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Abstract

Our present era is called the "age of globalization". For decades, this global economic flow gave rise to significant socio-economic transitions and shifts on societies in our world. Large metropolitan areas, in particular, have been affected. Today, metropolitan areas are evolving into high-rise built environments from their previous mid or low-rise local patterns. Our research points to the impacts of high-rise built environments on inhabitants and identifies their ideal image of a high-rise office building. In this research, high-rise office buildings are categorized into three types by their "interaction generating factors" qualities. A questionnaire survey was held in Istanbul and it determined that interaction is one of the most significant factors for inhabitants to adapt themselves into this globalizing environment. Moreover, this study found that interaction is redefined by 17 scales of five-step factors, representing urban design tools and global image indicators. According to the Istanbul survey, the highest satisfaction for inhabitants is found to be the "efficient interactive" type of high-rise office buildings. The "global modern image" of this building type is also found to be more important than its contextual facilities. Based upon experimental surveys, this paper also discusses the definite correlation of the interaction generating design factors of a high-rise office building.

Keywords: Globalization, Inhabitants, High-Rise Office Buildings

Introduction

In the last century the branding of cities has become very common for urban regeneration. This has been done to attract more foreign investment because of the worldwide competitive environment. Important metropolitan areas evolving from their local mid or low-rise patterns into High Rise Office Towers is often called *the iconic-architecture of capitalist globalizm* (e.g. Sklair, 2006). This current trend of creating iconic architecture has been problematic to inhabitants' lives. Socially, in these high-rise built environments, office and commercial city centers have increased land prices, causing local inhabitants to move to the lower priced suburbs. These displacements are not always successful.

The oppressive impacts of high-rise office buildings (HROB) on inhabitants can be viewed from many different perspectives. Other than oppressive impacts that are caused by physical environmental factors, this research deals with the oppression caused by spatial orientations and contextual meanings of HROBs. In our field research, we encountered a vitally important social problem caused by spatial orientations of HROBs. Since HROB environments do not offer sufficient social facilities to the inhabitants, there is no proper interaction between the building and the inhabitants. This situation isolates the built environment from the "social city" concept. Moreover, many metropolitan inhabitants believe that these buildings are foreboding gated-communities, symbolizing capitalist powers and isolated from the rest of the city. This problem often generates unhealthy and unstable societies within the existing socio-economic regimes.

In this study, Istanbul is selected as a case study of a secondary globalizing city. It has a long history since it has been the capital city of three great empires; The Roman, the Byzantium and the Ottoman Empires. Istanbul, with a long history and strong local patterns, is today attracting more foreign investment and expanding its markets overseas. The recent adaptation of capitalist globalism is also affecting the skyline of Istanbul. Today, because of Istanbul's national heritage areas, HROBs are occupying the background and only recently beginning to emerge into the foreground.

Because of this evolutionary turbulence, this research investigates the expectations, needs and considerations of inhabitants from a HROB through a questionnaire survey.

Methodology

A questionnaire survey was given to 300 Istanbul inhabitants. The questionnaire consisted of two sections. The aim of the first section was to obtain general information about respondents' preferences, their demographic profile, and to uncover the inhabitants'

desire to live in a high-rise building. The aim of section two was to identify the inhabitants most and least satisfaction with the conditions among three types of HROBs. It also is to understand the effect of "interaction generating design factors" on the inhabitants preferences. Possibly we may understand the inhabitants general evaluation of recent HROBs versus the historical texture and local patterns of Istanbul.

The first three questions of the first section asked inhabitants about six buildings; three of the most well known historical buildings in Istanbul and three of the most well known HROB developments in Istanbul (see *Images 1-6*). The questions were regarding the uniqueness, cultural representation, and economic aspects of these selected six buildings. Secondly, three questions were aimed to understand inhabitants' responses on the density of the recently emerging HROB environment. In the last question of the first section, respondents were asked whether they desired to live in a very dense high-rise development that could be called "a vertical city" in the future.

