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ICONARP INTERNATIONAL JOURNAL OF ARCHITECTURE & PLANNING

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The journal aims to be a platform for the studies of design, education and application and has a goal to be a bridge in between traditional/modern, east/west, local/global in the disciplines of Architecture / Planning.
Architecture and Planning, as two interconnected fields, are strongly affected by other disciplines such as fine art, urban design, philosophy, engineering, geography, economics, politics, sociology, history, psychology, geology, information technology, ecology, law, security and management. However, there are no academic journals which specifically focus on the connections of architecture and planning with other social fields. ICONARP aims to fill that gap. Our scope is to provide a suitable space for theoretical, methodological and empirical papers, which use global and local perspectives together, in architectural and urban studies.

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EDITORIAL

ICONARP began its broadcast life as peer-reviewed faculty journal in the field of international architecture and planning and now it is the tenth issue.

ICONARP is continuing its growing process with this new issue.

The eleventh issue will be published in June 2018 and we wait for your contributions with your scientific studies until March 2018.

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Neighbourhood Patterns in Istanbul: From Historical Form to Manhattanization

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Abstract

During the last century, the transformation of Istanbul's urban structure from monocentric to multi-centric and its rapid population growth resulted in neighbourhood patterns which are spread across a large spectrum according to their location and their cultural, socio-economic and historical backgrounds. In urban settings, the potential environment is reinterpreted by its users, and is realized through the application of the space and time-specific societal norms within the context of technological advances. The present study investigates the selected neighbourhood patterns from historical to westernized, modern, post-modern (gated) and Manhattanized forms.

According to the results of the study, although some of the historical, westernized and modern neighbourhoods have been preserved to a large extent, the haphazard development of high-rise residential buildings has caused traffic congestion, pollution, an increased income gap and changes in land values, and has thus produced functional transformations in their immediate surroundings. In addition, this unnecessary increase in housing density is not only harmful for the city's famous silhouette but also for its traditional neighbourhood relationships. In order to allow a physically, economically and socially more balanced development of the city, it is necessary to control its

Keywords: *Istanbul, historical, modern, neighbourhood pattern, post-modern, westernized*

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growth and follow a system of planned development which is not solely for the benefit of real estate investors. It is hoped that the results of the study will be useful for the urban and regional planners, policy makers and investors.

INTRODUCTION

Istanbul has a large spectrum of neighbourhood patterns that date from the Byzantine era to modern times. The physical environment of the city has always been an arena for potential actions and interpretations on the part of its users within the context of cultural, socio-economic and technological conditions (Yazgi and Dokmeci, 2006). Hunter (1979) analysed neighbourhoods by typologies and their stages of change and functions with respect to economic, political and social characteristics. The results of that study revealed that the urban neighbourhood is a unique locus of the convergence of these elements. Accordingly, the urban form is basically an expression of the values of its users, as shaped by the forces of tradition, by communal reaction and by physical constraints (zoning, planning, etc) (Jo, 1998; Whitehand, 1981). In a later period, the conspicuous consumption of post-modern urbanism is reflected in numerous ways by the economic and cultural shifts in the society and, in turn, helps render them visible (Mitchell, 2000), thereby causing the transformation of neighbourhoods. In sum, the physical, social, cultural, economic, and political components and their different combinations come together and cause changes in the urban fabric (Asami et al., 2000; Whitehand, 2001; Yazgi and Dokmeci, 2009). The present paper investigates neighbourhood development in Istanbul from the historical to the westernized, modern, post-modern, gated neighbourhood and Manhattan-type forms by taking into consideration their different characteristics.

There are several studies which investigate the evolution of neighbourhood patterns in developed countries at different time periods and from different perspectives. Southworth and Owens (1993) examined neighbourhood patterns with respect to street and house lot in the San Francisco bay area. The study identified the underlying organizing principles and spatial typologies and analysed patterns of growth, land use, and street layouts for several periods of suburban development, from the early twentieth century to the 1990s. According to their results, it is possible to state that as the scale of development grows, there is an erosion of the public street framework, and this has serious implications for the character, convenience and adaptability of new urban environments. In another study, Brower (1992) investigated five different urban forms that focused on different

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cultures and periods. The common factor of these five research studies was that they all focused on the effects on urban forms.

McCann (1995) analysed neo-traditional developments which are built at a small scale and which incorporate many features of certain old-city neighbourhoods, such as narrow streets and small set-backs. These neighbourhoods have been designed by architects and built by small developers on suburban greenfield sites since the early 1980s. Mesev, et al., (1995) attempted to define the urban form according to two different variables: land use and density. In another study, Audirac (2002) attempted to explain the relationship between information technology and the urban form. Moreover, Song and Knaap (2004) examined the spatial analysis of the urban form in different neighbourhood units. The main variables of their study were the circulation system, density, land use, accessibility and pedestrian accessibility. These variables were compared for two different neighbourhood units. In his work, Conzen (2004) explored various ways of identifying and understanding the character of historic townscapes from a systematic and comparative perspective. He outlined both general and genetic approaches to the study of urban form which were grounded in the traditions of geographical analysis.

Jabareen (2006) identified sustainable urban forms and their design concepts. This study listed four types of sustainable urban forms: the neo-traditional development, the urban containment, the compact city, and the eco-city.

The review of previous studies illustrates that there are different approaches that may be used to explain the development of neighbourhood forms in different countries. The present paper analyses different neighbourhood forms in Istanbul, as an example from a developing country that has a long history. The organization of the present paper is as follows. General information is given about the development of Istanbul socio-economic conditions and structure of Istanbul through time in the second section. In the third section, examples of historical, westernized, modern, post-modern (gated) and Manhattan-type neighbourhood patterns are illustrated. The final section is devoted to conclusions and suggestions for further research.

BACKGROUND INFORMATION ABOUT ISTANBUL

During the last half-century, Istanbul was transformed from a mono-centric to a polycentric city (Dokmeci and Berkoz, 1994), its population increased from one million to approximately 15 million, and the number of neighbourhoods rose from 581 in 1985

to 989 in 2016. The provision of housing, services, public facilities and infrastructure has not kept pace with the rapid population increase and subsequent urban sprawl. This rapid expansion has affected the quality of life in various sections of the city; while some modern districts have become comparatively more attractive, the historic districts have lost population due to the deterioration of their neighbourhoods. Thus, much of Istanbul is undergoing rapid and continuous social, economic and structural change. This creates locational advantages and disadvantages which are reflected in the urban land markets and which have resulted in intra-urban migration from the decaying historical districts to the modern districts at the periphery (Dokmeci, et al., 1996).

In the 1960s, the majority of employment opportunities in Istanbul were concentrated in the core of the city. (Dokmeci and Berkoz, 1994). Over time, this has changed, and currently, the periphery has higher employment ratio than both the core and the intermediate zone. This shift has altered employment patterns, resulting in continuous urban development, as well as income growth and changes in social values, and has caused a higher rate of residential mobility. At the same time, a large amount of public housing construction in some of the peripheral districts has stimulated the growth of these districts but has also created a trend toward living in modern housing establishments surrounded by green areas and internally-supplied with all the necessary facilities (Dokmeci, et al., 1996). Following the expansion of the city in the 1970s, which was due to population increase, mostly as a result of rural migration (Yazgi et al., 2014), and the construction of the bridges over the Bosphorus and their associated peripheral highways, a new spatial structure has emerged, resulting in decentralized employment and related services. Increased highway development and airline connections have contributed to the development of a CBD which is more toward the north, rather than its historical location near the port. As a result, the area of the old CBD started to decline. In addition, during this period, the increased use of private automobiles was clearly incompatible with the economic, cultural and physical fabric of the city-centre of Istanbul, which was more oriented towards pedestrians and public transport. Consequently, the narrow streets became clogged with motor vehicles, and noise and pollution reached intolerable levels, endangering the general character of the old city centre. The decline of the CBD and the limitation of its growth due to its historical characteristics may be considered sufficient condition for the multi-centre development of the city. Increases in population, services, housing and land prices created a heavy demand for floor space in the sub-centre,

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thereby pushing vertical development in these areas (Senturk and Dokmeci, 2010).

Thus, due to the structural, social and economic changes in the city, the old districts are losing population and employment opportunities due to their deteriorating urban structure; as a result, housing demand and potential rates of return are low. In contrast, areas at the periphery that are near sub-centres with modern office buildings and modern residential settlements, both demand and potential rates of return are high (Dokmeci and Berkoz, 2000). There are several urban studies, which have attempted to explain the shifts within urban hierarchies and intra-city spatial changes through the global restructuring of the capitalist society (Sassen, 1994; Castells, 1994). According to previous research by Dokmeci et al. (1996), which was based on a survey conducted at the city level, 70.8% of the respondents expressed a desire to relocate due to the restructuring of the urban space. This high percentage can be explained by the continuous expansion of the city, the increasing number of migrants, and the transformation of the urban structure and the associated social and economic values. Usually, migrants are more mobile than the rest of the city's population as they have already made the decision to move, a point which was also illustrated by Ahmad (1992). Of those who wanted to relocate, 67.8% wanted to live in an apartment, 8.9% preferred to live in a private house and 23.3% preferred a "squatter" (illegally-built, usually on public land) house. These results corresponded to the income distribution of Istanbul.

The population size between neighbourhoods varies greatly in Istanbul. In general, historical neighbourhoods have small population sizes of between 5,000-6,000, whereas new neighbourhoods at the periphery often have very large neighbourhoods with populations between 40,000 and 50,000 (Figure-1). The results for the distribution of income per capita also show high levels of spatial disparity among the neighbourhoods. Usually, income per capita increases for neighbourhoods located on the seashore and decreases as the distance increases from the seashore, except for gated neighbourhoods. According to the previous studies, there is a relationship between the size and heterogeneity of neighbourhood s and their neighbourhood identity (Bardo, 1984). Usually, neighbourhood identity is stronger for historical neighbourhoods than the newly developed neighbourhoods at the periphery, especially those with high population densities.

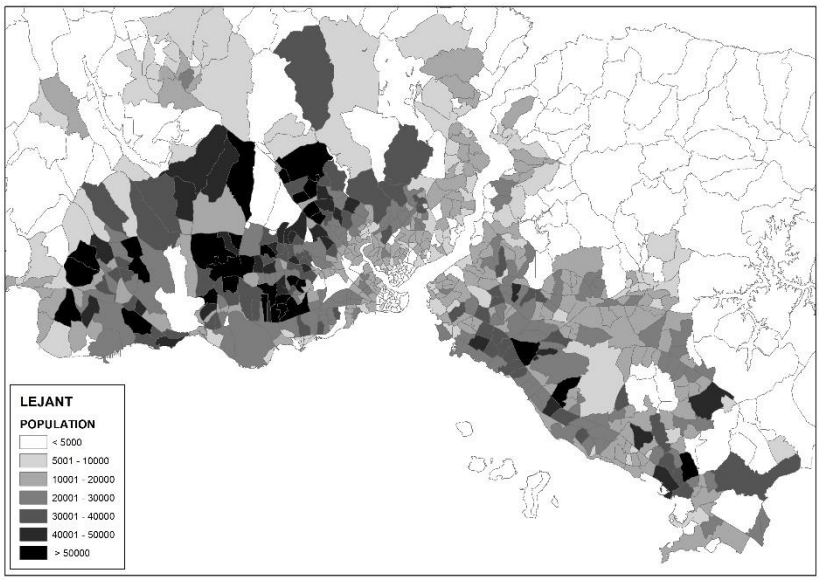

Figure 1. Spatial Distribution of Different Size Neighbourhoods

CURRENT NEİGHBOURHOOD PATTERNS IN ISTANBUL

In this section, five types of neighbourhood pattern are taken into consideration, as historical, westernized, modern, post-modern (gated) and Manhattan-types.

Historical Neighbourhoods

For this study, two neighbourhoods which have structural traces and monuments from the Roman, Byzantine and Ottoman periods were selected from the Historical Peninsula. Each period had both a cultural and a social impact on the urban structure of the city. After the Ottoman conquest, new urban policies, a new type of urban administration, new institutions and new building types were established. A very segmented and labyrinthine urban fabric characterizes the Ottoman period. This is especially apparent from the formation of large and irregular urban blocks penetrated by numerous culs-de-sac which maximize interpersonal communications as claimed by Lynch and Rodwin (1958). The neighbourhood takes its form from the spanning narrow, curved streets that spread out from a core which consists of a small mosque (mescit) and a school (Aksoy, 1968). During the 19th century, a grid system was implemented in the neighbourhoods as in the case of Samatya which were destroyed by fire in order to better provide sewage and water systems (Figure-2).

Two historical neighbourhoods, which have preserved their residential characteristics, namely Balat (Jewish origin) and Samatya (Armenian origin) and these were restored by UNESCO in cooperation with the Municipal government (Gur, 2015) (Figure-3). Although most of the natives from these neighbourhoods do not live there anymore, as is the case in several other historical cities (Laskin, 2016), centuries of history

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cannot but make their marks on the soul of a place, thereby rendering it more attractive for new generations.

