PERMANENT AND TEMPORARY MUSEUM SPACES: A Study on Human Behavior and Spatial Organization Relationship in Refunctioned Warehouse Spaces of Karaköy, Istanbul

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ABSTRACT

In Istanbul between Karaköy-Kabataş there is a region consists of warehouse spaces. Two of them are refunctioned as a museum building and a temporary space, which is used mostly for biennial exhibitions. Museum spaces are an important part of everyday life in the context of social life. Visitors’ behaviors in a museum space is affected by the spatial order that we may also name as configuration, the attraction potential of the items that are exhibited in spaces, and the movement of the visitors in these spaces. Visual perception within the space in terms of accessibility and visibility that are affecting the integration levels are also keys to this investigation.

In this study, temporary and permanent exhibition spaces will be scrutinized with a study based on the behavior of people in relation to configuration and exhibited materials. The main questioning is whether the type of the space (temporary/permanent) affecting the behavior of people in relation with the exhibited items and configuration or not. Two of the former warehouses are selected as case studies where Istanbul Modern Museum in Antrepo No.4 is a permanent museum space now; and Antrepo No.7 is recently used during Istanbul Design Biennial in 2014, which is a temporary exhibition space. Both of the warehouse structures that we call "Antrepo" are the parts of the main warehouses region between Karaköy and Kabataş in Istanbul; have similarities in the context of space configuration, size and environmental characteristics. In this study, both qualitative methods that are including the observation of behavioral modes and frequencies with on site analysis, and quantitative methods that are including the space syntax methodology are used. After these studies, results are overlapped to evaluate the relation between user behavior-space relationships and to compare permanent and temporary museum spaces.

In conclusion, the behavior of people seemed affected by the type of the artworks mostly on the basis of the time spent over them. In both cases, behaviors of people are verifying attractor-movement-configuration theory. In temporary case, artworks are the major parameter affecting the behavior whereas in the permanent exhibition case interfacing spaces between interior and exterior are affecting the behavior, as well. In the temporary one, artworks are affecting the usage more than the permanent one, with their physical being besides their context. The further discussion in that sense is how future curation of exhibitions and architectural design of spaces may be evaluated through these types of venues.
KEYWORDS
Building morphology, Exhibition architecture, Spatial layout, Temporary-Permanent Spaces, Visual perception

1. INTRODUCTION
Museum spaces are an important part of everyday life in the context of social life; not only a place that artworks and visitors meet but also a social space that people can interact with artworks, other people, the building itself in a time frame in their everyday life. There are many types of museums that varies upon the subject of the exhibitions, type of the artworks exhibited, concept, intentional/non-intentional design spaces, configurations and the periods of the exhibitions that they host.

This paper examines the visitor behavior in permanent and temporary museum spaces in refounded warehouse spaces (figure 1) in Karaköy region in Istanbul. Antrepo Zone is a complex made up of 4 buildings previously used as warehouses at the Salıpazarı Harbour in the district of Tophane, Istanbul. The history of the area, the transformation of the society and the permanent or temporary character of the museums itself are the key concepts that are primarily examined by the syntactic values and visitor behaviors in relation with their configurations. As many other spaces, museum spaces are also an important scene that space configuration-human behaviour relationship can be seen.

Figure 1 - 2016 map of Istanbul showing Antrepo Zone in Karaköy including Antrepo No.4 (Istanbul Modern Museum) permanent museum space; and Antrepo No.7 (one of the venues of Istanbul Design Biennial in 2014) temporary exhibition space.
Temporary or permanent character of the museums is taken as the main debate point in this research as “memory” is one of the most important factors that shape the behaviour of people. Experiencing the same venue for different exhibitions/events is different than going to a place for an exhibition/event for the first time. Despite the fact that each exhibition/event has its own dynamics, concept, scale, space configuration, suggested paths and visual fields, the building that is hosting the exhibition is another major input for the evaluation of the character relating to relationship between the exhibition and its visitors.

In this study, temporary and permanent exhibition spaces are scrutinized with a study based on the behavior of people in relation to configuration and exhibited materials. The main questioning is whether the type of the space (temporary/permanent) affecting the behavior of people in relation with the exhibited items and configuration or not. A comparative study of two former warehouses that are transformed to permanent and temporary exhibition venues are selected as case studies where Istanbul Modern Museum in Antrepo No.4 is a permanent museum space now; and Antrepo No.7 is recently used during Istanbul Design Biennial in 2014, which is a temporary exhibition space.