In the second section of the questionnaire, questions were in the form of a rating scale and were about three very well known HROBs in Istanbul. In this research, HROBs are categorized into three types by their "interaction generating factors" qualities. The tools of classification are based on Kevin Lynch's urban design factors from 'Image of the City' that are "node, landmark, district, edge and path". Hypothetically, these factors are considered to be interaction generators in urban design. In this research, a HROB with its dense content and massive scale, is considered to be a vertical urban structure rather than a unit scale building. In parallel to this concept, Lynch's urban design factors are held to be main evaluation criteria in the design of HROBs. According to the classification of HROBs, Type 1 is defined as "inefficient interaction". For this type, landmark is none, edge factor is very strong and borderlike, path is not gradually combining public access to the structure, district (which is considered to be the facility distribution in the HROB area) is weak and node area is determined as none.

Type 2 is defined to be "partially-efficient interaction". In this classification, a landmark exists, edge factor is strong and borderlike, path is gradually combining public access to the structure, district (the facility distribution in the HROB area) is weak and node area is again none or weak.

Type 3 is defined as "efficient interaction". In this type non-office use space is highly qualified and usually in the form of various facilities , landmark exists, edge factor is weak and smooth, path is gradually combining public access to the structure, district (the facility distribution in the HROB area) is efficient and node area is strong and a gathering for people with attractions (see *Table* 1). Hypothetically, Type 3 is claimed to be the closest model to the inhabitants' ideal-image of a HROB.

Factors	Type 1	Type 2	Type 3
Landmark	none	weak	strong
District	weak	weak	strong
Node	none	weak	strong
Edge	borderlike	borderlike	smooth
Path	weak	weak	strong
Definition	*Inefficient interaction*	*Partially-efficient interaction*	*Efficient interaction*

Table 1. (HROB type classification).

Image 1. (Topkapi Palace).

Image 4. (IsBank Towers).

Image 2. (Hagia Sophia Museum).

Image 5. (Akmerkez).

Image 3. (Maiden Tower).

Image 6. (Kanyon).

Summary of First Section Outcomes

Istanbul's respondents rated the three most well known historical buildings of Istanbul (see *Image* 1, 2, 3) against three of the most well known HROB developments in Istanbul (see *Image* 4, 5, 6). They were rated according to their uniqueness in the city, cultural representation and economical support to Istanbul. According to the 300 Istanbul inhabitants' responses, (see *Figure* 2) 80% of the respondents think traditional architecture is more unique, culturally more representative and economically more supportive to their city. Only 6% of respondents think the contemporary architecture of HROBs in Istanbul is unique and culturally representative. 20% of respondents think HROB developments in Istanbul are very ordinary and definitely not representing their own culture. This group mainly consists of people who are 40 years and older,

with high incomes, and who are long-term residents of the area. 6% of respondents who think contemporary architecture of HROBs in Istanbul are unique and culturally representative are mainly 18-24 years old, with low incomes and are short-term (3 years or less) Central Business District (CBD) residents.

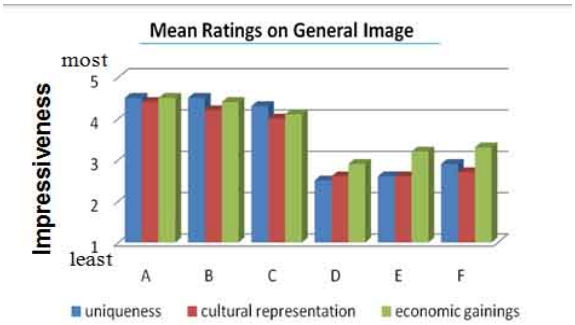

Figure 2. (impressiveness evaluation of inhabitants for traditional architecture A-B-C compared to globalizing image D-E-F buildings).