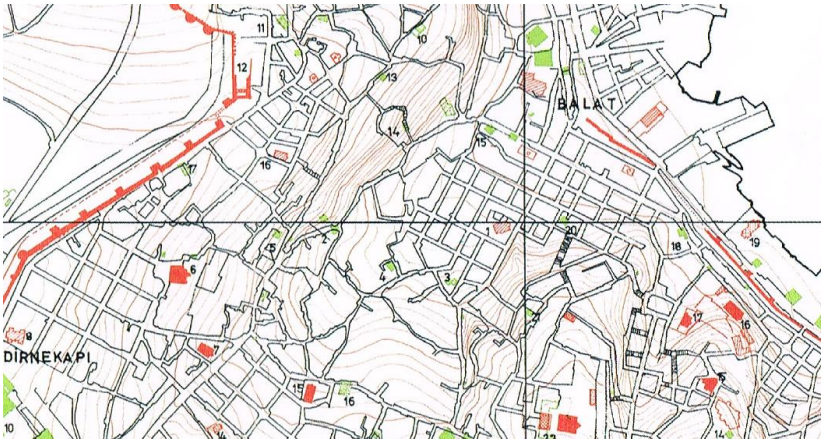

Figure 2. Ottoman and Westernized Neighbourhoods in the Historical Peninsula (*Müller-Wiener, 1977*)

Some of the historical neighbourhoods are characterized by land and structure usage rapidly changing from residential to commercial (Kolcu, 2013). If the historical neighbourhoods are near an important historical monument or near the old CBD, the houses have been transformed into boutiques, hotels, commercial ventures and restaurants. This has occurred in the Cankurtaran area of Istanbul, largely due to pressure from tourism, and reflects what has occurred in other developing countries (Dix, 1990; Rahman, 1993). Additionally, it is possible to state that a small amount of transformation from residential to other functions has taken place. The transformation of historical neighbourhoods from residential to other functions in the historical peninsula of Istanbul was comprehensively explained by Ergun and Dundar (2004). Some of the lots have lost the original aspects of their design characteristics, but those which can be characterized as having stable land uses and structures, remain almost the same as their initial design; the older order still prevails. However, some of the neighbourhoods constitute a composite structure of new and old buildings existing side by side (Gur, 2015). There are also neighbourhoods which have the character of a reconstructed society (the commercial zone) and of a statement of historical continuity (the residential zone). This dual character has value spatially as well as historically. Knowledge of those physical forms, including their historical-geographical patterns of change, is likely to become even more important in the new century than it has been so far (Whitehand et al.,1999).

Usually, the existing settlement structure resists the introduction of new transport technologies. Therefore, those technologies which can adapt to the existing system allowed for developments which are crucial for solving traffic congestion in these neighbourhoods.

Finally, spatial differentiation, change and transformation are merely the means to resolve the balance. Unfortunately, the haphazard development in Istanbul does not often allow the urban structure to achieve a peaceful balance.

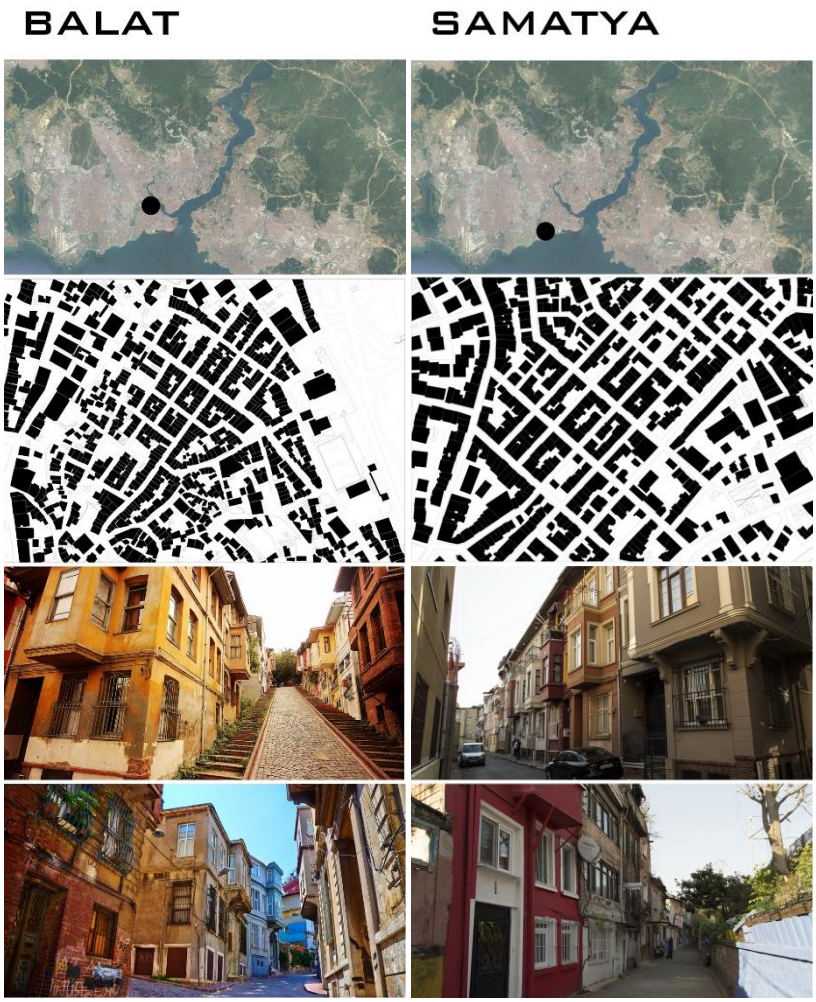

Figure 3. Balat and Samatya Neighbourhoods

Westernized Neighbourhoods

During the 19th century, an effort was made to transform Istanbul into a Western-style capital. This was a parallel of the general struggle to salvage the Ottoman Empire by reforming its traditional institutions by the integration of the structures of the Ottoman Empire with those of the world capitalist system (Dokmeci and Çiraci, 1988; Çelik, 1993; Kubat, 1999; Dokmeci and Çiraci, 1999). In order to westernize urban activities, it was necessary to transform the existing urban structure into one that followed a modern urban pattern. Neither the physical urban structure nor the urban services were sufficient to satisfy the growing requirements of the modern society of Beyoglu, which was largely habited by Europeans. To meet these demands, the westernization movement started in Beyoglu and continued in Macka, Nisantasi and Pangaltı (Celik, 1993). This trend later spread to Sisli with the development of more modern residential,

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commercial and recreation areas which later became a part of the new Istanbul CBD.

After the period of Tanzimat and the 1838 Trade Treaty, foreign trade and foreign influence reached a peak with the establishment of foreign banks, insurance companies, office buildings, hotels, churches, theaters, restaurants, large stores and retail passages, hospitals, schools, libraries, research institutes, archaeological institutes, clubs, embassy buildings, post offices and apartment buildings. Many of the new buildings were designed primarily by French and Italian architects, and as a result, Beyoglu became the most distinguished business, cultural and entertainment center of Istanbul. Public parks were planned, the streets were paved, the sewer system was established, and street lighting was provided by gas lamps. Its population rapidly increased; by the middle of the 19th century, its population was 47% foreign, 32% non-Muslim, and only 21% Muslim (Shaw, 1979). Since the topography of Beyoglu precluded any further expansion, the new influx of inhabitants soon resulted in a shortage of houses and thus in an increase in the price of land (Rosenthal, 1980). Rents were said to be as high as those of London and Paris. Eventually, a process of economic and social differentiation began as the extravagant prices paid by Europeans could not be matched by many Muslims, who then took up residence in other parts of the city (Rosenthal, 1980; Mansel, 1995). Finally, Beyoglu developed into a small westernized town with its own physical, social and economic life-style, and maintained this role until the 1970s. The main emphasis of westernization was to introduce new products, and encourage new tastes and a higher standard of living with a market dependent on European countries. The westernization of Beyoglu with respect to economic, administrative and technological development, and the modernization of social life, affected the urban form and resulted in a more 19th-century European image than those of the other districts of Istanbul. A century later, a similar trend was followed by globalization with respect to introducing new products and an international life-style (Figure – 4).

After the 1970s, suburbanization started as a result of the construction of bridges over the Bosphorus and their associated peripheral highways. Although the residential buildings in the city center were largely abandoned by middle- and upper-class residents, businesses stayed active due to its central location and its position on one of the main transportation axes in Istanbul. The multi-center development of the city widely overshadowed its commercial life. After the pedestrianization of Beyoglu's main street in 1990, revitalization started and its beautiful historical

stone buildings were restored and occupied mostly by artists, architects and young professionals. The restoration of the buildings was financed first by banks and local people, and later by the international investors due to the increasing high returns (Dokmeci and Ozus, 2005). Many restaurants, coffee shops, bars, book stores and hotels were opened. Its grid urban structure which is convenient for car traffic has helped the adaptation of modern activities. In addition, its hilltop location, which enjoys views of the Bosphorus and the Golden Horn, is undeniably an asset for its restoration value (Dokmeci and Ciraci, 1988). Now, it is one of the major tourist areas and has beautiful historical buildings and many entertainment and shopping activities. A metro connection to the new CBD in the north has also contributed to the continuous development of these neighbourhoods.

Figure 4. Two Neighbourhoods from Beyoglu: Katip Mustafa Celebi and Cihangir

Modern and Post-Modern (Gated) Neighbourhoods

The Levent Project is one of the few modern city projects in Istanbul (Figure -5). It was originally intended to be workers' housing to serve a nearby industrial site and was built on farm

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land given to Lamartine, who came to the Ottoman Empire as an agricultural advisor.

The system of the Levent Project (1947-1957), is unique. It was Istanbul's first garden city development, it was designed with curvilinear streets, it segregated pedestrian and vehicular traffic, and provided housing that blended urban and suburban amenities. Furthermore, it stimulated the development of the city toward the north along the main radial road (Buyukdere Caddesi) which later provided the backbone of the new business center of the city (Dokmeci and Berkoz, 1994; Oktem, 2011). The phases of the construction process consisted of the following housing units: 411 detached units in Levent-1; 1,319 detached units in Levent-2; 277 detached units in Levent-3; and multi-story buildings in Levent-4, including the tallest apartment building in Istanbul at that time. Under the deed restrictions, no structure could be built beyond its given floor limitations. Although this neighbourhood was planned according to zoning principles that ensured a separation of function in that commercial activities are located at the center of the neighbourhood and are removed from the residential zone, the houses located along Büyükdere Caddesi were later given over to commercial activities as a result of the influence of extensive commercial intrusion over time.

The modern city is accused of imposing a superficial life-style on other urban structures in place of long-standing cultural traditions. For instance, in a study by Bardo and Dokmeci (1992), while in Arnavutkoy, a historical neighbourhood, 75% of the inhabitants claimed to communicate with their neighbors, whereas in Atakoy, a modern neighbourhood, 95% of people claimed not to do so. Therefore, on the one hand, modern city projects present a physically higher quality of urban life in Istanbul at the expense of the elimination of social interaction, which remains a characteristic of historical neighbourhoods.

Gated neighbourhoods emerged in Istanbul in the 1980s as a result of globalization and liberal socio-economic policies (Figure-5). Gated neighbourhoods are a part of a trend of suburbanization that is based on the creation of self-contained, separate communities with carefully constructed identities and the hope of security and exclusivity. The typical patterns created by the rapid spread of proprietary urban communities have become a mark of urban development in the 21st century (Akgun and Baycan, 2011). As a result of greater levels of income disparity, gated neighbourhoods have increasingly became a major trend in the housing market in both developed and developing countries (Coy and Pöhler, 2002; Glasze and Alkhayyal , 2002; Gooblar 2002). Such neighbourhoods have dramatically restructured the urban

pattern at the periphery of Istanbul. Initially, gated communities were built in areas close to the sub-centers in the north (Gokturk-Kemerburgaz, Zekeriyakoy-Demircikoy), and south-west (Bahçesehir-Buyukcekmece) of the European side and in the north (Beykoz-Omerli) of the Asian side. However, they are now spreading all over the city.

Figure 5. The Levent Project and A Gated Neighbourhood from the Periphery of Istanbul/Gokturk

The gated neighbourhoods in the north of Istanbul have been constructed within large green areas, creating pressure on the natural environment and posing a threat for the sustainability of natural resources and agricultural land (Akgun and Baycan, 2011).

Manhattanization (Manhattan-type) Neighbourhoods

Although the transformation of the city structure towards a new balance takes place mostly in small, time-consuming steps, after the 1970s, the construction of bridges over the Bosphorus and their associated peripheral highways provided the background for the development of a multi-centered city that arose due to the pressures from the increasing population and the demand for services (Dokmeci and Berkoz, 1994).

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At the beginning of the 21st century, the privatization of space stimulated several changes in the urban development process. Many construction companies grew in size and complexity and started to assume massive capacities. This change, alongside the changes in construction technology, has had major impacts on the urban form of Istanbul, as it has in examples from other countries (Whitehand, 1992).

As developing countries are linked with broader international capital markets and customers in general, and due to the relaxation of building regulations by the Istanbul municipal authority in particular, there has been a rush to build Manhattan-style, luxurious high-rise residential buildings which are completely isolated from their surroundings. On the contrary of gated neighbourhood s, this new trend takes place both at central locations and the periphery. (Figure-6). As space is stripped of its social and cultural value, which can be developed only through people's use over time, it is treated as a mere commodity (Madanipour, 1996). Investors are only interested in the maximum possible returns and developers are increasingly erecting ever-taller residential buildings in Istanbul for the elite. Again, this has also occurred in some other developing metropolitan cities, such as in Mumbai (Bundhun, 2016). However, in every such case, the city's skyline is altered (Figure 7)

It is expected that increasing housing density might have some impact on the social psychology of residents, especially if they come from small neighbourhood s with close social ties. These problems have already been recorded in some developed countries, with the observation that people who live in single family-dwellings are considerably less neurotic than people who live in more crowded high-rise buildings. Additionally, people who live in high-rise buildings are reported to have fewer friends (Mehrabian, 1976; Gifford, 2007).

Thus, the review of the different neighbourhood s which were developed over time in Istanbul reveals that in more modern times, the street has lost its social and aesthetic value due to a combination of industrial and technological developments. The urban space has been shaped according to the motor car mobility, thereby changing the relationship between human beings and buildings, and between buildings and open spaces. The consequences of abolishing public spaces such as streets and squares have been studied by Madanipour (2003). The location of high-rise buildings ignores the necessity for spaces which allow sociability. After the static, enclosed public spaces of the past in both the East (Yenen, 1992) and the West (Ford, 1978), the

modernist public spaces were to be free-floating and fast moving (Madanipour, 2003). However, the current trend for Manhattan-type buildings in the sub-centers completely ignores the existence of pedestrians. The neighbourhood patterns of Istanbul have passed through various phases due to economic, administrative and technological changes. This was largely due to pressure from rapid population growth, and has resulted in very distinct forms of urban structure. For any new neighbourhood developments, the human-scale should be included before it is too late (Trancik, 1986; Talen, 2005).