We researched the exploration in the museum spaces and how integrated or segregated locations in an exhibition space is influenced when it is permanent or temporary in terms of the installation of artwork, museum design and visitors’ use of space during their visits. These issues are also related with the short or long term memory of the visitors affecting their perception and cognitive maps. Here, how spatial layouts influence visitors’ explorations in a gallery space; how the integration value of a space affects the number of visitors to a specific gallery in the museum; the impact of visiting time (weekday or weekend) on the number of visitors to the museum during a specific period of time; which spaces are more or less visited and which artworks more or less viewed are all important investigations.

In a broader sense, we tried to explore some key factors and design strategies through the design of the museum spaces depending on the temporary or permanent character of the curated material. In addition to that the effect of the morphological state of the designed buildings investigated in relation to the character of the curated exhibitions in these buildings, which are warehouses.

Although a new harbour and a museum project is ongoing including the Antrepo No.7 and the rest of the harbour area excluding the Istanbul Modern Museum of Antrepo No.4, both of the settings selected in this study have importance semantically and syntactically as they contribute to the social interaction and intellectual awareness in Istanbul. Both of the warehouse structures that we call “Antrepo” are the parts of the main warehouses region between Karaköy and Kabataş in Istanbul; have similarities in the context of space configuration, size and environmental characteristics. Various temporary exhibitions including 2014 İstanbul Design Biennial took place in Antrepo No.7 and Antrepo No.4 is still hosting Istanbul Modern Museum (figure 1 and 2).

The question is how the temporary or permanent character of the museums affects the experience in museums/exhibition venues in terms of usage relating to functions, social interaction, and pedestrian flows. Spaces of the built environment such as museum spaces also structure social relationships such that society and culture become intelligible through their spatial form (Peponis and Wineman, 2003).

The aim was to overlap the semantics of space and the syntax of space in order to refine some significant key factors affecting the museum design. The semantics of space is coming from the behaviour of people and the curated artwork. The syntax of space is structured in relation to syntactic calculations starting from a logical ground built over vision fields that we term “isovists” (Benedikt, 1979; Batty, 2001; Conroy, 2001; Edgü et al., 2012). Within the definition of an isovist, the walls, furniture, exhibition systems, artwork and other systems obstructing our sight in the space are handled as walls and affect the determination of the visual field (Benedikt, 1979; Turner and Penn, 1999; Batty, 2001; Turner et al., 2001; Conroy, 2001; Unlü et al., 2009; Edgü et al., 2012; Salgamcioglu and Unlu, 2013). We used the University of Michigan’s Syntax 2D software for the analysis.
2. THE CONCEPTUAL FRAMEWORK OF THE STUDY IN RELATION WITH ANTREPO NO.4 & ANTREPO NO.7

2.1 SCOPE OF THE RESEARCH AND RELATIONSHIP TO EXISTING THEORY AND PREVIOUS STUDIES

Seamon (2011) mentions “people-in-place” that is understood as the space qualities and people using or experiencing the space are read as one. Place identity in relation to space is not something individual in that sense, it is rather a space with qualities that we call “permanent core” (Nascimento, 2014). The comparison between the permanent and the temporary exhibition space may also be discussed with their relations that are emerging the permanent core. Lefebvre defined the space, as it is becoming a “living organism” where, it is “designed and produced not only as an economic, programmatic and/or material container but also as a social morphology” (Nascimento, 2014). The social morphology that is shaping the museum/exhibition environment is also being shaped by the configuration of space. Experiencing the permanent or temporary environments in terms of exhibition spaces requires understanding this social morphology and its temporal qualities. The relations related to time is unique in these environments and the setting around this configurational, spatial order is emerging according to the qualities related to time as some visually connected interfaces with the outside environment, or some spaces related to functions other than exhibition such as restaurant or workshop spaces. Being permanent or temporary in an exhibition space determines the relations with different functional zones, which may be showing stronger connections visually and in terms of accessibility in permanent settings.