From the economic perspective, traditional patterns are again more dominant to Istanbul citizens' responses. Around 90% of the respondents valuated tourism as financially more supportive than what business towers generate. Results show that Istanbul's inhabitants feel very bound to their cultural motives and support their historical architecture and local patterns. According to these results, more questions were asked of them about Istanbul's latest high-rise office developments. Only 5% of the respondents thought that increasing the number of HROBs in Istanbul is a good idea. Almost 70% of them thought that increasing the number is excessive. Against this rapidly increasing number of HROBs in Istanbul, 32% of its citizens did not have a particular preference and 27% were satisfied with the number. It is fair to say that Istanbul's inhabitants tend to prefer local patterns rather than global ones. However, there are a significant number of inhabitants who favor high-rise developments.

In the last question of the first section, respondents rated their tendency to live in a high-rise development, which can be called a "vertical city". The largest group, 28% of the respondents, do not hope to live there (see *Figure* 3 and *Figure* 4). This group is similar to the group of people who think local patterns are the most culturally representative and hold the strongest options against contemporary architecture. Conversely, the second largest group, 22% of the respondents, are very likely to live in this type of "vertical city". Again, this group's inhabitants are 18-24 years old, with low incomes, and are short-term,CBD area residents. A large percentage of people from this group are young people who grew up behind the streets of the most well known HROBs in Istanbul.

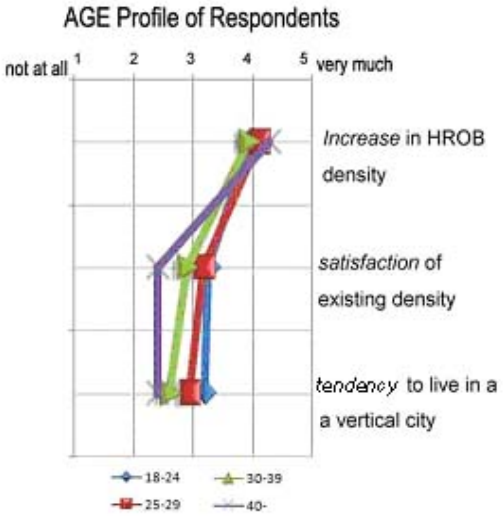

Figure 3. (inhabitants' evaluation of present HROBs of Istanbul and tendency to a future life in HRB by age grouping).

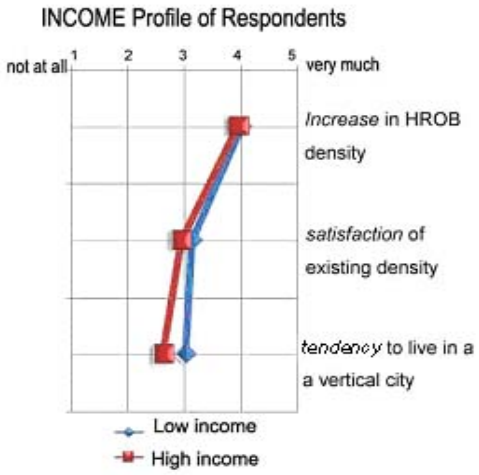

Figure 4. (inhabitants' evaluation of present HROBs of Istanbul and tendency to a future life in HRB by income grouping).

This region is called "Gultepe", where residents are mainly immigrants coming from rural areas of Turkey seeking employment in Istanbul. These people began settling in this area illegally more than 20 years ago. During these years, this area was not a CBD but only a suburb with some pharmacutical factories. In time, their illegally-built small houses evolved into complexes of apartments. Today, this area is adjacent to Istanbul's most important CBD. However, it remains unplanned with very low income residents.

One of the most significant points in the first section of the survey is the response of the Gultepe area's inhabitants. In Istanbul's most important CBD, the richest and the poorest inhabitants of the city are living very close to each other, only separated by one road (see *Image* 7). The rich area side of the road is called "Levent".

Image 7. (Gultepe and Levent Area with subject buildings, wowTurkey.com).

However, their responses to HROB developments and to living in a vertical city show significant, strong contrasts to each other among all of the district inhabitants. The children of the first-generation immigrants, who today are the second generation, were born and raised behind luxury and wealth. Interestingly, these inhabitants, from the illegally constructed slums, are the most likely to live in high-rise developments.