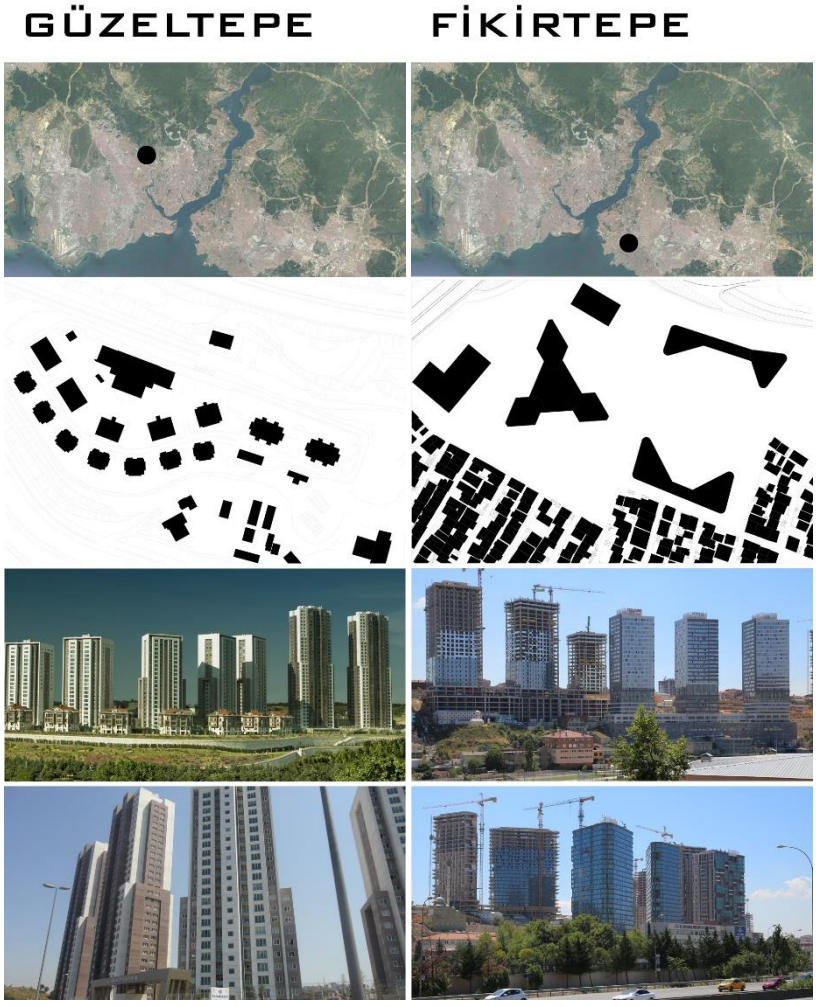

Figure 6. Manhattan Style high-rise Residential Buildings: Finanskent - Güzeltepe and Fikirtepe

Figure 7. Distorted Silhouette of Istanbul

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CONCLUSION

Change takes place in every historic city, but the type, rate, and impact of the change varies from place to place and according to socio-economic conditions. The differences in the characteristics of neighbourhood forms have their roots in specific social, cultural, physical, economic, political, technological, geographic and historical conditions as indicated in the previous studies (Asami et al., 2000; Whitehand, 2001; Yazgi and Dokmeci, 2009). Istanbul has a great variety of neighbourhood forms which have developed over different time periods, and which have been subject to different conditions. This paper presented the argument that while some traditional neighbourhoods still exist in Istanbul, the Manhattan-type high-rise residential building sector is booming as a result of globalization and the increase in land values and population. Meanwhile, the westernized districts which were developed in the 19th century, have been mostly preserved due to their splendid historical buildings and infra-structure, as well as their strategic location within the city with regard to trade, entertainment and tourism. Similarly, the modern neighbourhood s that were developed in the 1950s, have been preserved together with their green environments, despite their current locations in the middle of the new CBD and their proximity to high-rise office buildings. This has been achieved by their resistance to the pressure for increased building density and change to office functions. It is therefore possible to claim that Istanbul, being the most important socio-economic, educational and tourism centre of the country, has a very dynamic urban structure due to its rapidly increasing population and its strategic location.

Traditionally, the physical infrastructure of the city has been an implied framework within which social and material realities are interrelated. The present paper illustrates that while the core area (historical, westernized or modern) has mostly preserved its structures, if not its functions, the massive construction projects in zones, which promise higher returns, has distorted the world-famous silhouette of Istanbul. These high-density projects were made in answer to the pressure of a rapidly increasing population, globalization and the desire to maximize the benefits for real estate investors. Thus, morphological continuity is accompanied by a radical transformation in the appearance of the city which stems from the advance of capitalism and its spatial relation as mentioned by Madanipour (2003). New neighbourhood projects are detached from local cultures, and their spatial expressions and income disparities are increasing.

In order to provide continuity in the urban structure for future urban development projects, tradition should be a source-book of design elements and should be used to invent a new and a different future while pre-existing and underlying social structures are taken into consideration. For this purpose, it is necessary to provide a more balanced distribution of income and education level.

The results of the study are within the scope of urban and regional planners, policy makers and investors. Investigation of the impact of high-rise buildings on the traffic, noise, air pollution and health conditions of inhabitants, and the social production of their aesthetic effects on their surroundings is suggested for future research.

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Resume

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Regeneration of Hidden Historical Landscapes of Lecco City: A Didactical Experiment Through Urban Design Course

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Benida Kraja***
Maryam Ziyaee****

Abstract

This manuscript provides results of an study through the role of Historical Urban Heritage for Urban Design studies collected through the presentation of the integrated learning path developed for *Urban Design* and *Urban Design Studio* courses of the school of Architecture Urban Planning Construction Engineering, Lecco Campus of Politecnico of Milan (master program in Building and Architectural Engineering - BAE and Architectural-Engineering– EDA).

The first part of the paper presents a general learning framework of the Urban Design course and the corresponding methodological process of developing the urban master plan of the studio modules. The second part presents the "LeccoLAB" didactical path developed in the Lecco Campus. This section focuses on a set of urban design issues of Lecco Historical Urban Heritage and present some selected design proposals and corresponding

Keywords: Historic urban heritage, urban landscape, regeneration

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results developed by students during the course for the Academic Year 2016/2017. Students' work teams (27) applied the concepts, methods and techniques which are presented during the course to the Lecco waterfront urban systems and developed a proposal of the urban master plan aiming to regenerate the urban complex systems advantaging from the principles of "*Nature Based Solutions*" and "*Urban Resilience*". Final section of the paper presents four selected master plan proposals developed by the students and implanted through four approaches to integrate the urban regeneration of the historical landscapes and values of Lecco city.

HERITAGE AND CULTURAL VALUES AS OPPORTUNITIES FOR URBAN REGENERATION PROCESSES

Concept of Historic Urban Landscape [UNESCO, 2011] concerns identification, preservation and valorization of cultural heritage referred to urban area as a (historical) stratification of cultural and natural values (Bandarin at al. 2012; Bandarin at al. 2014). The Historic Urban Landscape solicits a more integrated polices and visions for urban design and urban regeneration strategies based on cultural heritage values. In these terms, the historic urban landscape approaches are coherent with the general renovation of cultural and heritage valorization issues as well as the European landscape convention (European landscape convention, 2000). The integration of historical urban heritage in urban polices requires an activation of synergies since the strategic vision identification from sectorial heritages conservation solution to an integrated management of living cities as cultural landscapes (including the integration among economic, social, environmental and cultural factors). In this terms the approach aims to reach the preservation and conservation goals of urban heritage through strategies oriented to achieve sustainable urban regenerations. Historic urban landscape approach identifies (in heritage and cultural values) a set of fundamental resources for regeneration and the conservation of heritages as key strategies for both (*i*) socio-economic development and (*ii*) strengthening of social and cultural identity (based on evocative role of historical heritage).

URBAN STRATEGIC DESIGN FOR HISTORİCAL CENTERS RENOVATION

Procedure of urban regeneration based on Historical Urban Heritage could be implied by integrated actions on both socio-economic and environmental spheres. Definition of the strategic vision is based on crosscutting approaches and on creativity capacities in finding resources in the characteristics of the local

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context which are linked to the dynamics concerning scales in time-space dimensions and in solving critical phenomena and local urgencies.

The lack of attractiveness and vitality in small historical nucleus is often a result of the low quality of public spaces, inefficient use of the building stock (buildings and structures are left unused as a result of the outsourcing of other urban activities and functions) and a missing strategic vision for the urban public life (both in terms of public spaces and public urban functions).

In addiction to the Historical Urban Heritage, some new themes are also emerging, such as environmental sustainability and the efficient use of natural resources; safety and adaptation to climate change; the renewal of relations with the local area and the rural and natural landscape; and the economic diversification that may find in the areas outside urban centers important resources for the development of territorial recognisability and new forms of rural life that can offer a range of integrated services for tourism and food distribution (Colucci, 2015). The core of strategic envisioning is the identification of potential areas for link-ups between these phenomena.

The criteria and principles which guide construction of the strategic vision including:

- Adoption of the new (or different) ways of looking to the Historical Urban Heritage issue, making it possible to find new interpretations and innovative solutions to local problems, new local alliances (a cooperative and comprehensive approach) and to think up “new landscapes” that enhance aspects of identity based on the Historical Heritage values and opportunities;
- flexibility and spatial modularity, both in interpreting phenomena and in constructing solutions where the strategic overviews need to not only grasp the opportunities offered by the dynamics and processes of the situation on a territory-wide scale, but also to have an effect on a micro-scale, enhancing local resources. In particular, historical values support the transition between “cultural identity” (based on historical culture) and “urban future scenarios”: the Urban Historical Heritage plays a crucial role in defining a continuity for the identity of communities;
- flexibility and modularity in the time-scale: the strategic vision in itself implies a long-term time-scale, but the solutions and implementation strategies need to allow for

different scenarios and time-scales for the implementation phase, and to be relatively independent;

- the valorization of Historical Urban Heritage implies a integrated design able to assign a crucial and strategic role to the "public life" and "public realm" (the Historical Heritage values are strategic resources in the regeneration and re-signification on public spaces identity and recognition);
- innovation in the processes that should be inclusive and should accompany the implementation and management phases of the solutions identified: stakeholders and local actors have to be engaged along the whole process of the design, implantation and management (the project is the process itself). Stakeholders should play an active role in the decision-making process in order to develop shared, feasible scenarios; at the same time, sharing solutions ensures an implicit (or even explicit) process of allocating responsibility to the different local parties, which guarantees greater feasibility of the implementation and management phase.

URBAN DESIGN LEARNING PROCESS

Providing Urban Design learning process was developed over ten academic years of experiences and applied to the Urban Design Studio modules and Urban Design courses at Lecco Campus of Politecnico of Milan (Architecture Urban Planning Construction Engineering School). The whole integrated learning process was applied to (*i*) Urban Design (UD) and the related Studio (Building and Architectural Engineering –BAE master course) and (*ii*) the Urban Design Studio (UDS) modules (the Italian five-year degree course of Architectural Engineering -EDA).

The learning process is characterized by integrated activities towards the concrete application of design principles, methodologies and techniques to real-life case studies projects development (Fig.1). Aims of Urban Design (UD) and Urban Design Studio (UDS) are: improving urban design skills (both analytical, critical and creativity); become familiar with key issues of the urban complex systems; learn integrated approach to urban design including the whole transformation process and governance; acquire a critical approach to urban issues and develop original urban vision and strategic proposal of Urban Master Plan; develop communication skills.

The UD/UDS approach is based on the integration between:

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- lectures on urban topics: the lectures will give main conceptual reframing and instruments to understand urban phenomena and develop critical skills supporting innovative and integrate solutions;
- lectures, seminars and applications on urban master plan design: the lectures will present the method and main theoretical references of phases of urban design process; the seminars will present the application and implementation of methods and good practices (projects, examples) (Urban Task Force, 1999);
- studio activities (Urban Master Plan): during the Studio sections, students develop an Urban Master Plan in the context of Lecco (integrated in the "LeccoLAB" didactical path).

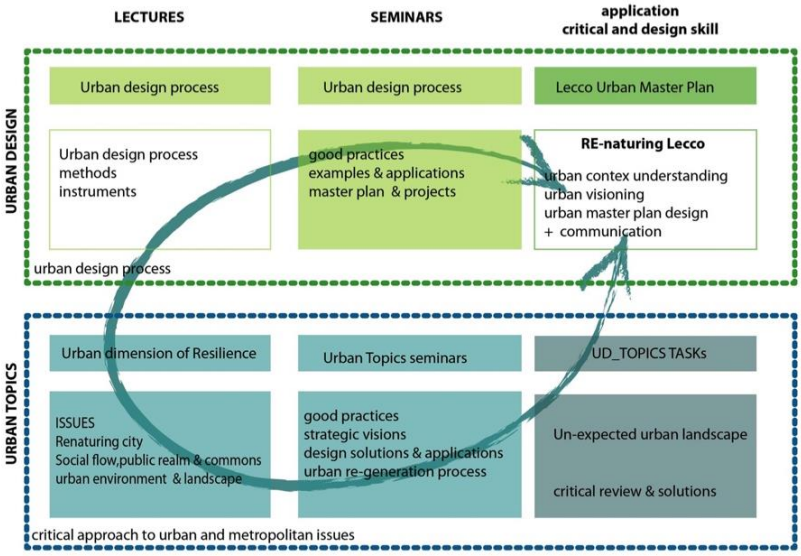

Figure 1: The learning process Flow (A.colucci)

The Urban Design course key issues for Academic Year 2016/17 were urban regeneration processes approached and based on principles of Urban Resilience, of Nature Based Solution and of Historical Urban Heritage. Key concepts that will be developed during all UD/UDS activities are: adaptive design (urban metabolism improvement, water management, productive landscape, climate change adaptation), integrated and creative solution for urban regeneration and visioning ("bio and social" diversity, social innovation, cultural and creative industries, facilities and etc.), public spaces and public life (commons, universal design, landscape and etc.) and cultural and urban heritage (e.g. cultural heritage valorization and conservation, urban cultural landscapes). Strategic urban visions have to be addressed towards urban resilience improvement integrating environmental, social, economical and governance spheres.