The relation with the more integrated spaces and the perception of space may also be discussed through the quotation of Reynolds (2016) for 2015 Venice Biennial, “We’ve been coming for many years now, and we still get lost,’ the Swedish woman said, with significant emphasis, over breakfast at the guesthouse. This was to become the theme of my visit to Venice, and applied not only to the perplexing nature of its labyrinthine passages and waterways, but to the 56th International Arts Biennale, curated by Okwui Enwezor under the theme of All the World’s Futures. It is important to stress here that getting lost, as writers as various as Thoreau and Rebecca Solnit, Walter Benjamin and the Surrealists have pointed out, is not necessarily a cause for anxiety, and might, on the contrary, be seen as a productive condition of disorientation that heightens one’s sense of receptivity.” where disorientation or getting lost may be valuable for a better experience inside the exhibition spaces. The discussion is also expanding to what the degree of correlation between the integration and the strong experience related position of space.
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Figure 2 - Views from temporary exhibition of Antrepo No.7 during 2014 Istanbul Design Biennial (left) and permanent exhibition of Antrepo No.4 hosting Istanbul Modern Museum (right) (photo, right middle – Murat Germen, 2015)
In this context, being permanent or temporary for an exhibition/museum in relation to the venues’ configuration may be reflecting various experiences and short or long-term memory evaluations are developing both depending on the artwork exhibited and the configuration itself.

In addition to this discussion, being “open” in terms of the behavioral impacts shaping the space configuration, and movement is also a key term for the used and the lived space (Tsoukala, 2015). Flexibility and openness in a space should be evaluated in comparison of the Antrepo Structures in Karaköy and syntactical considerations are required. In the adaptation of the topological logic to the space, the evaluation that is free of hierarchical order, but depending on the communication and movement as the primary aspect supporting the expandability and the open-ended point of view in spaces is also important (Tsoukala, 2015). Depending on the intentional and non-intentional characteristics of the configuration, the evaluation of the flexibility potential of the configuration and spatial order is considered as hard programmed (strong with permanently fixed elements and functions) or soft programmed (flexible with temporarily fixed elements and functions) spaces (Patel et al., 2012). This approach also has great impact on the experience of various spaces including the exhibition and museum oriented settings. Being hard or soft programmed or curated with some fixed elements in some cases in terms of museum/exhibition spaces is directly related with being permanent space or temporary space and their impacts on human behavior.

Besides the discussion of hard or soft programming, interfacing areas, facades with transparent or semi-transparent materials have an impact on the visitor behavior of the venues. Araguez and Psarra (2015) argued the inside-outside relationship through accessibility and visibility through SANAA’s building designs. In this research, when the accessibility and visibility relationship is weak in some points of the configuration, which may be as high visibility-low accessibility or low visibility-high accessibility, the space is being used more informal and tends to be programmed as more flexible (Araguez and Psarra, 2015). In the context of inside-outside relationship and interfacing areas within the cases Ünlü et al. (2009) compared two architectural schools in terms of their interfacing areas that may also have the potential of social interaction spaces. The results are significantly supporting the idea that independent from intentional or non-intentional design and use of the spaces; the existence of visually connected and also accessible outside area in connection with an inside area increases the frequency of people and activities. Interfacing areas are gaining importance in terms of social interaction, otherwise the lack of interfacing character results with the areas that are acting only as circulation and service spaces.

2.2 RELATIONSHIP TO SPACE SYNTAX THEORY

Built space is composed of patterns that are interrelated through different syntactic and semantic layers, and museum or exhibition spaces are a part of this significant composition. According to Peponis and Wineman (2003), built space is to be understood as a relational pattern supporting that situation: “A pattern of distinctions, separations, interfaces, and connections, a pattern that integrates, segregates, or differentiates its parts in relation to each other” (Peponis and Wineman, 2003).

Space syntax analysis is based on isovists (Benedikt, 1979; Hillier and Hanson, 1984); visual perception is primarily worked and accessibility and movement values are also discussed in results. Isovists and convex spaces that are key to space syntax research are still vivid in the analysis (Hillier et al., 1987). An isovist is a concept of spatial recognition that defines any particular viewpoint in a space by its visibility field, which is key to analysis in curated work of exhibitions and their spatial analysis.

As Hillier et al. (1993) note in Figure 3, beyond the relationship between visitor frequency and the configuration of the space in the exhibition area, depending on the morphology of convex spaces as a whole, while attractors and movement may be mutually influential, the other two relationships are asymmetrical. The configuration may influence the location of attractors, but the location of attractors cannot influence configuration. Likewise, the configuration may influence movement, but movement cannot influence configuration. If strong correlations are
found between movement and both configuration and attractors, the only logically possible lines of influence are from the configuration to both movement and attractors, with the latter two factors influencing each other. In this study, the relationship between visitor frequency and configuration is analyzed in detail; the attractors, namely, artworks by various artists, are also considered in this relationship through certain critical counts within the exhibition space.