Therefore, the same group of respondents is again the largest group who think that the contemporary architecture of HROBs is culturally more representative and more unique than the historical buildings of Istanbul. At this point, it could be said that there is a strong social polarization among Istanbul's inhabitants parallel to their income span.

Could this social polarization generate a significant obstacle for Istanbul's inhabitants, from any income group, to interact with high-rise office development environments? The answer to this question was investigated during the analysis of results in the second section of the questionnaire.

Summary of Second Section Outcomes

In the second section of the questionnaire, respondents rated 17 scales that were determined to be important design integrated factors, resembling Lynch's "path, landmark, node, district, edge" and global image indicators. Firstly, each of the 17 scales were rated upon respondents' satisfaction for the three most well known high-rise office developments in Istanbul (see *Image* 8, 9, 10). Secondly, the previously rated 17 scales were again rated, but this time based upon general importance of each factor in design of a HROB.

As an introduction to the second section, in regards to the three predetermined buildings, respondents were asked to check a "reason of visit table". This was done in order to determine whether they had been to any of these buildings or had not visited. If they had been there before, they checked the reason for their visit from the table. A review of the data indicates that 67% of the respondents had visited building Type 3-Kanyon (defined as "efficient interactive"), 18% of the respondents had visited building Type2-IsBank Towers defined as "partially-efficient interactive") and 10% of the respondents had visited building Type1-Tekfen Tower (defined as "inefficient interactive"). The inhabitants who visited the most were higher income individuals. The most frequent reason for visiting was for shopping. Moreover, inhabitants who visit Kanyon most frequently thought the most important factor was "prestigiousness", followed by its "landmarking areas" and its "global-modern design".

Image 8. (Type1-Tekfen Tower).

Image 9. (Type2-IsBank Towers).

Image 9. (Type3-Kanyon).

An evaluation of the satisfaction rating of the 17 scales, with importance ratings for each scale, are qualified into four groups (see *Figure* 5). Initially, 17 scales for each type of building were summarized into Lynch's Five Factors (shown as *5F* in *Figure 5*) and into Global Image Indicators groups (shown as *5F* in *Figure 5*). According to the summary of scales' qualification analysis, "Lynch's Five Factors" group of Type 1 and "Global Image Indicators" group of Type 1 and Type 2 buildings are found to be highly important but problematically unsatisfying (area A in table of *Figure* 5). In the factor qualifications, summarized factor groups of Type 3 buildings (shown as K5F and KGI in *Figure* 5) are found to be the most satisfying and rated to be highly important.

In the satisfaction ratings of node, path, landmark, district, edge and global image indicating design factors for each of the three building types, respondents rated building Type 3-Kanyon as the most satisfying high-rise office development because of its functions (see *Figure* 6). The second satisfying building was Type 2-Isbank Towers with its interactive space qualities for the inhabitants. Therefore, it has been observed that the more satisfying factors that a high-rise office development contains, the more reasons there are for visits and

interactional opportunities for inhabitants. Therefore, 36% of the respondents rated Type 3 -Kanyon as the most interactional high-rise office development and the most preferred.

In the same ratings, Type 2-Isbank Towers received preference from 22% of the respondents and Type1-Tekfen Tower received 13% of the respondents' preference.

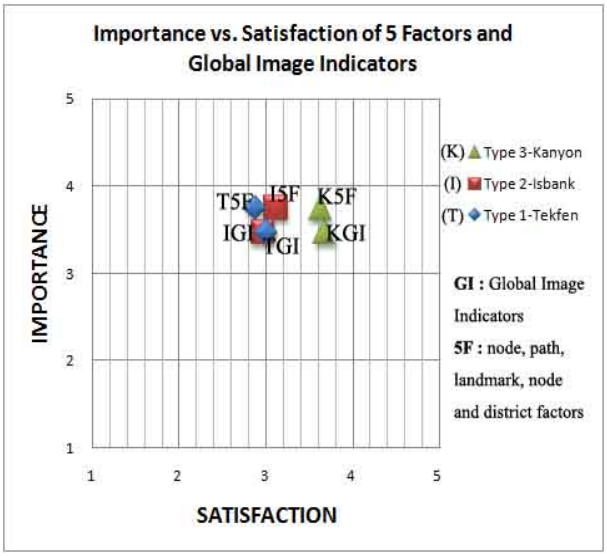

Figure 5. (17 scales qualification table)