METHODOLOGICAL PROCESS OF URBAN DESIGN STUDIO

The Urban Design Studio didactical path for the Master Plan development is based on the Ecological Urban Design process as laid out in the Palazzo and Steiner (2012) textbook (Palazzo and Steiner, 2011; Palazzo, 2008; 2011). The NOOS process – an acronym which stands for "Not Only One Solution" (fig.2) – is proposed as "method" that has to be adapted to the urban master plan development.

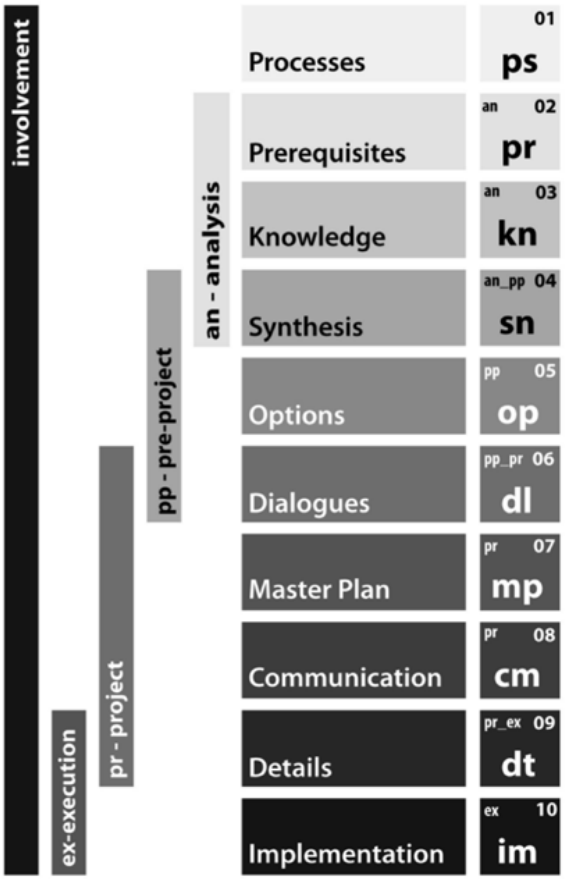

Figure 2: Not Only One Solution urban design process (adapted from Palazzo& Steiner, 2011)

The organization of lectures and seminars presenting concepts, techniques and good practices and application related to each steps of NOOS process is coordinated with the studio activities of urban master plan development (Madanipour,2006). During the UD Studio, students are asked to apply the concepts, methodologies and inputs derived by best practices and cases presented (including the Urban Design topics suggestions). The aim is to build a strong relationship and consistency, in term of didactical approach, between lectures (introducing the topics, problem, main disciplinary instruments and approaches), the seminars (presenting the application in case studies the instruments and concepts presented in the lectures) and the studio applying the concepts, instrument to the design process developed by students (Savage, 2005; Radović, 2004).

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During 2016/17 Academic Year, lectures, seminars and the tasks were focused on the Historic Urban Heritage. In particular, in preparation of the UN-expected landscape task (exploration of urban landscape through un-conventional methods) lectures and seminars presented the general topic of Historical Urban Heritage and its role in urban regeneration design and the role of cultural heritage values in recognizing (and describing) urban landscapes.

LeccoLAB AND THE URBAN MASTER PLAN

The LeccoLAB integrated learning process involves two Master Courses (EDA/BAE) offered in Lecco Campus of Politecnico of Milan. It was launched in the AY 2015/16 (Fig. 3). The didactical path involves several courses and different Academic Years developing urban visions and architectural, conservation and refurbishment projects for the city of Lecco.

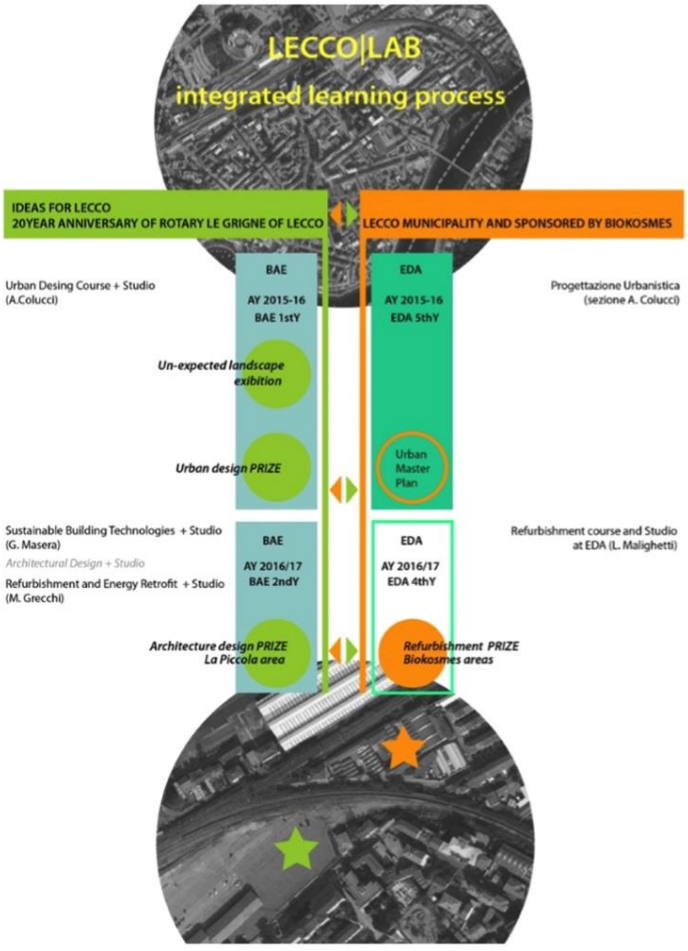

Figure 3: LeccoLAB 2015/16 | integrated learning process (A.Colucci)

The focus of the didactical path launched in Academic Year 2015/16 was the regeneration of a central area of Lecco which is including the Campus of Politecnico, as well. To this end, Urban dimension (Re-naturing Lecco) involved to the Urban Design

course and related Studio of BAE and the Urban design Studio Module of EDA (A. Colucci module).

In 2016/17 AY the process involved to the Refurbishment course and Studio at EDA (by L. Malighetti) and Refurbishment and Energy Retrofit and Studio (by M. Grecchi), Sustainable Building Technologies and Studio (by G. Masera) and Architectural Design at BAE. Design focus of Refurbishment courses was the refurbishment of Biokosmes dismissed industrial area and design focus of Sustainable Building Technologies was the area of "La Piccola". The LeccoLAB for Integrated Learning process was coordinated with Lecco municipality and sponsored by Rotary le Grigne of Lecco and Biokosmes Company (students' works exhibitions and student prizes).

In 2016/17 AY a renovated didactical path was launched focusing on the Lecco water front regeneration and involving the Conservation course (by Prof. Elisabetta Rosina). All the knowledge surveys developed in the previous academic years was shared as common basis for the students of Urban Design Studio to develop new surveys in order to improve and complete the existing knowledge and framework. In particular, a focus on historical and cultural heritage was developed aiming to the recognition of hidden historical landscape and the cultural identity of Lecco city.

The large scale includes the urban systems along the waterfront of Lecco from the Lecco historical center to the Pescarenico historical nucleus. For the development of concept and urban master plan, teams of students had the chance of selecting one (out of of three) proposed project-areas of: San Nicolò (in Lecco historical center), Viscontea Island (including a dismissed industrial area) and the Pescarenico historical center (see Fig. 4, Fig. 5).

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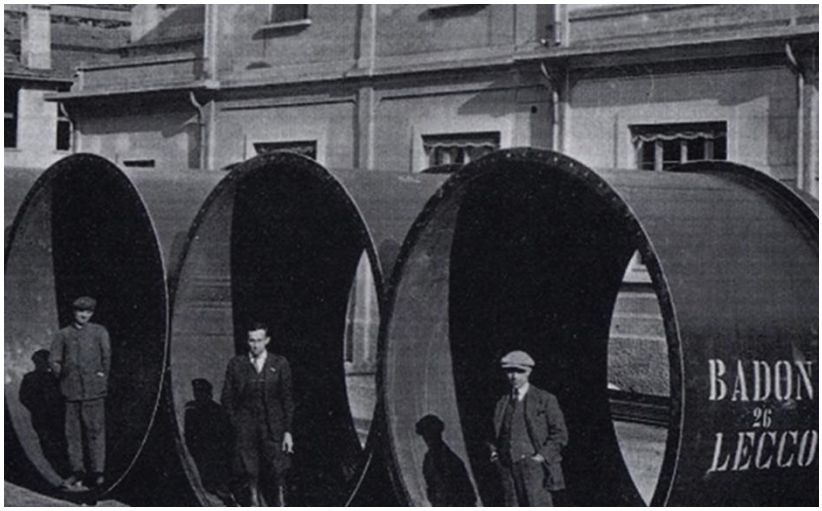

Figure 4: View of different historical landscapes: Front; Historical center of Lecco; Next page up; the Viscontea area and next page down; Pescarenico (Urban Design Studio students documentation).

The urban design process focuses on the regeneration process of the urban systems along the waterfront of Lecco. Students defined strategic visions and design solutions for the future development of Lecco based on creative, cultural and touristic industries

through nature based solutions and resilience principles implementation. The LeccoLab 2016/17 involved also the Lombardy Region which was interested in application of regional polices on touristic sector (and guidelines for touristic facilities) and of regional polices on creative industries (Regional Laws: LR 26/2015 on creative and cultural industries; LR 27/2015 on touristic activities).

The general "instances" and topics for urban strategic vision and the urban master plan were the improvement of touristic system, research and innovation functions, integrated public services connected to the educational sector (a sector of excellence in Lecco). The topic of Historical Urban Heritage plays a central and crosscutting role in terms of design solutions for the conservation and valorization of existing heritage. The mentioned attitude could be discussed in terms of fundamental resources for the improvement of integrated touristic and economic issues and in public space design (public urban landscape based on cultural identity; Carmona et al., 2012).

Figure 5: Three areas of design studio regeneration: Historical Center Lecco; Viscontea area; Pescarenico (Authors elaboration)

For the Academic Year 2016/17 the urban design studio modules (BAE and EDA) involves almost 140 students organized in 27 teams as well as two professors and five teaching assistants

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(Funda Atun, Anna Schellino, Livio Dell'Oro, Liliana Bonforte, Håkon Martin Rensaa, Maryam Ziyaee) and four junior tutors (students form past academic years who are supporting new students: Benida Kraja, Anna Kolmogorova, Eleonora Ravagli, Stefani Kostova).

LECCOLAB: THE HISTORICAL HERITAGE AS "FILE ROUGE" OF STUDIO PROPOSALS

This section summarizes some selected aspects of the outcomes from LeccoLAB Urban design studio. In general, the proposals mainly emerge from Urban Design Studio and focus on the regeneration of Lecco urban systems along the waterfront. We present here results and proposals in which the valorization of historical heritage of the city plays a strategic role in urban envisioning and design solutions.

Along the Lecco waterfront (large scale), three "project-areas" identified and characterized by their unique identities, as follow:

- Lecco historical Center: as long as this area has been used the port of Lecco was the most important one on the Lake of Como. This area is very active and always used by the boats along the waterfront sides; its development influenced the layout of the city, especially the arrangement of the waterfront. The own identity of the city could be recognized by the characteristic values of this area, which was linked to the lake and river freights. The XX Settembre is an old historical and symbolic center of the city and had been called the Market place until 1895. The current appearance of the square is a work by Giuseppe Bovara who designed a new perspective view of the square, delimiting it with an arcade of granite doric columns.
- Viscontea island is placed close to the old bridge of the city. The island is believed to have been appeared in the XV century when the rubbles deriving from the bridge. It has been initially used as a small defensive fort. Nowadays, the island is a private property with a residence and gardens, partly open to the public visitors. The area close to the island has lots of unused industrial buildings.
- Pescarenico used to be a fishermen village located on the side of Adda river, near Lecco center. The village was composed by narrow streets around the Era central plaza. Colored boats were moored along the Adda river, creating a very suggestive atmosphere. From the industrial period, Lecco spread chaotically between the

waterfront and the railway and Pescarenico was incorporated in the industrial urban tissue. The village kept its historic core but industrial buildings have been built around it, without taking care of the historical heritage.

During the knowledge step of the urban design process, specific analyses were developed on the Lecco context aiming to integrate knowledge already developed during the past academic years. All the teams shared information and material (seminar and files) in order to set-up a synthesis of the knowledge which is the first real design step. To this end, each team highlights positive and negative phenomena characterizing under studying urban context (assign priorities and values to neutral information and surveys). Below we provide a summary of the most relevant phenomena to the historical heritage topics and some information and critical aspect of the urban context, to be useful for understanding the selected strategic visions presented by the student.

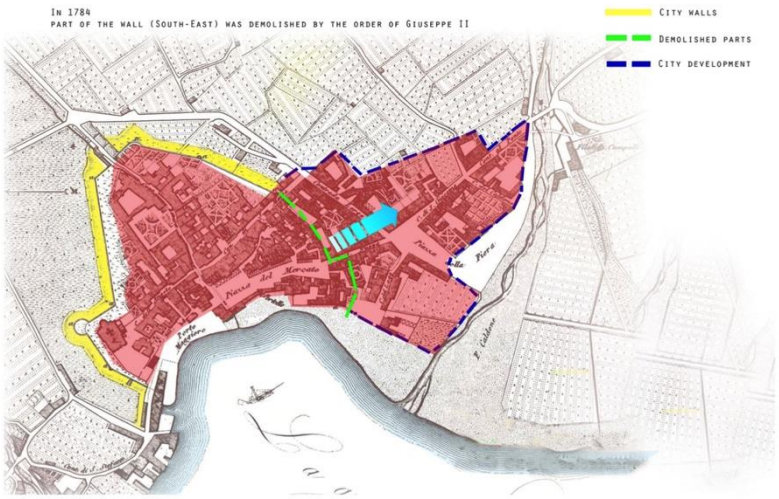

Figure 6: Old Map of Lecco showing the historical city expansion (Urban Design Studio students documentation, 2017)

Development of the city: Lecco is a mid-sized city located in northern Italy surrounded by the mountains and enclosed a lake. This geomorphology has determined an uneven urban expansion through the history. Most of districts and zones are shaped from such phenomenon, hence they are sometimes very well related together, and sometimes they are just disrupted (Fig.6).