Various techniques of spatial analysis have been used to discuss the functions of museums (Peponis & Hedin, 1982; Wineman & Choi, 1991). Choi (1999) has analyzed visitors’ paths and found that integration was significantly correlated with “tracking scores,” the number of people who reached each convex space, and the correlation of tracking scores with “tracking frequencies” was investigated. “Spatial variables play an important role in structuring exploration even where the purpose of exploration is not to comprehend the layout itself but to view the displays in it. Choi also studied the distribution of people present in the museum, using normal behavioral mapping techniques” (Peponis and Wineman, 2003).

Experiencing the temporary or permanent exhibition layout of these transformed former warehouse (Figure 2) is crucial to understanding the syntactic and semantic patterns that reflects the social and physical patterns studied here.

Grasping the idea of “the theory of natural movement” (Hillier et al, 1993) is important where the distribution of movement is a function of spatial configuration. The theory of “virtual community” (Hillier, 1989) is also a key to this understanding and “brings focus to a particular form of community that is based on the pattern of coawareness and copresence arising as a by-product of movement” (Peponis and Wineman, 2003).

Besides the movement, grasping the configuration and curation of the artwork in the exhibition space and the visitor frequency in relation to the isovist fields is crucial to understanding whether there is a correlation between the spatial order and geometry of the space and visitor frequencies depending on different convex spaces and gate connections in the museum space or the exhibition venue.

Settings of museums and exhibitions hosting permanent or temporary configurations have the opportunity to attract people from various communities and act as a gathering space and a space of information and developing intellectual values. Construction of spatial meaning through visitors’ movement is explained by Wineman and Peponis (2010), as “The ways in which visitors are encouraged to move through an exhibition, whether along a clearly defined path or more freely weaving a self-directed path, will structure the overall impression of the exhibition.” Wineman and Peponis (2010) discuss the contradiction in here and introduces the term, “spatially guided movement” and make a shift to “spatially dictated movement” and “spatially random movement” from a final point of view in between these two polarized views. “Spatially guided movement” kind of understanding makes the connection, interrelation of geometrical space with the perception and movement in space.

![Attraction, configuration and movement](image)
Perception and understanding of visitors in exhibition spaces are constructed through “patterns of accessibility through the space of the exhibition, connections or separations among spaces or exhibition elements, sequencing and grouping of elements” (Wineman and Peponis, 2010).

3. METHODOLOGY REGARDING THE CASE STUDY AND ANALYSIS

In this study, regarding the syntactic analysis and correlations with visitor frequency, we have made a comparative study at the selected two former warehouses of Karaköy, Istanbul. These warehouses are transformed to permanent and temporary exhibition venues. Istanbul Modern Museum in Antrepo No.4 is the permanent one and Antrepo No.7 is the temporary one.

In this investigation and comparison, quantitative methods that are including the space syntax methodology are used with the support of qualitative considerations that are observations depending on visitor behavior. After these studies, results are overlapped to evaluate the relation between user behavior-space relationships and to compare permanent and temporary museum spaces.

The space syntax method will provide significant data in terms of the method of analysis and is an important theory used to define the structural environment. Syntax 2D software that is developed by the University of Michigan is used in this study.

For this study, it is key to specify an analysis method in Syntax 2D that will allow us to examine the relationships among the two exhibition layouts of Antrepo No. 4 and No.7 (figure 4), depending on their convex spaces (figure 5), depending on the exhibition venue and visitor frequencies counted separately for the specified convex spaces on weekdays and weekends. Comparison of two settings is the key goal of this study, which is also leading us to a key discussion and comparison of permanent and temporary settings of exhibition.

Figure 4 - Exhibition layout plans of Antrepo No.4 above and No.7 below
The data (Table 1) utilized for every convex space and gates are:

- Mean depth
- Mean integration (figure 6)
- Mean circularity

These three data points are three of the primary concepts addressed in space syntax theory. These data were calculated separately for every convex space and selected gate (figure 7). Subsequently, the values at the active grids of the exhibition plan were separated into these three data groups and added on three different charts, and a mean data value was obtained for the three concepts (Table 1). Contingently, calculations were made via the arithmetic averaging of the grid values for every convex space.
Figure 6 - Integration map of Antrepo No.4 above and No.7 below
To understand the impact of the morphology of space on visitors, gate counts and snapshot analyses were undertaken to understand visibility relations, the regions described and isovists. Gate counts for 10 gates of Antrepo No.7 and 17 gates of Antrepo No.4 (Figure 7) in the exhibition gallery, which provide access to the exhibition and circulation areas of the exhibition gallery, are taken into consideration on a designated route for several time periods. During these gate counts, snapshots are also used to analyze the visitor frequencies in each convex space shown in Figure 5. Snapshots are created using the observations for one day in Antrepo No.7 and No.4. For the day, observations for the snapshots and gate counts were repeated 8 times in the day, starting at 11:00 am and repeating hourly until 7:00 pm. At the beginning of every hour, the researcher walked the route and counted the number of visitors in each convex space (Figure 5). After completing the visitor count observations by walking the route, gate counts were taken for a period of 5 minutes at each gate, to find the number of visitors passing through the gates. These gate count values provide information about the movement of visitors in the exhibition venues and helped us understand the movement between different groups of convex spaces depending on the syntactic and curational issues. The visitor frequency is noted and the syntactic scores of the gates are also used to understand the relationship between the frequency of visitors and the syntactic measures such as integration, circularity and mean depth.

Figure 7 - Selected gate count points of Antrepo No.4 above and No.7 below
Figure 8 - Justified graphs of Antrepo No.7 left and No.4 right
### Table 1 - Mean syntactic data values and visitor frequency counts of Convex Spaces for Antrepo No.4 above and Antrepo No.7 below as a result of the space syntax analysis and observations respectively.

<table>
<thead>
<tr>
<th>Convex Space No.</th>
<th>Circularity</th>
<th>Mean Depth</th>
<th>Integration</th>
<th>Total Frequency (Number of Visitors)</th>
<th>Average (Mean Frequency (Number of Visitors))</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>138.03</td>
<td>1.82</td>
<td>6662</td>
<td>42</td>
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<td>1.74</td>
<td>7053</td>
<td>28</td>
<td>3.5</td>
</tr>
<tr>
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<td>2.21</td>
<td>5053</td>
<td>26</td>
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</tr>
<tr>
<td>5</td>
<td>53</td>
<td>3.1</td>
<td>233</td>
<td>8</td>
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<td>6</td>
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<td>218</td>
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</tr>
<tr>
<td>7</td>
<td>45.33</td>
<td>3.16</td>
<td>1240</td>
<td>8</td>
<td>1.1</td>
</tr>
<tr>
<td>8</td>
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<td>2.17</td>
<td>2275</td>
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<td>1511</td>
<td>25</td>
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<td>1667</td>
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<tr>
<td>16 - 17</td>
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<td>753</td>
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</tr>
<tr>
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<td>106.20</td>
<td>2.45</td>
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</table>
Visitors’ patterns of interaction within the exhibition are correlated with syntactic parameters and the results of Regression (Table 2) are discussed. During this investigation, visitors’ spatial experiences, their contact with exhibition content and the use of the overall layout is also considered to gain a better understanding of the relationship of syntactic measures and visitor frequency in the biennial venue.

Finally, the statistical relationships between the number of people present during a certain period of time in a specific convex space and the syntactic measures of these spaces such as mean integration, mean depth and circularity are scrutinized and the correlations assessed using the Statistical Package for the Social Sciences (SPSS) program.

Table 2 - Results of regression analysis between the values of mean depth, mean integration, mean circularity and the values of visitor frequencies depending on the gate counts and convex space visitor frequency counts

In Regression (Pearson’s R) analysis of Table 2, when $p<0.05$ or $p=0.05$ the result is significant as seen on “$p$” values of Table 2. “$R$” is a value changing between -1 and +1, where it’s close to -1 or +1, it is also getting more meaningful. The “$R$” values such as 0.537 - 0.728 - 0.629 - 0.518 are all significant results when they are supported by $p<0.05$ or $p=0.05$.

In this study gates are selected as the nodes connecting the convex spaces or the access points to the exhibition venues such as main entrance, level connections or restaurant-café entrance within the venue. The convex spaces are all counted, as they are the key elements of spatial order and configuration.

When we investigate the results that are seen at Table 2 of Regression correlations (Pearson’s R) between frequency of visitors-syntactic values of selected gates, and also frequency of visitors-syntactic values of convex spaces, we see significant results such as mean depth values of gates and frequency of visitors passing through the gates (R=-0.537 and p=0.026); mean depth, integration, circularity values of convex spaces respectively and frequency of visitors using the convex spaces in Istanbul Modern Museum of Antrepo No.4 (R=-0.652 and p=0.001; R=0.629 and p=0.002; R=0.666 and p=0.001 respectively).