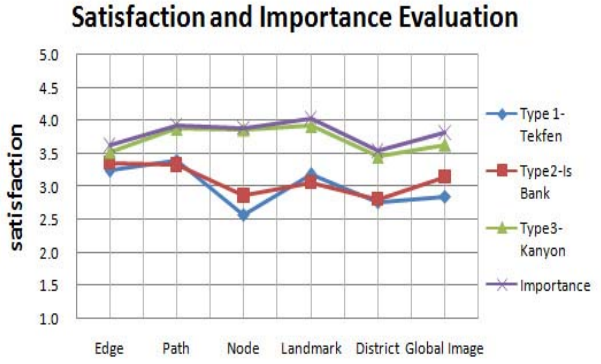

Figure 6. (Satisfaction evaluation compared to Ideal Image of a HROB over Lynch's Five factors and Global Image Indicators)

According to factor analysis (JMP, principal components-diagonals=1, Varimax rotation method, number of rotated factors=6) of inhabitants' "Ideal Image of a HROB" ratings for 17 scales (see *Table* 8), six groups were identified to be significantly important in the design. These were defined as Group 1-"Landmark", Group 2-"Edge", Group 3-"Path and Node", Group 4-"District", Group 5-"Social Harmony" and Group 6-"Social Status". Groups 1, 2, 3 and 4 were defined to be subgroups of Lynch's Five Factors' approach. Groups 5 and 6 are distinctly global image indicating factors, considering global patterns versus local ones.

According to inhabitants' satisfaction ratings for the three types of HROBs, Type 3-Kanyon was found to be significantly more qualified than Type 1 and Type 2 in each group of the design scales (see *Figure* 9).

In the importance rating section of the previous 17 scales, respondents rated the scales "International image modern design" as the most important design factor of a high-rise office development. Respectively, according to Istanbul's inhabitants, some other important factors that a high-rise building should supply are, "Being prestigious for my city"," Landmarking points of the building in order to meet someone or find somewhere easily" and "Easiness on finding the entries".

When Lynch's factors are considered to increase the inhabitants' preference to the building, "landmarking areas" was the most important factor followed by "path" as secondly important. Then, respectively, "node", "edge" and "district" were found to be of next importance. (see*Figure* 6).

Based on factor analysis of importance ratings (see *Table* 8), subgroups of Lynch's five factors approach were separated into individual groups, but only "path" and "node" represented group factors were found to be highly dependent and gathered into one group. According to multiple regression - stepwise analysis (no intercept) (see *Table* 7), formulation of the correlation between *Global Image Indicators* and *Lynch's Five Factors* in Design of HROBs is identified below.

Multiple Regression-Stepwise regression for Global Image	
RSquare Adj	**RSquare**
0.520	0.528

Global Image = 0,383 **DISTRICT** + 0,328 **PATH** + 0,132 **LANDMARK** + 0,065 **NODE** + 0.101 **EDGE**

Table 7. (Correlation formulation between Global Image and Lynch's Five Factors).

Demographic Observations

According to demographic groupings, the most significant difference among respondents' evaluations was based upon their income. Particularly for the respondents with a higher income, the Global Image Indicating factors were more important in the design of the HROBs.