From the historical point of view, the name "Lecco" appeared in a document dated back to 845 representing the plain between the Alps and the Adda river. The city started to gain its importance during the Bronze Age, but it reached a peak during the Middle Ages. During the XII century, walls and towers had been built near the expanding port to protect and defend it, but in 1296 Matteo I Visconti totally destroyed them. A few years later, Lecco was rebuilt by Azzone Visconti because he understood the importance

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of Lecco from the military and commercial points of view. In 1784, the Austrian emperor, Giuseppe II, visited Lecco and ordered the demolition of the walls and the fortifications. In this way, Lecco spread and turned into a city. Since second half of the XIX century, development and growth of Lecco has been always linked to the industry: the railway and the train station built, new factories for steel and iron processing were set up, new streets and bridges were constructed. When the crisis of the metallurgic industry began, all factories closed except the one of Arlenico. For several years Lecco was remaining in an intermediate phase between the demolition of those buildings and the idea of a new urban plan. Then, the image of Lecco quickly changed from the "city of iron": it started to provide a basis of commercial activities, but this aspect has never been satisfying by the city.

The evolution of the waterfront (Fig.7, Fig.8) is directly linked to the development of the city. A substantial aspect that has always been characterized the city is the commercial and handcrafted traditions, developed since the Middle Ages. This tradition is linked both to the iron factories and the open-space markets, an element that has been affected by the development of the port.

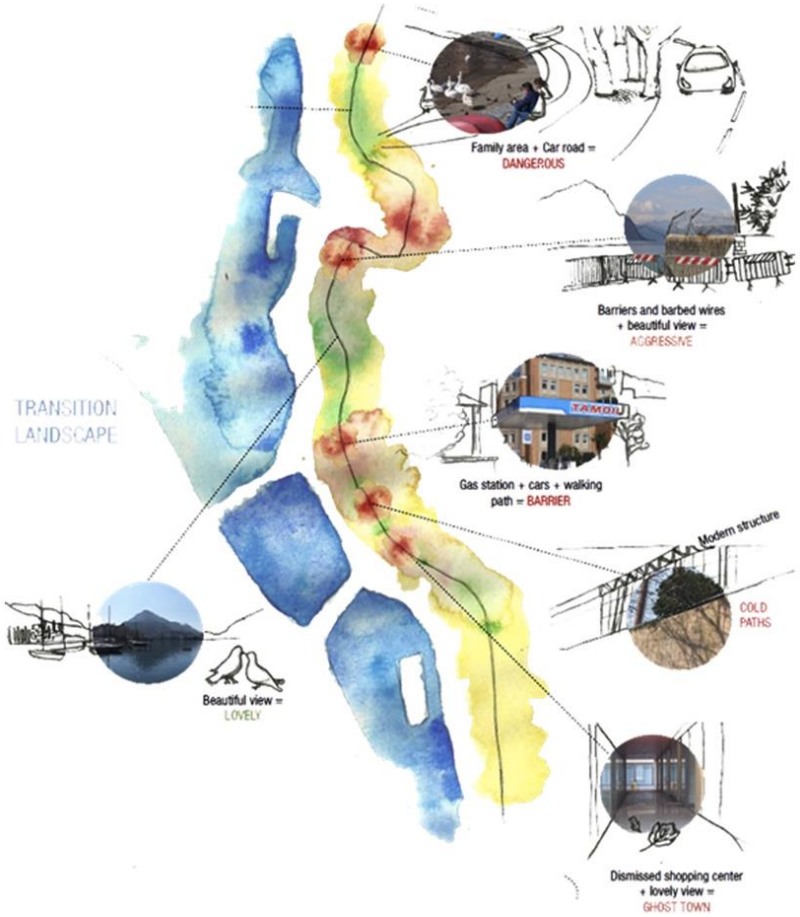

Figure 7: Sketch of the waterfront of Lecco (Urban Design Studio students documentation)

Today, the waterfront does not longer have a commercial function and is used as a leisure and touristic area. Along the waterfront some historical and cultural buildings are located that are valuable for tourism, the lakeside has been partly turned into a pedestrian path. However, the city does not take the advantages of such potentialities, adequately.

Urban industrial heritage: Apart from historical buildings, there exist a number of industrial buildings In Lecco that are now left unused or abandoned but have sufficient potential to be transformed as vital public spaces.

Interaction between lakeshore, city center and community: From the lakeshore, there are some mobility connections - most of them pedestrian kind - that provide very important designing opportunities; instead, visual connection is not well developed or in some points of the city is lacking. In the lakeshore, instead, we can find even some voids as public spaces that are left unused by the local community due to their odd position. They can be good starting points to develop a lakeshore system. In the area after Ponte Kennedy, it is possible to develop private boat transport instead of a public one. In Lecco, a public boat transport network is already present but it is mostly dedicated to the touristic services: few lines connect the Lecco's side of the lake to Bellagio or the Como's side.

Figure 8: Old vs New Lecco Lake Side: Historical values and Environmental values (Urban Design Studio students documentation)

Ecosystem and biodiversity: The lake during the years has created its own ecosystem, which is directly connected to the historical heritage of the city. Now, public green area is condensed just at the ends of the lakeshore (Santo Stefano and Bione). In those areas, we can find a good biodiversity of the greens that must be maintained.

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FOUR SELECTED STUDENTSAL PROPOSALS:

The criteria of selecting four student's projects are based on the consideration of the role of urban historical landscape in urban strategic vision of the developed Master Plan proposals. The selected Master Plans consider the issue of "Historical Urban Heritage" as the core inspiration (within different approaches) for their urban strategic vision. The four selected proposals took into consideration of the historical values of Lecco in their approaches of interpreting and adopting urban design projects, they also rely on some different approaches of integrating Urban Heritage issue for their solutions.

Hey! There is history. Sense of Memory

The first project was developed by Fabio Angeloni, Claudio Avila, Riccardo Meroni and Andrea Sala and shows how interventions can delicately change the perspective of the old parts of the city.

Figure 9: Hey! There is history. Sense of Memory. Masterplan (students elaboration)

Figure 10: Hey! There is history. Sense of Memory. Render of "Piazza Cerminata" revitalisation proposal (students elaboration)

The proposed itinerary reinterprets the connection of Pescarenico with water. It is not only an exercise of historical memory, but also a common reflection of how, now days, a city can interpret itself and its own spaces. From there we provide a vision that valorizes the attractiveness of the heritage (see Fig. 11). Particularly, analysis show that valorization of tourism is connected with "Manzonian Iteneraries", handcraft and fisherman tradition and will bring new touristic accommodations and services (Fig. 9, 10, 11 and 12).

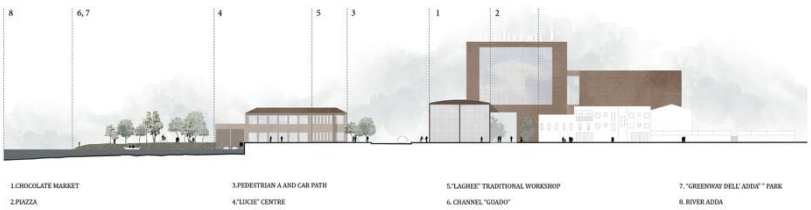

Figure 11: Section of the Chocolate Fabric

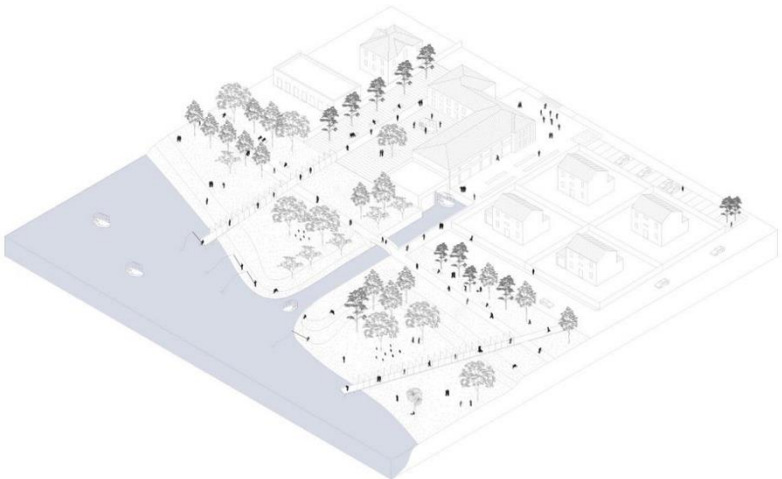

Figure 12: 3d View of the boat tradition area

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The lake as a characteristic element of the city, regains its own natural spaces, in practical forms and suggestive. On one hand, in some parts of the city center the lake takes the color of water through one passage, and on the other hand, there is another point where the lake enters the city.

From the historical analysis, it is noticed that water, in the past, has been crossing the frontier of Via Guado, from which it takes the name. Thanks to these interventions, it's possible to read the waterfront as a key point to connect present to the past.

In the first place there are identified some areas of interventions, like the reuse of the Chocolate Factory, now dismissed, into a diverse fabricate building with functions interacting with another one. The landmark of the building is kept as a historical footprint of the area. Here we can find functions as the chocolate market, the exhibition space "The Fabric of Culture Alesandro Manzoni", a studental residence and at the end a workshop space "The Fabric of Ideas".

In order to have an impact on tourism near the lake, this project proposes the structure of a diffuse hotel, which will be spread around all the old part of Pescarenico. Also, a health organization is proposed in a coordination center near the parking area (outside the historical center). Pedestrian paths are recovered around the whole area in order to valorize the history, tradition and connections with the other parts of the city.

The path that connects The Church of Pescaranico with river Adda, is colored with blue and one can find traces of fragments from historical photos and illustrations of old Pescarenico available in the book "Promessi Sposi". The handcraft tradition "Laghee" and of the lake boats "Lucie", typical of the branch of Lecco Lake, is brought to life again. The building is connected to the water with a channel, from where the boats will enter.

Along the thread of the tale

The second project focuses on the narrative features of different images that the city has been obtained through the time, and show how the city can adopt and develop into a sustainable future (the proposal was developed by Colombi Giacomo, Dall'anese Gabriele, My Phung Le Diem, Manikyam Sai Mahendra Subba Raju, Raynal Thomas, Vanhille Melvin, Luo Zidan). To drive the process of design, this group of students settled three main goals:

- Thinking of the connection notion, the waterfront is an element that not only links the city with the lake, but also connects people to the city. So, the waterfront can be used

at its potential, also to solve the problems of physical and social discontinuity in some critical points.

- To strengthen this function, the green system needs to be improved, unifying all the related areas with a structured plan, and adding green places inside the city to create more recreation and relaxing areas: valorize the environment to create a more suggestive green city.
- The combination of these elements has a great potential to make a general image for the city which finally leads to shape the symbolic characteristic values. This element has an important role in the project, because in Lecco, each part of the city has a proper history, a proper tale to tell and this needs a narrator.

The conclusion of this proposal is the vision of the project, which looks like the index of a book. A book that as the "Promessi Sposi" does speak about Lecco and the fragmented history of its parts and create the identity of the city structured in the centuries.

The waterfront acts as the thread, the "fil rouge", of the story of Lecco towards different areas where design of new patterns is focused. These different areas could play as parts of the different chapters of Lecco regarding its functions (Fig. 13).

1 DISTRICT = 1 DESIGN = 1 MATERIAL = 1 COLOR = 1 MAIN FUNCTION

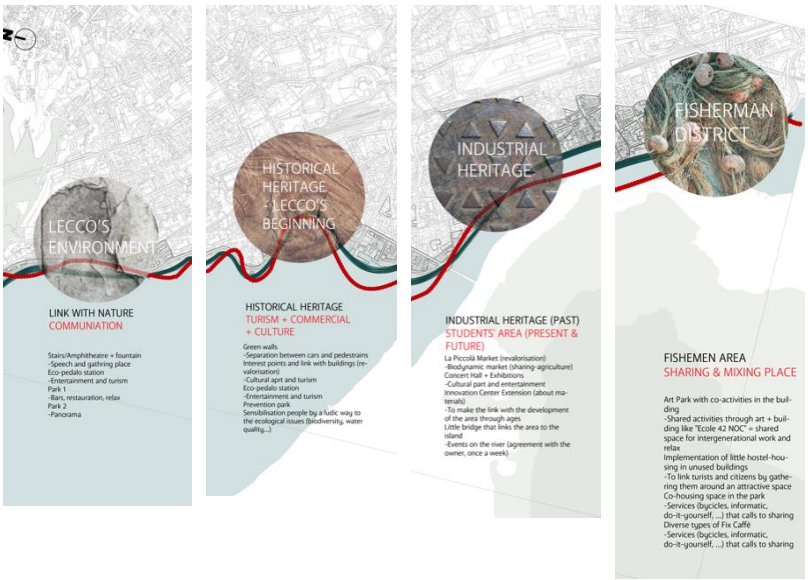

Figure 13: the four Districts along the Lecco waterfront showing and valorizing the different historical landscapes. The 1st, 2dn, 3rd and 4th Districts (students elaboration)

1ST District: Lecco's Environment. The main function is to emphasize the cultural link of Lecco towards the nature, because what predominates all along the Lungolago, is the metal element

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mixed with the stone from the mountain. The main functions would be described as:

- The Amphitheatre: to gather people on great stairs made of mountain rock to assist public speeches or cultural events, and also to develop a panorama on the lake that links people to the natural environment of the waterfront (water element and mountains).
- The Eco– Pedalos: to create a flux between different districts on the water, by thinking of a self-sustainable system (water element and mountains).
- The Green-Walls: to reduce the noise from the roads bred by cars towards the pedestrian path along the waterfront, but by building the walls-made of plants to absorb sounds and smell waves – non continuous so that it does not disrupt the view from the internal part towards the lake.
- Prevention area: to sensibilize people.
- The material that is dedicated to this one is the mountain stone and its specific color grey.

2nd District: Historical Heritage –Lecco's Beginnings. The main function is to emphasize the cultural and commercial aspect of Lecco towards the history from which it takes its spirit.