We also get some significant results (Table 2) in Antrepo No.7 of 2014 Istanbul Biennial such as integration, circularity values of gates respectively and frequency of visitors passing through the selected gates (R=0.728 and p=0.026; R=0.737 and p=0.023 respectively); mean depth, integration, values of convex spaces respectively and frequency of visitors using the convex spaces (R=-0.504 and p=0.007; R=0.518 and p=0.006 respectively).

4. CONCLUSIONS

In this study the main question was whether the type of the space (temporary/permanent) affecting the behavior of people in relation with the exhibited items and configuration or not. The significant findings in relation to the regression analysis that was interpreted from various correlations between the frequency of visitors and the syntactic values of gates or convex spaces in Table 2 are found. The movements of visitors in the spaces of Antrepo No.7 of 2014
Biennial Venue through the selected gates are significantly correlated with the syntactic values of integration and circularity in these gates. The meaning of this correlation is quiet related with the soft programming and short-term memory related experience of the temporary exhibition layout. Flexible and temporarily programmed spaces of Antrepo No.7 are getting experienced in relation with the increasing or decreasing values of integration, where higher integration means more visitor frequency in terms of movement in the venue in comparison to Antrepo No.4's more permanent and long-term memory related, learned configuration setting. In this context the circularity value is also having significant results with its correlation of visitor frequency, which is understood as the higher circularity value means the geometry of space is also significantly supporting the degree of movement in the venue. The gates that are connecting and supporting the movement by their central position in the configuration of the venue are attracting more visitors. This is also a result of flexible and permanent configuration of the venue (integration, circularity values of gates respectively and frequency of visitors passing through the selected gates: R=0.728 and p=0.026; R=0.737 and p=0.023 respectively).

In terms of gate-frequency correlations, Although Antrepo No.4's mean integration-gate count correlation results are significant as the mean depth of the gates are increasing, the visitor frequency is decreasing, permanent and considerably hard programmed museum space of Antrepo No.4 tends to be giving weak correlation results in relation to its learned configuration and the cognition of space in connection with the long-term memory (mean depth values of gates and frequency of visitors passing through the gates: R=-0.537 and p=0.026).

The hierarchy of spaces in Antrepo No.7 of Istanbul 2014 Biennial is seen as they emerge a non-distributed and deep justified graph (figure 8) when we compare to Antrepo No.4 of Istanbul Modern Museum, that is showing a more distributed and a shallow character. Antrepo No.4's more distributed and shallow character is a result of its configuration but the permanent museum function is also affecting this configuration as the curation of the exhibition is being considered in a more fixed character to the space rather than being flexible. On the contrary, Antrepo No.7's non-distributed and more deep configuration may be seen as a disadvantage, but as we see from the correlations of visitor frequency with mean depth and integration values of convex space, the significant correlation results (mean depth, integration, values of convex spaces respectively and frequency of visitors using the convex spaces: R=-0.504 and p=0.007; R=0.518 and p=0.006 respectively) show that the flexible-soft programmed space and the exploratory character of the temporary exhibition increases or decreases the number of visitors in accordance with the increasing or decreasing integration and mean depth values of convex spaces.

In temporary case, artworks are the major parameter affecting the behavior whereas in the permanent exhibition case interfacing spaces between interior and exterior are affecting the behavior, as well. In the temporary one, artworks are affecting the usage more than the permanent one, with their physical being besides their context. The further discussion in that sense is how future curation of exhibitions and architectural design of spaces may be evaluated through these types of venues. The deep character of the permanent exhibition of Antrepo No.7 is taking the advantage of spatial hierarchy and the affect of artworks to the movement is increasing by orienting the people and circulating them through the exhibition. The only disadvantage of the configuration of Antrepo No.7 is the weak correlation of circularity and visitor frequency in convex spaces. This weak correlation means that as the number of visitor increases in the system, the centrally positioned connecting convex spaces do not work as they expected as a result of the deeper spatial order of Antrepo No.7 in comparison to Antrepo No.4.