Another interesting finding is the relationship between importance ratings and vertical city preference. Respondents who do not tend to live in a high-rise development consider each factor in the second section more than the group who do live in a high-rise. The largest difference between these two groups was in the rating of "Usage opportunity of indoor public spaces". Istanbul's inhabitants, who had higher income and visited the three subject buildings more often, responded to this scale with a higher importance grade. Hence, respondents who do not live in a high-rise development, had higher criteria in evaluating the various indoor facilities. However, the most important factor for both groups was "Landmarking points of the building in order to meet someone or find somewhere easily".

17 Scale Evaluated Qualities	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Group Definition	
Landmark	0.193	0.275	0.148	0.124	0.187	0.728	Group 1: **LANDMARK**	Lynch's Five Factors
Edge	0.115	0.102	0.125	0.076	0.911	0.133	Group 2: **EDGE**	
Accesibility	0.257	0.770	0.131	0.132	0.102	0.195	Group 3: **PATH** and **NODE**	
Entrance Visibility	0.127	0.772	0.331	0.004	0.149	-0.016		
Node	0.207	0.727	0.167	0.161	-0.057	0.275		
Outdoor Interactivities	0.634	0.414	0.111	0.192	-0.065	0.380	Group 4: **DISTRICT**	
Indoor Interactivities	0.785	0.250	0.088	0.050	0.067	0.059		
Upper Storeys' Useability	0.778	0.044	0.233	0.148	0.246	0.014		
Indoor Way-finding	0.372	0.371	0.357	0.291	0.177	-0.168		
Office-NonOffice space Seperation	0.443	0.357	0.264	0.397	0.254	-0.237		
Interactivities	0.653	0.186	0.257	0.250	-0.104	0.292		
Harmony with Close Environment	0.243	0.263	0.397	0.541	-0.013	0.053	Group 5: Social Harmony	GLOBAL IMAGE Indicators
Cultural Representation	0.076	-0.031	0.099	0.845	0.022	0.217		
General Likeliness	0.290	0.294	0.286	0.579	0.180	-0.110		
Global Modern Design	0.177	0.243	0.767	0.117	-0.022	0.115	Group 6: Social Statu s	
Prestigiousness	0.146	0.243	0.751	0.229	0.213	-0.067		
Distinctiveness	0.170	0.097	0.819	0.150	0.076	0.175		
Eigenvalue	7.034	1.359	1.141	0.975	0.836	0.785		
Percent	41.374	7.995	6.709	5.737	4.917	4.615		
Cum Percent	41.374	49.369	56.078	61.815	66.733	71.348		

Table 8. (Factor Analysis for Importance Evaluation by JMP, principal components-diagonals=1, Varimax rotation method, number of rotated factors=6).

