with high integration in the general configuration. This space, with a high level of mobility, as evidenced by its syntactic values, has been evaluated positively in terms of providing social interaction. The M7 exhibition-rest space located on the main circulation axis happened to be a space for students to meet with their friends while they are passing through the main circulation, to exchange ideas while glancing at the advertisements on the board, to watch TV together, to chat seated or afoot. The resting space is luminous space that takes direct natural light from the inner courtyard and also is a favorite space for students who want to fulfill their eating and drinking needs because of its close location to the canteen. In addition, this space has a direct visual connection with the student entrance and foyer spaces through the inner courtyard. In the space, where the variety of the selected furnishing elements in accordance with the size of the space is observed, while the chairs facing to each other around the rectangular table are located in a way supporting the social interaction, the sitting arrangements around the circular tables located on the corners also give opportunity for face-to-face interaction. The space has appropriate dimensions allowing different crowded groups of people to chat as seated or afoot at the same time (Table 11). In this sense, this space -which has accessibility, mobility and integration features provided by the integration value in the spatial configuration, possibilities of socialization with low depth value and proper equipment- shows that spatial configuration affects social interaction, and it can support the realization possibilities of social interactional activities.

Table 11. M7 (exhibition-rest) Space in FFA

M11 foyer space, where is a social interactional space preferred by students for sports and chat, is a shallow space with high syntactic values. The foyer is centrally located on the ground floor and directly connected to the main circulation axis. The foyer, which can benefit from natural light due to its relationship with the inner courtyard, is as social interactional space that students use for sport activities and chatting furnished with a table of table tennis and seating equipment that can be positioned in different arrangements. It has been observed that students arrange sitting groups (L order, face to face, in-line, etc.) for different chat interactions they prefer at different times (Table 12). As mentioned before; in the M8 exhibition-rest space, where shares the same inner courtyard and has the same luminousness conditions and similar syntactic values, furnished with a table of table tennis and sitting group, no high-frequency social interaction has been observed. This is another indication of that the spatial configuration affects the probability of social interaction activities to occur. The features of foyer space such as having positive syntactic values depending on its location in general organization, being directly connected with the main circulation and wider as area, proper for different sitting group arrangements, confronts as supportive features for social interaction.

Table 12. M11 (foyer) Space in FFA

As a result of the evaluation of low and intensive interactive social interactional spaces in the Faculty of Fine Arts; in addition to its location in the configuration, the features such as having the appropriate dimensions to give arrangement opportunities for social interactional activities, being luminous and having visual connection with the neighborhood spaces are also determined as supportive features of social interaction.

6. CONCLUSIONS

As a result of the research, it was determined that the spatial configuration is effective on the social interaction activities depending on the relationships between the spatial configuration and the spatial behavior of the users. By the means of observation and space syntax analysis and the comparison of the findings obtained from these analyzes, the decisiveness of the space's syntactic values - in other words its location in configuration - on the possibilities of social interaction is revealed and the required qualities of the spaces with social interactional possibilities are reached:

- Spaces with high value of movement and accessibility in spatial configuration increases the level of social interaction. The integration value analyzed over people's potential movement maps is higher in plan schemes which have clear and orderly circulation network. This has a direct impact on social interaction activities based on people's movement and their encounter possibilities. In this case, in complex functional buildings with a high number of users it will support the social interaction positively and provide the spaces to be integrated to design the circulation network in a continuous and regular way increasing the level of accessibility.
- The situation of the space to be directly accessible, rather than being accessed through another space, affects social interaction positively. The mean depth value of the space reveals this relation. Decreased movement in deep spaces negatively affects the level of perception and social interaction in the space. Planning the circulation network in a way to ease the access to the spaces and providing the access to the spaces through an uninterrupted circulation axis rather than another space will increase opportunities for social interaction.
- If there is the main circulation axis in the spatial configuration that can be determined both in terms of integration value and usage intensity, the preferred spaces for long-term social interaction should be

designed as close or directly connected to this circulation axis. These spaces should be shaped in proper dimensions for the physical arrangements (sport equipment, seating groups appropriate for different arrangements, etc.) which will provide social interaction opportunities can be planned and preferably in such a way to have natural light.

As a result based on the results of the research, it will be possible to make more effective designs in terms of social interaction by paying attention to the integration, mean depth, connectivity, isovist area, isovist perimeter and circularity values of the space in design phase. In a complex functional building with a high number of users, it is an important criterion for the space to be integrated and proper for social interaction to design the circulation network in such a way to be continuous, regular and increase the level of accessibility to spaces. It is important that the social interaction spaces are not transformed into deep spaces in the general configuration and direct access is provided. When the importance of the visual contact for social interaction is considered, the solutions with unlimited visual area are important for social interactional areas. Planning uninterrupted visual connections in the spaces will increase the accessibility between the spaces and provide the spaces to become convenient for social interaction. Moreover it can be said that the user profile is determinative for this study and it will be possible to reach different findings with similar studies in different type of buildings with different users.

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