As a concluding remark in relation to interfacing area results that Ünlü et al. (2009) mentioned in comparison of two architectural schools' interfacing areas between inside and outside, the interfacing area of Istanbul Modern Museum (Antrepo No.4) between inside exhibition area and outside Bosphorus view terrace are also attracting more people in terms of frequency of the people spending time close to this interface. Although inside space is only visually connected with the outside and may only be accessible from the restaurant, the observed movement of people outside the façade from inside and the Bosphorus view is increasing the frequency of people using this space inside the building. The social interaction potential of these spaces are
significant in results that is in coherence with the findings of the previous work. Interfacing areas are significantly gaining importance in terms of experience and the use of space in the permanent exhibition setting of Istanbul Modern Museum of Antrepo No.4.

Independent from the configuration of space, the less integrated, segregated spaces may be attracting more people with the attraction potential of artworks and the feeling of strong experience in a disoriented setting. We may see this strong character from the correlation results (Table 2) of Antrepo No.7 despite the fact that the configuration is deeper that the Antrepo No.4 as seen in Figure 8.

The spatial order and form of space is always a parameter affecting the perception and movement issues as Wineman and Peponis (2010) discussed, here “spatially random movement” is acting a role when we think of the artwork in both of these settings as syntactic and semantic values are not overlapping and giving significant correlation results all the time, but “Spatially guided movement” kind of understanding is strongly making the connection between the syntactic and semantic understanding as we find the significant correlations between the syntactic measures such as integration or circularity and visitor frequency.

As Araguez and Psarra (2015) mentioned, when the accessibility and visibility relationship is weak in some points of the configuration, which may be as high visibility-low accessibility or low visibility-high accessibility, the space is being used more informal and tends to be programmed as more flexible. Convex space No 18 of Antrepo No.7 and Convex space No 9a & 9b of Antrepo No.4 are such spaces acting as low visibility but high accessibility that are serving as a transition but also a gathering area within the exhibition venue. These spaces tend to be programmed as more flexible, and also has the potential of non-intentional use of the space.

As a final discussion that is summing up the conclusion and serving to a broader reflection on the significance of this study, we see permanent and long-term memory related, learned configuration is having significant various dynamics. In that sense, we have seen a significant issue in relation to the interfacing areas of the museum spaces. The learned and permanent design of the Istanbul Modern Museum (Antrepo No.4) especially relating to its interfacing areas between inside exhibition area and outside Bosphorus view terrace are attracting more people that is not correlating significantly with the syntactic measures of the interfacing areas. Visitors are spending more time close to these interfacing areas whether or not related to its shallow or deep syntactic value. These spaces are seen as the attractors in the museum. The observed movement of people outside the façade is also another attractor in this sense.

The findings are supporting the idea that the lack of interfacing areas are tending to be less social interaction oriented that we see in the temporary character of Antrepo No.7, but as Reynolds (2015) mentioned disorientation or getting lost may also be valuable for a better experience inside the exhibition spaces is valid this case. We see that situation significantly in Antrepo No.7. The museum spaces may be evaluated and designed in the sense of the contribution of interfacing areas to the experience in museum spaces.

In terms of gates’ visitor frequency, when the number of visitors are decreasing, permanent and considerably hard programmed museum space tends to be giving weaker correlation results. This result may also be linked with the long-term memory that is not overlapping with the syntactic values. In contrary, the flexible-soft programmed space and the exploratory character of the temporary exhibition increases or decreases the number of visitors in accordance with the increasing or decreasing integration and mean depth values of convex spaces. Being temporary acts in full accordance with the syntactic values in terms of visitor frequency. This result is a significant input for museum design for the future.

It’s a fact that the circularity value helps us in exploring the geometry of space in temporary settings that is also significantly supporting the degree of movement in the venues. The gates that are connecting and supporting the movement by their central position in the configuration of the venues are attracting more visitors. This is a result of flexible and also permanent configurations.
In terms of being temporary, we may also be facing with flexibly programmed spaces as we have seen at Antrepo No.7. The experience in relation with the increasing or decreasing values of integration, where higher integration means more visitor frequency in terms of movement in the venue in comparison to a permanent and long-term memory related, learned configuration settings. In addition to temporary case, in the cases of high visibility-low accessibility or low visibility-high accessibility, the space is being used more informal and tends to be programmed as more flexible. When we design the programme more flexible, spaces also have the potential of non-intentional use. The behavior of people seemed affected by the type of the artworks mostly on the basis of the time spent over them. In both cases of temporary or permanent design, behaviors of people are verifying attractor-movement-configuration theory.
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