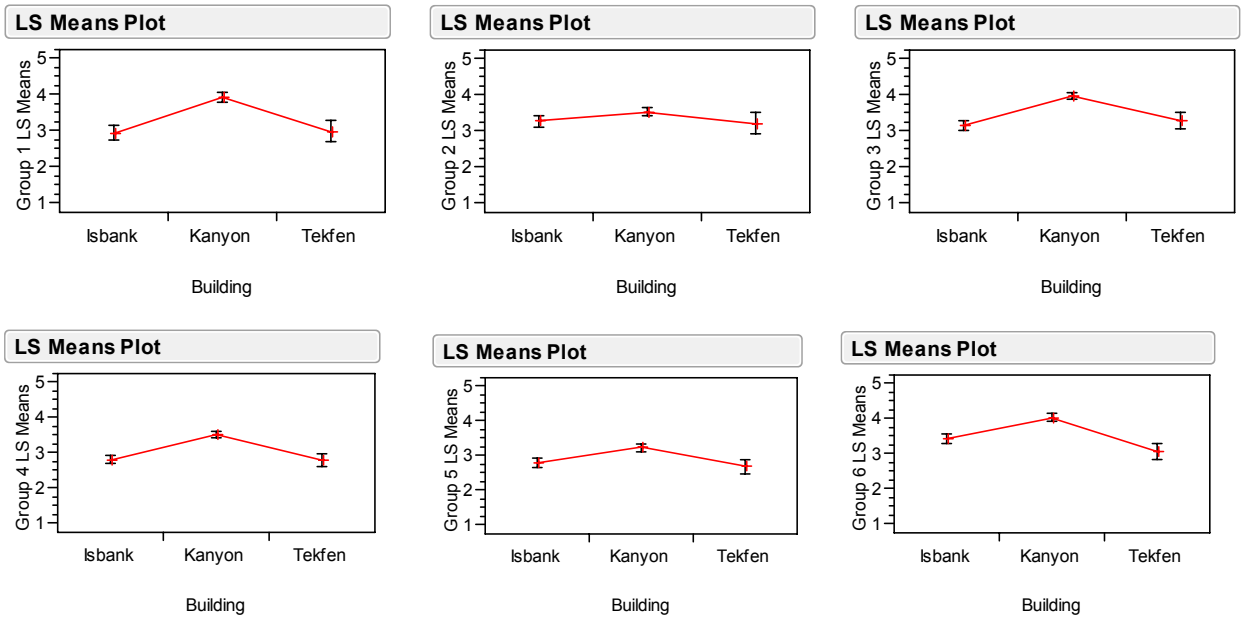

Figure 9. (Least Square(LS) Mean Plots of each Group versus Building Type 1-Tekfen, Type 2-IsBank and Type3-Kanyon).

Conclusion

In the Istanbul questionnaire survey of this research, the rapidly changing local environments, under the effect of globalization, was evaluated by Istanbul inhabitants perspective.

Based on the results, responses from different demographic groups by age, income or district were found to be significantly similar in the general consideration of recent evolutions of environments. Istanbul's inhabitants are socially very adherent to their city's historical and local patterns. Regarding the aspects of architectural uniqueness, cultural and economically-supportive factors, the historical and local patterns are the inhabitants first preference.

All over the world, it is foreseen that high-rise developments are highly probable to become an urban model of future cities. Istanbul's inhabitants were not found to be against such developments. Depending upon the social context and functional qualities of the building, respondents' preferences were determined to be relatively positive. In particular, younger residents with low incomes, living close to the CBD, had the highest preference for living in a high-rise development. This situation affirms the existence of problems in society caused by social and economic polarization. Such a possibility of living in a high-rise development in Istanbul requires having a high income. Hence, the low income class's willingness to live in a high-rise is stated to be a desire, not a concrete possibility. This desire of the low income group towards luxury is one of the most important social problems among Istanbul's inhabitants. It has surfaced under the effect of capitalist globalization in the last fifty years.

According to the Istanbul residents, one of the most important factors in the design context of a high-rise office development, among the determined 17 scales listed, is the "global-modern image bringing factors". Therefore, residents are most satisfied with and feel the highest preference for building Type 3-Kanyon. It resembles the "efficient interactive" development model in our hypothesis.

Analysis of the results confirms that the correlation between liking a High Rise Office Development is directly related with social interaction of inhabitants to the building. In Istanbul's case, where inhabitants particularly adhere to local patterns, they also expect contemporary global modern architecture to follow established social patterns.

In some parts of the questionnaire respondents attached their short personal comments. One of these was "we, Istanbul's citizens, are wishing to see Ottoman architecture or early republic era motives of Turkish architecture on our skyscrapers, too". It seems that the modern design and the prestigiousness are not enough by themselves to fulfill inhabitants' expectations for a high-rise office development.

As well as socially interactive spaces and Lynch's design tools, preservation and appropriate consideration of local patterns are highly regarded in the design of high-rise office developments. A design that follows these criteria and which fulfills inhabitants' expectations could be called a "Glocal=global+local Architecture". This model is claimed to be environmentally responsive and could be adapted globally in metropolitan areas.

Following the findings of the Istanbul survey, this study is planned for the city of Tokyo. The same methodology from the Istanbul survey will be applied to Tokyo's inhabitants, in order to find significant similarities. Similar responses from two metropolitan areas, from distinctly different local patterns, are anticipated to give the same expectations of global patterns and social interaction in regards to the design of high-rise office developments.

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