The main functions are suggested to dedicating to:

- The Info-Points: many Info-Points according to the principle of "le Parcours de la Chouette" are set up in the part of the waterfront because of its abundance regarding the historical part (fortifications, exchange places, etc.)
- The refurbishment of the visibility of the Visconti Tower

The material dedicated to this one is the wood (according to the idea of the former fortifications) and its specific color is light wood brown.

3rd District: Industrial Heritage. The main function is to emphasize the innovation potentiality of the area according to its industrial past. functions which are useful for citizens and the city.

The main functions for this area are suggested as below:

- Exhibitions
- Places for associations
- Open space fitness exercises
- Open air places for working activities

In these places people can spend time, create and develop their activities which lead to improve the quality of the city. The most important part is the reuse of the old industrial buildings, which

recall the industrial past of Lecco, called “The city of iron”. The material that is dedicated to this district is steel and its specific color of rust brown

4th District: Fishermen District. The main function is to emphasize the sharing purpose of the area according to its historical past: the fishermen village, in which people lived in a quite closed community and where commercial activities were important.

The main functions could be described as:

- Spot based on art, sharing and multi-functionality, opened to everybody
- Diffused hostel that use the abandoned buildings like rooms-to-rent.
- The Eco-Pedalos: to create a flux between different districts on the water, by thinking of a self-sustainable system (cycling movement producing electricity) and which enables visitors to discover this place that is less easily accessible than the others.

The material that is dedicated to this one is the net-fish (according to the former tools that the fishermen were using) and its specific color is light wood blue.

LecCommunities

The project is very important for the use of historical pattern and cultural landscape/ memorial identity that characterizes the design solutions (Fig. 14, 15 and 16). LecCommunities proposal was developed by Caldarelli Alice, Corti Eleonora, Eskandar Kiroles, Marchi Rachele and Paracchini Lisa.

Figure 14: LecComunities: image of the Viscontea Island (students elaboration)

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Patterns and Text. "The language was created by people in order to understand each other, not for misunderstandings between us." Starting from this phrase from Alessandro Manzoni, students choose to use text and patterns throughout the paths of the project in order to increase the quality of connectivity. The first ones represent a more traditional tool of aggregation between community, and at the same time, they give possibility to generate words and dialogue between people. Translating in different languages the typical phrases of the Manzonian literature, it would be easier for tourists to understand Lecco's culture.

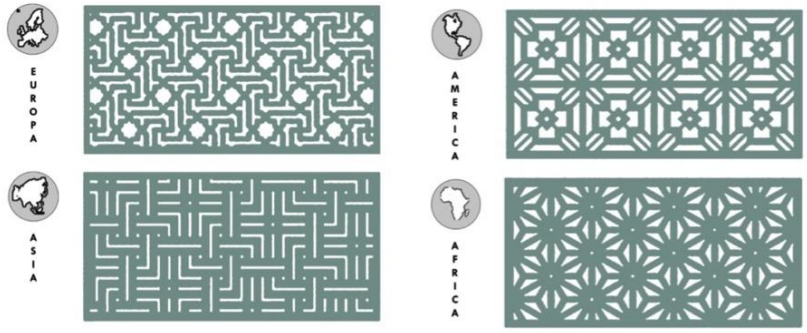

Figure 15: LecComunities: patterns from the continents (students elaboration)

The texture, on the other hand, represents gathering of more original and modern elements. These elements allow us to develop a dialogue not only between people together, but also between people and landscape. They are designed during the paths and inside the observation areas in the project, like a filter between the visitor and the fluvial landscape.

Pavimentation. The floor which designs the whole cultural path of LecCommunities, is a gathering of geometrical patterns that repeat themselves in a rhythmic way. The chosen tiles represent the four continents which most of the foreigners from Lecco come from: Europe, Asia, America and Africa. The decision to realize this idea came from a general objective that intends to bring together the union of the communities which live in the city.

The most visible pattern on the floor is that of the "Lecco path". This one was designed after a detailed analysis of the typical flooring of Lecco and Pescarenico, including also the historical buildings, the fresques and the decorations or the architectonic elements of the buildings. The references that gave life to the Lecco's patterns, offer a simple and geometric design. These are the typical flooring of Pescarenico, the Mantovana of Viscontea Island and the decorations of some villas of the area.

Figure 16: LecComunities: patterns from the facades (students elaboration)

LecConnection

The project focuses on the valorization of the hidden historical heritage, through emphasizing touristic paths and traditions. LecConection represents exactly the vision of this group (composed by Bestetti Francesco, Brambilla Roberto, Fassi Andrea, Maino Marco and Mattiolo Giorgio Marco), or better said the valorization of the historical center of Lecco, through a path sewing all the most important elements already present in the area. The connection becomes more real through a texture on the floor in order to distinguish: a thread that weaves an inconspicuous texture canvas. Unused Industrial buildings are presented in the area and it is from the ones that the revitalization of historical importance starts (Fig. 17).

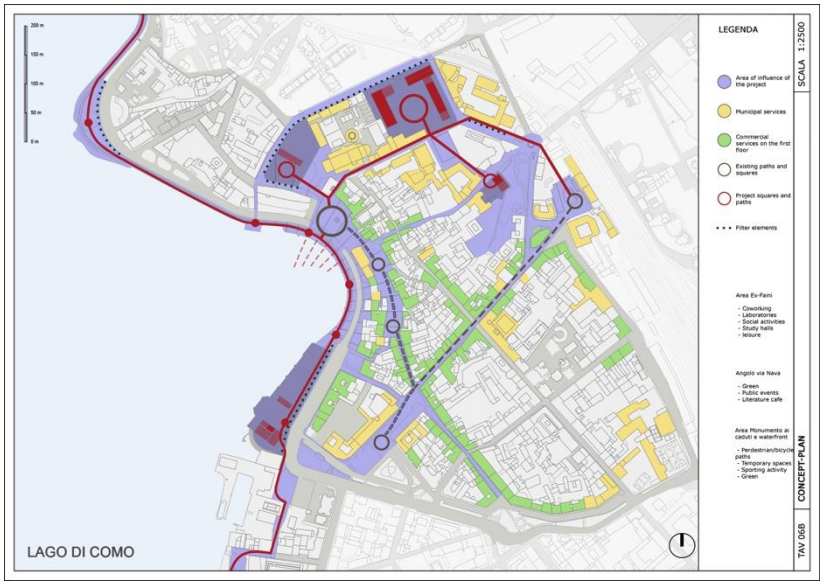

Figure 17: LecConection Concept Map (students elaboration)

Interventions are made in different scales, from the reuse of the ex-industrial area to the punctual elements through where the sewing of the urban pattern is made. The tendency of the city to welcome slow mobility, created the idea of connecting the train station through a path full of opportunities. In order to achieve this a bicycle path is proposed to connect all the internal parts of the old city center. At the same time, it is proposed to extend the

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limit of the controlled traffic, which is already present in the center.

In the area of the old walls, the projects includes a thematic path that accompanies the visitors in the learning process of the history of Lecco. Importance of this area is from presence of the library, which makes it more interesting from the cultural-social point of view.

For the ex-industrial area it is proposed to revitalize the green areas and design spaces for start up and research companies. What the project wants to achieve is the reference of an innovative city in the fields of boating and building materials, where the city can become a point of international reference.

The two main historical squares are proposed to have a light intervention, which includes unifying the pavimentations and managing the parking problem, in order to leave more space for the bicycle paths and different seasonal activities in the piazzas.

CONCLUSIONS

Common issues and complex challenges characterize the historical center and historical heritage of small town similar to Lecco: industrialization and urbanization process since last century often produced a fragmentation (and some time a physical substitution) of medieval and historical heritage. The students' proposals are demonstrating as the valorization of hidden historical landscape, in different scales of interventions, is fundamental resources in changing the image of the city and in defining renovated new cultural identity.

The paper underline how the integrated learning process presented can support the development of investigation and diagnostic framework able to develop complex proposal for urban regeneration during the urban design studio modules.

A suit of selected four proposals presented to highlight how strategic is the integration of Historical Urban Heritage in the regeneration and urban envisioning process. The historical and cultural heritage are fundamental values supporting long terms visions for the renovation of the Lecco city which are central resources for new urban function and economic innovation.

Based on the Urban Design Studio general didactical path and on the four Urban Master Plan, proposals developed by students, present emerge of the historical urban heritage and can play different roles in urban regeneration strategic visioning: the role of "memories" (as "romantic" approach) on which new strategies

for urban renovation can be based; the role of narrative identities in building a new structure of urban landscapes (giving different identities of urban landscapes and, at the same time, the recognizability); the role of social and cultural identity supporting vision based on social innovation, creative industries (the role of historical and cultural heritage is a fundamental resource in the process of urban social inclusion of different cultures); the role of "connection" supporting urban vision linking the cultural and traditional heritage and innovations and creative scenarios.

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Resume

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Research Article

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Agglomerations, Human and Social Capital: The case of Manufacturing Industry in Konya-Turkey

Özer Karakayacı*

Abstract

Over the last three decades, new planning paradigms have exploded the factors depending on socio-cultural characteristics of space, in contrary to regional science. These paradigms argue the strategy for economic, social development and growth of regions instead of traditional theories which focus on spatial analysis as distance, transportation cost, labour cost. Economic development has not been considered independently from space by these theories and it was emphasized importance of economic actors, institutional and economic infrastructure as well as geographic features for economic performance of a region. Space contributes to increase not only skilled workforce, knowledge spillover and distribution but also social relations and interaction. In other words, the social-cultural and humanity factors relating with geography are major factors affecting on the development and also growing of economic activities. Industrialization as engine of regional development has been benefiting from the advantages offered by spatial features, clustering of economic activities. In this context, clustering of economic activities has been one of the new areas of interest in economic geography. Therefore, it can be said that human-social-spatial resources within a region has had a major role in developing by essays of the new economic geography.

Keywords: *Agglomeration, Human Capital, Social Capital, Manufacturing Industry, Konya-Turkey.*

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The aim of this paper is to determine the effects of human and social capital in agglomerations of economic activities in case of Konya-Turkey. In this study, the agglomeration tendencies for manufacturing industry in Konya, which have major potentials in terms of human and social capital, are analyzed comparatively depending on survey and secondary resources with using statistical. In this paper, it is answered a question: how can human and social capital bring about geographic concentration in a region?

In this framework, the paper is composed of four chapters. At first, it is involved theoretical background also conceptual explaining about terminology such as agglomeration/clustering, human and social capital. Second, it is called methodological chapter that it involves the determination of variables, explanation analytic methods and techniques, and also giving information relating with the development of Konya manufacturing industry. Third, it is evaluated data getting from analyses and methods techniques. And last, it presents results and evaluations relating with the study findings.

INTRODUCTION

One of the most important subjects concentrated by regional economies is to explore the reasons about the concentration of economic activities in a certain space. The reasons of concentration of economic activities have currently argued with different institutional approaches. It, normally, is claimed that technical and human factors such as taking part in common a space, access to common infrastructure, specialized work-force, and information sharing based on spatial proximity provide positive externalities. Over the last three decades, theoretical discussions are try to explain on local relationships and networks such as cooperation, mutual dependence, institutions arising in certain a space to the accumulation process of economic activities (Marshall, 1920; Porter, 1990; Schmitz, 1999).

Theoretical approaches such as economic geography and endogenous growth theory, which explain the agglomeration of economic activities on local relations and networks, have examined the effects of technology and information, spatial embedding and socio-cultural factors on agglomeration process as spatially (Clercq & Dakhli, 2003; Parts, 2003). Approaches based on economic geography explain the success of economic activities on the importance of social relationship, social networks and trust related to business culture on the further side of benefits of being in a common geography. Indeed, the transition of the advantages of agglomeration in certain a space to competitive environment based on common learning and synergy is possible with strong local specialization, mutual trust and social networks. When economic geography explains this complex relation on

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social capital, individual priorities of actors as a part of this relation are explained by human capital.

The role of human and social capital on agglomeration tendencies, therefore, is to be one of the important subjects in economic geography and regional planning literature. From this point of view, it is came out in the wash that inferences of production factors such as physical capital and labour, capital, natural resources, which have focused by traditional approaches, for agglomeration process are inadequate. It is seen that new theoretical approaches have tried to explain the whole of reasons lying behind agglomeration process with human and social capital. The most important difference between these conceptual approaches is that social capital focuses on group features and effects when human capital focuses on individual features. In addition, let's face it that social capital has the role triggering human capital (Edwards & Foley, 1999; Putnam, 1993). In other words, it is the fact that these advantages will affect more quickly the transfer to individuals for the development of actors since the knowledge, skills and learning capacities of communities being high social capital potential will be high.

Being defined as the formal, informal, and institutional networks as a whole which determine the quality and continuity of social relationships based on trust among groups (Karakayacı, 2011), social capital affects individual's social, education, information skills, and ability substantially (OECD, 1998). Therefore, there is an idea that social capital is a factor that enriches the human capital productivity (Karagul & Akcay, 2002).

Human capital, as a whole of individual features, is defined as positive values such as information, skill, experience and talent possessed oneself of actors. The values cause to find new technologies and use these technologies affectively, so it contributes to increase the economic growth and to develop country's economy rapidly (Eser & Gokmen, 2009). According to OECD (1998), human capital is defined as a whole of abilities which provides individual and social development, facilitating increased economic prosperity and belonging to workforce such as information and ability.

Together with no accepted definition of social capital in literature, it is accepted as a factor that increases the effectiveness of the capital types such as economic, human, financial, and environmental capital. Putnam (1993) defines the social capital as features which increase the society's effectiveness such as trust, norms and networks of social organization structure.

The effect of social capital on agglomeration process of economic activities firstly come up with the studies of different disciplines such as geographers, sociologists, and economists in the early 20th century. Especially, the studies of sociologist Coleman (1988) and political scientist Putnam (1993) were to be key factor for increasing the interest on social capital in agglomeration of economic activities. In the studies made in different areas, a single definition of social capital has not be admired, researchers have approached and interpreted to social capital differently (Devine & Roberts, 2003; Sabatini, 2005).

Putnam (1993) categorized the social capital in two different ways: bonding social capital and bridging social capital. Putnam (1993); (Putnam, 2000) defines that bonding social capital is linkages among people in similar conditions that are family, close friend, and neighbours; bridging social capital is linkages among more distant relationships that are lost friendships and colleagues, for clearer perception of social capital. In addition, Woolcock (1998); (Woolcock, 2002) defined the third dimension of social capital that includes hierarchical relationship networks among actors in terms of social and economic perception. Linking social capital defined by Woolcock provides that people can get information from people outside their own circle about source, information and idea. According to Woolcock (1998); (Woolcock, 2002), when there is a horizontal network in bridging social capital, it is mentioned vertical network in linking social capital (Field, 2006; Woolcock, 1998, 2002).

Social capital has an important role to occur required ways for acting economic activities and actors jointly and to gain competitive power of economic units. Social capital determines social networks, cultural arrangements and political structure among actors. However, trust should play developer role on networks to arrange these relationships. In spite social capital provides many benefits for economic activities in terms of competition power, production facilities, marketing opportunities and labour advantages, if trust level does not occur among actors, economic activities will not be at a stand in common geography. If there is no trust, social capital will not develop or successful social networks will not be set up.

In many studies, it has been assigned that there is a linear relationship between economic growth and social capital (Karagul & Akcay, 2002). The level of trust has an important role to prevent waste (Grootaert & Bastelaer, 2002) and to decrease transaction costs used by production process (Fukuyama, 1995). In addition, high level social capital has an important role on

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regional development strategies (Woodhouse, 2006). Because high level trust facilitates economic development in determining common goals about future among the community.

Thus, human capital is required to be effectively able to benefit from social capital. Human capital, evaluated as information and ability level of employee, and social capital are two different structures that complement each other since if social capital does not become and social responsibility does not develop, human capital could be used against individual interest instead of favour of social interests. Efficiency conditions of human capital and social capital, thus, should be analyzed well (Coleman, 1988).

METHODOLOGY

The studies about urban and regional economy have focused on why economic activities are concentrated by specific areas. Discussions on the shaping process of space has gained speed with agglomeration economies defined as positive externalities occurred economic activities in specific geography by Alfred Marshall. Marshall (1920) thinks that benefit from specialized labour facilities, common infrastructure possibilities, and easy access to information and advantages of different economic facilities are basic causes of agglomeration in specific geographic area. In addition, it is seen that abstract elements such as local specialization, innovative environment, joint learning, social relationships and mutual trust have a decisive effect on agglomeration process. Especially, approaches such as social networks, trust and social capital that are tried to explain in terms of "clustering" over the last three decades debate agglomeration process of economic facilities on basic determinants such as cooperation, deep relationships, multifactor and innovation (Belussi, 2006).

The main purpose of this study is to determine whether human and social capital have a role in agglomeration tendencies in specific area of manufacturing industry activities to be spatial or not. This study has been made as comparative in the sample of manufacturing industry firms in Konya which is one of the important centre in terms of manufacturing industry production and employment in Turkey. Konya was an important centres in terms of commercial and manufacturing industry from Ottoman State to the fall of Ottoman State (1299-1923). In Konya, small-sized production rise with the development of rail road in the 19th century. Hence the existence of 2078 small entrepreneurs is mentioned in 1890s. Gunpowder mill developed in 17th century and first firm of gunpowder mill is located in Konya. Central

[1] It is one of the important centers of Turkey in terms of agricultural potential because agricultural area is smooth and efficient. Konya supplies to 48% of sugar beet production, 16% of wheat production, and 67% of carrot production and also provides approximately 15% of animal production in Turkey. So Konya region is defined as 'granary' of Turkey.

Government has supported small entrepreneurs with industrialization process and establishment of Republic in Konya. 25% of Turkish small entrepreneurs were located in Konya in 1920s. In addition, agricultural production was important potential for Konya and it developed agriculture-based food industry essentially[1]. Manufacturing of agricultural machinery was parallel with acceleration of agricultural mechanization and the development of the first organized industry zone in Konya in 1960s. In addition to gaining dynamism from 1960 to 1980, Konya has continued its traditional agricultural features and the migration from city to metropolis have also continued. In region, there was a boom and many subordinate firms increased in 1965. According to the national plans, there was a tendency to build industrial districts. 34 small industrial sites and 2 organized industrial districts were developed between 1975 and 1990. The number of firms increased between 1960 and 1980, and the firms were in the metallic goods, machine and transportation vehicle production sectors.

In this study, it has been analyzed the relations between the potentials of human and social capital of the region and the agglomeration potential of sub-sectors of the manufacturing industry in Konya. The data were obtained via face to face survey by the manufacturing industry firms in Konya and secondary statistical data. As mentioned in table 1, there are three variables in this study. Numerical data on human and social capital indicators were obtained via face to face survey with 152 manufacturers and the level of geographical concentration is calculated from secondary data received by TURKSTAT.

The firstly, the sub-sectors of manufacturing industry were considered at level of NACE 2.2, and location quotient (LQ) level was calculated in specific to the number of employees in each sub-sector according to TURKSTAT data. Secondly, it was defined human capital indicators for firms and region. The concept of human capital includes knowledge, skill and other qualities of actors, briefly all qualities that a person can execute productively (OECD, 1998). The human capital raised by Schultz (1961) is board concept included human characteristics being gained depends on increasing income. The variables which refer to firm knowledge, skill and qualifications such as firm size and age, entrepreneurial experience and occupation, educational status, research and development opportunities were components of human capital for firms. Apart from these variables, the human capital for the region was investigated by 5 different variables such as the employment structure, historical background, knowledge and information background, skills and qualifications

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of employees or managers, potential of physical or technology which reveal knowledge infrastructure, skill and abilities, production wealth.

Thirdly, it was defined social capital indicators for firms. Putnam (1993) stated that the concept of social capital means increasing qualities of the productivity of the society and economic actors. These qualities provide to reach common goals by moving together as more effectively (Putnam, 1995). Social capital comprises relations systems between actors (Putnam, 1993). When considered from this perspective; including reliable relations, a culture based on cooperation and institutional structure of social capital have revealed evaluations of variables such as trust, actor network structure and institutional structure (Edwards & Foley, 1999). In this study, "trust and friends and acquaintances variables" revealed to the quality of relations between actors, "ethnic and religious structure variables" and "various club, groups, institutions and voluntary organization variables" determined the background in institutional relations, "intermediary agents and financial actors variables" regulated trade relations were accepted as social capital variables.

After obtaining the data, the human capital potentials of the firms were reduced to two variables by using factor analysis method. As a result of this analysis, the variables set was regulated according to factor 1 and factor 2. The possible effects of the human and social capital potential on agglomeration trends of firms with factor 1 and factor 2 were analysed as a statistically. The human and social variables of the region consisted of raw data obtained and used as independent variable in model. LQ values of sub-sectors of manufacturing industry in Konya were accepted as dependent variable. The Location Quotient value of sub-sectors of manufacturing industry in Konya and the number of firms interviewed in the context of sub-sectors were given in table 3. Accordingly, if LQ value is less than 1, the sub-sectors are defined as firms being low agglomeration tendency; if LQ value is more than 1, the sub-sectors are defined as firms being high agglomeration tendency. Finally, it was used logistic regression as a statistical analysis for between agglomeration tendencies and social and human capital in case of Konya.

Table1. Codes, Definition, Qualification and Type of Variables

Vari.	Codes of Variables	Questions for the Variables	Qualification of the Data	Type of the Data
Human Capital Variables for firms	FirmSize	How many people work in your firm?	1 small-scale firms 2 medium-scale firms 3 large-scale firms	Code
	FirmAge	When did your firm establish?	Year	Number
	EduBack	What is your educational background?	1 not to be literate 2 to be literate 3 primary school 4 high school 5 university graduate	Code
	Experience	How many years have you experience in this occupation?	Year	Number
	Profession	What is your profession or job?	1 Farmer 2 Tradesmen 3 Worker 4 civil servant 5 Educationist 6 Apprentice 7 Master 8 Technician 9 Engineering	Code
	R&D	What is the proportion of expenditure of your firms for research and development within total expenditure?	Per cent	Number
	SkillLabor	How many engineering or skilled people work in your firm?	Number	Number
Human Capital Variables for Region	EmpBackg.	In the decision to produce in this region, to what extent are influence division of labour, specialization the employment structure of the firms in Konya?	Five Point Likert	Code
	HistBackg.	In the decision to produce in this region, to what extent is influence the firms' historical background in Konya?	Five Point Likert	Code
	InfoBackg.	In the decision to produce in this region, to what extent is influence knowledge and information background in Konya?	Five Point Likert	Code
	SkillBackg.	In the decision to produce in this region, to what extent is influence skills and qualifications of employees or managers in Konya?	Five Point Likert	Code
	PhysBackg.	In the decision to produce in this region, to what extent is influence potential of physical or technology (machinery and equipment, opportunities) in Konya?	Five Point Likert	Code
Social Capital Variables for Firms	Friend	In the decision to produce in this region, How important is friends and acquaintances?	Five Point Likert	Code
	Colleague	In the decision to produce in this region, is the fact that your colleagues are in this region or close the actors to carry out similar activity a factor?	Five Point Likert	Code
	Memorg	In the decision to produce in this region, How important is membership in various club, groups, institutions and voluntary organization?	Five Point Likert	Code
	Memeth	In the decision to produce in this region, to what extent do you agree that you desire to be close to various ethnic and religious foundations?	Five Point Likert	Code
	Interagent	In the decision to produce in this region, how important is to be close to intermediary agents and financial actors?	Five Point Likert	Code
	Trust	In the decision to produce in this region, How important is the reputation to the actors such as collaborative actors, colleagues, supplier and subcontracting firms?	Five Point Likert	Code
Spatial Agg.	LQ	According to sub-sectors, it is levels of geographical accumulation of manufacturing industry in Konya.	Index	Code

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FINDINGS

Firstly, human capital variable of firms are came down to 3 factors by factor analysis. Factor percentages obtained by factor analyses actualized in the ratio of 29,612% for factor 1, %25,846 for factor 2 and %14,998 for factor 3 (table 2). Accordingly, factor 1 and factor 2 have a representation level of %55,458 of human capital variables. The potential of firm's human capital evaluated on factor 1 and factor 2, because of that factor 3 is related to only one variable and the cumulative variance value of factor 1-2 is above 50%. Factor 1 includes variables such as firm's size, entrepreneur's education level, firm's research and development opportunities and qualified labour; factor 2 includes variables such as firm's age and experience. Therefore, factor 1 was defined as cognitive factors and factor 2 was defined as scaled factors.

In other words, firm' human capital variables were defined on 2 variables that are size-based factors and cognitive-based factors. Firms getting into the act in manufacturing industry in Konya, therefore, are evaluated according to size-based factors in the ratio of %25,846, and cognitive-based factors in the ratio of %29,612 in terms of human capital potential (table 2). As a result of the analyses, when human capital potential for 68 firms are be explained by size-based factors, cognitive-based factor are dominant in 84 firms. In this stage, human capital potential of firms depending on size-based factors and human capital potential of firms depending on cognitive-based factors find a chance to be analysed separately. Therefore, survey data were separated two groups as size-based and cognitive-based factors.

In parallel, LQ analyses were made to determine the agglomeration levels of Konya manufacturing industry sub-sectors. As a result of the analyses made by employee numbers in 21 sub-sectors in Nace 2.2 level, firms that have LQ level below to 1 were approved as firms which do not have agglomeration tendency. Accordingly, when there is an agglomeration tendency in 7 sub-sectors, there is not an agglomeration tendency in 14 sub-sectors in manufacturing industry of Konya. 64 surveys were realized with firms which have agglomeration tendency and 88 surveys were realized with firms which do not have agglomeration tendency. The number of firms interviewed in the context of sectors and sub-sectors which have agglomeration tendency and do not have agglomeration tendency are given in Table 3.

Table 2. Total Variance and Component Score Coefficient Matrix according to Factor Analysis

Component	Extraction Sums of Squared Loadings			Component Score Coefficient Matrix						
	Total	% of Variance	Cumulative %	FirmSize	EduBack	R&D	SkillLabor	FirmAge	Experience	Profession
1	2,162	29,612	29,612	,395	,423	,395	,302	,005	,004	,141
2	1,887	25,846	55,458	,032	,068	-,065	-,071	,578	,568	,004
3	1,095	14,998	70,456	,340	-,142	-,350	-,157	-,054	-,013	,792
4	0,680	9,314								
5	0,579	7,930								
6	0,468	6,410								
7	0,430	5,890								
Extraction Method: Principal Component Analysis.										

Table 3. Konya Manufacturing Industry Indicators and Location Quotient

NACE 2.2. Code	Employee Num.		LQ	LQ Code	The Number of Firms Surveyed
	Konya	Turkey	Konya		
Manufacture of food products and beverages	8408	281537	1,470	1	11
Manufacture of tobacco products	0	8772	0,000	0	14
Manufacture of textiles	3276	410020	0,393	0	12
Manufacture of wearing apparel; dressing and dyeing of fur	3193	311105	0,505	0	2
Tanning and dressing of leather	0	44199	0,000	0	9
Manufacture of wood and cork, except furniture	1889	79959	1,163	1	14
Manufacture of paper and paper products	485	31855	0,750	0	4
Publishing, printing and reproduction of recorded media	569	45152	0,620	0	3
Manufacture of coke, refined petroleum and nuclear fuel	0	1088	0,000	0	3
Manufacture of chemicals and chemical products	906	85240	0,523	0	6
Manufacture of rubber and plastics products	1955	82803	1,162	1	4
Manufacture of other non-metallic mineral products	2309	132512	0,858	0	8
Manufacture of basic metals	4687	71150	3,243	1	8
Manufacture of fabricated metal products, except machinery	4047	140354	1,420	1	17
Manufacture of machinery, office and computer machinery	6023	148331	1,999	1	3
Manufacture of electrical machinery, radio, television	334	50764	0,324	0	2
Manufacture of medical, and optical instruments, and clocks	115	15734	0,360	0	2
Manufacture of motor vehicles, trailers and semi-trailers	3540	81402	2,141	1	7
Manufacture of other transport equipment	38	11395	0,164	0	6
Manufacture of furniture	1940	118406	0,807	0	15
Manufacturing not elsewhere classified	1	602	0,082	0	2
Total	43715	2152380			152

Sources: prepared by using the data of TURKSTAT (2012)

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Due to were taken LQ value expressing the agglomeration tendency of firms, firms having agglomeration tendency were coded as 1, firms not having agglomeration tendency were coded as 0. 21 firms in size-based and 43 firms cognitive-based are dominant firms showing agglomeration tendencies (table 4).

Table 4. The Number of Firms Surveyed in terms of human capital factors determined by factor analysis and LQ Score

	Scaling Factors	Cognitive Factors
LQ >= 1	21	43
LQ < 1	47	41

Lastly, it were comparatively analysed whether human and social capital variables have effects on agglomeration tendencies of firms. As mentioned above, the study aims to obtain the findings with logistic regression in respect of social and human capital potentials of the region for testing agglomeration tendencies of firms being characterized on size-based and cognitive-based factors in Konya manufacturing industry. As can be seen in table 5, the coefficient of logistic regression analysis in all models is statistically significant. In other words, all of statistical analyses describe the dependent variables of independent variables over amount 35 percent.

As expected, although human and social capital potential can be said to have a significant effect on agglomeration tendencies in Konya manufacturing industry, the statistical results show that some components of independent variables have not the effect on agglomerations. 'InfoBackground' and 'SkillBackground', for example, have not any effects on agglomeration tendencies for firms being size-based factors dominated in terms of human capital. However, concerning for example 'EmployBackground', PhysBackground' and 'HistBackground' for firms being size-based factors dominated in terms of human capital, the regression coefficients is positive values. The independent variables have impact on increasing to the dependent variables. A one-unit increase in 'EmployBackground', PhysBackground' and 'HistBackground' will lead to an increase the tendency to spatial agglomeration of firms about more than 1,5 times (2,291 times in EmployBackground, 1,731 times in PhysBackground, 1,632 times in HistBackground). It, therefore, can be said that human capital factors such as employment structure, physical conditions, and historical background of firms have an important role on spatially clustering of firms being firms being size-based factors dominated in terms of human capital in Konya. Also, it can be analysed that social capital components such as 'trust' and 'friend' have

positively a direct effect in agglomeration tendencies of the firms. As can be seen in the analysis results, it has been found cooperation atmosphere based on relations of trust and friendship in the region to be a determining factor in the spatial location of firms. Besides, there is a no significant effect on agglomeration tendencies of firms being size-based factors dominated in social capital components, as 'Interagent' and 'Memorg'. Namely, the intensity of actors such as intermediary agents, various club, groups, institutions and voluntary organization in Konya is not associated with spatial concentration of these firms (table 5).

The empirical results associated with firms being cognitive-based factors dominated in terms of human capital indicate that human and social capital potential of the region have importantly the effect on spatial concentration of firms since there is a significant relations between all components of human capital, except for 'PhysBackground', and firm location selection for firms being cognitive-based. However, the regression coefficients for 'InfoBackground' and 'HistBackground' are negative values. The independent variables have an impact on reducing the dependent variables. In other words, a one-unit increase in 'InfoBackground' will decrease about 1.661 (1/0.602) times and a one-unit increase in 'HistBackground' will decrease about 1.504 (1/0.665) times the agglomerations tendency of firms being cognitive-based factors. On the other hand, the empirical results indicate that neither 'Trust' as component of social capital, nor 'Friend' show directly any significant on the agglomeration tendencies of these firms in Konya. Notwithstanding, components of social capital such as 'Interagent' and 'Memorg' have positively a direct effect of district firm' agglomeration tendencies in Konya. One-unit increase in the variable 'Interagent' and 'Memorg' will affect more than two times (2,244 times and 2,162 times) the agglomeration tendencies of firms being cognitive-based factors dominated in terms of human capital. The variables, thus, seem to be of great use for the firms in Konya (table 5).

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Table 5. The Relationship among Agglomeration Tendencies and Human and Social Capital Potential of Konya Manufacturing Firms

	Logistic Regression for Firms Being Size-Based Factors Dominated in terms of Human Capital				Logistic Regression for Firms Being Cognitive-Based Factors Dominated in terms of Human Capital			
	B	**S.E.**	**Sig.**	**Exp(B)**	**B**	**S.E.**	**Sig.**	**Exp(B)**
EmployBackground	*,829*	*,389*	*,033*	*2,291*	*1,400*	*,427*	*,001*	*4,057*
InfoBackground	,088	,282	,754	1,092	*-,508*	*,271*	*,062*	*,602*
SkillBackground	,139	,208	,504	1,149	*,345*	*,122*	*,005*	*1,412*
PhysBackground	*,549*	*,271*	*,043*	*1,731*	,280	,259	,280	1,323
HistBackground	*,490*	*,254*	*,054*	*1,632*	*-,408*	*,250*	*,093*	*,665*
Constant	***-6,255***	***1,638***	***,000***	***,002***	***-2,676***	***1,271***	***,035***	***,069***
	Omn. Model Coef.	**Chi-square**	**Sig.**		**Omn. Model Coef.**	**Chi-square**	**Sig.**	
	Step	27,634	,000		**Step**	30,380	,000	
	Block	27,634	,000		**Block**	30,380	,000	
	Model	27,634	,000		**Model**	30,380	,000	
	-2 Log LH.	**Cox & Snell R^2**	**Nagelkerke R^2**		**-2 Log LH.**	**Cox & Snell R^2**	**Nagelkerke R^2**	
	56,436	,334	,471		86,021	,303	,405	
	B	**S.E.**	**Sig.**	**Exp(B)**	**B**	**S.E.**	**Sig.**	**Exp(B)**
Trust	*,609*	*,278*	*,028*	*1,839*	,041	,195	,833	1,042
Friend	*,972*	*,314*	*,002*	*2,645*	,235	,207	,257	1,265
Interagent	-,215	,267	,422	,807	*,808*	*,285*	*,005*	*2,244*
Memorg	,055	,248	,826	1,056	*,771*	*,226*	*,001*	*2,162*
Constant	***-5,764***	***1,940***	***,003***	***,003***	***-4,401***	***1,165***	***,000***	***,012***
	Omn. Model Coef.	**Chi-square**	**Sig.**		**Omn. Model Coef.**	**Chi-square**	**Sig.**	
	Step	19,229	,001		**Step**	28,675	,000	
	Block	19,229	,001		**Block**	28,675	,000	
	Model	19,229	,001		**Model**	28,675	,000	
	-2 Log LH.	**Cox & Snell R^2**	**Nagelkerke R^2**		**-2 Log LH.**	**Cox & Snell R^2**	**Nagelkerke R^2**	
	64,840	,246	,367		87,726	,289	,386	

DISCUSSION AND CONCLUSION

As mentioned above, aim of this paper is to explore the empirical evidence the effect of human and social capital on agglomerations of manufacturing firms. More specifically, in empirical case study has been examined the relations between human and social capital potential and agglomeration tendencies of firms in Konya. As expressed theoretical backgrounds, agglomerations could be characterized within the bounds of possibility offered by human and social potential of a region. It, thus, can be said that firms not only can use the existing resources and opportunities of the region, but also would like to use the new information resources collected by local institutions, association, NGO, social networks

being in the region. Thus, when gathering of economic activities in a specific place are explained in terms of various advantages of places which are emphasized on agglomeration and urbanization economies, economic approaches such as income distribution, affecting regional development disparities, externalities which will occur as a result of gathering firms related each other in same place, environmental factors and to benefit from incentive features were handled with non-economic approaches such as human and social capital.

Agglomeration of economic activities can be evaluated as a result of learning process with information exchange, interaction among firms, mutual dependence among actors. It is necessary to coexist spatially new competition advantages such as increasing mutual dependence of firms, transferring technology, information spillover and innovation and perform dependent using common place (Asheim, 1996; Malmberg, 1996). Cooperation and ability to act jointly is depend on social strength that is multitude of socio-psychological values such as common culture, social relations, solidarity networks, individual connections, trust, and faith of strength communication among firms and institutions (Amin, 1999; Steiner, 1998). These values provide not only firms to integrate with human capital component such as information, skill and experience easily but also qualify existing human capital potential. Therefore regions being rich in terms of social and human capital potential, geographic and historical accumulation make an attractive effect on agglomeration of economic activities.

Analyses in case of Konya manufacturing industry showed that firm's human and social capital potential have a decisive influence in agglomeration process in specific area of firms. Spatial conditions such as region' embedded information, local institutions and associations, research infrastructure and culture, information potential, codified information level and production culture has strengthened the firms' innovative and competitive structure (Crewe, 1996; Molina-Morales, 2005). However, spatial behaviour patterns are different from others according to human capital elements. For example, it was identified that structural elements such as region's employment structure, physical and technological opportunities and historical accumulation are determinant in firms' agglomeration process of the firms which are defined according to size-based factors. In other words, firms being size-based factors are in agglomeration tendency with using opportunities presented by location economies since localization is associated with knowledge spillovers within a region (Marshall, 1920). Thus, it is to cause of agglomerations the presenting positive externalities in terms of workforce opportunities,

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consisting alternatives in terms of supplier and customer and advantages occurred by historical accumulation.

Agglomeration process of economic activities is a complex situation so it cannot be explained only with human capital elements. Because advantages presented by local economies can transform economic output with the nature of networks among actors. Agglomeration tendencies of actors are explained with networks among actors such as deep relationship and cooperation (Porter, 1998), multi-actors and mutual dependence (Rosenfeld, 1996), relevant and supportive institutions (Feser, 1998). Because complex social relationship networks occurred in specific area provide the success of firms with densifying production, information and cooperation networks in spatial level. In case of Konya, we can be said that these socio-cultural elements have a decisive effect on agglomeration tendencies of firms. As seen in the analyses, it was identified that bonding social capital elements such as trust and friendship relations are decisive in agglomeration tendencies of firms being size-based factors. Therefore, it can be the relationships among actors showing homogeneous features to determine agglomeration tendencies in firms which are dominant in terms of size-based factors.

In contrary, agglomeration tendencies of firms being dominant in terms of cognitive-based factors show differences in terms of both human capital and social capital potential. In agglomeration tendencies of the firms are more decisive the relationships with actors which have different roles than the relationships among homogenous groups. In other words, regions which have different information channels and sources have an effect on firms' agglomeration tendencies. Because firms would like to be more competitive and innovative for articulating global networks and these basic way is to have the potential mechanism to modernize and develop local information. Therefore, firms in which cognitive-based factors are dominant would like to be in regions in which they can reach new information sources easily. Desire for articulation to these social networks of firms being dominant cognitive-based factors brings about using opportunities of region's human capital and information infrastructure. Although the nature of human capital and information infrastructure of the region and articulation ability to the sources of social networks are a separate study, it can be said that firms being cognitive-based can attribute a meaning to space with willing to use more qualified networks and human capital referring to knowledge/information, ability, skill and capacity in spatial tendency of the firms. In other words, firms that are gathering as

spatial have tendency to give a meaning to place in the context of their own dynamics and potentials.

In conclusion, Konya was to be manufacturing industry focus as a result of the advantages of location and urbanization economies. However, the possible contribution on sustainable regional development with having more competitive and innovative structure of manufacturing industry in Konya can be explained with socio-cultural and socio-economic potentials provided by space. Therefore, space presenting positive advantages for several production organizations with geographic and historical accumulation has brought up the agglomeration processes in Konya which are rich information in terms of human and social capital. In other words, specialization level and network type organization potential increase mutual dependence in firms and enforce to gather together with new competitive advantages such as technology transfer, information spill-over, and innovation. However, when thinking that this study is based on empirical and statistical method, obtained outputs should be tested with the studies which will be made descriptive and in-depth. Because the studies on the meaning of agglomeration tendencies on abstract concepts such as social capital, information-ability and experience with quantitate methods can lead to methodological problems or faults.

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Resume

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Revitalization of Cultural and Aesthetical Assets of Iranian Traditional Bazaar

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Abstract

In recent decades, modernization is extensively changing the face of Iranian cities. Besides, urban places are losing their traditional features, identity and cultural characteristics. Conservation of cultural heritage resources may rescue historical parts of the cities; hence, other traditional urban spaces do not receive enough attention and protection due to economic concerns. Mashhad, as one of the main religious touristic destinations in Iran, is unfortunately losing its traditional features due to extensive attractions of physical transformations. Economic profits fascinating constructions into the city center of Mashhad, specially surrounding areas of the holly shrine. This issue has been led to demolishment of the old texture of the city center. Sarshoor bazaar is one of rescued traditional urban public spaces in city center of Mashhad with typical characteristics of an Iranian ancient bazaar. This study mainly focuses on cultural and aesthetical patterns of traditional Iranian bazaars in order to provide a conceptual strategy for revitalization of Sarshoor bazaar. To this aim, a theoretical review is provided through main representative factors of cultural landscape to decide about a proper strategy for improving cultural quality of the selected case study. We also provide a practical analysis through social and behavioral patterns of the citizens and pilgrims in public spaces to realize material and immaterial features of Sarshoor bazaar, and

Keywords: Cultural identity, cultural landscape, transformation of city center, Iranian traditional bazaar.

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consequently, find out any possible opportunity of improving tangible and intangible characteristics of this case study area.
To capture cultural landscape qualities of Sarshoor bazaar, a final design is provided to envelope a light traditional surface representing the visual landscape of the bazaar. Main passage and piazzas are also equipped for the movements of pilgrims and setting up annual traditional and social events.

INTRODUCTION

The importance of heritage sites, heritage objects and even relics comes fundamentally from their identities which have been gained their values through the time. Identity by definition is the representative quality of a phenomenon that clearly describes the corresponding inner characteristics. Cities as physical creation results of the human civilization have lots of different factors that altogether manifest their identities. In accordance, buildings, spaces and people take the main roles in representing the story of the urban identities. All historical cities around the word have their own sufficient footprints declaring identity of the place to citizens as well as other visitors. Concerning aforesaid notion, we argue that cultural landscape of urban public spaces in a city, can reflect art, culture and belief of the past generations which is shaped through the time. Through modernization era, identity is the missing characteristic of contemporary cities. Iranian cities are significant examples which have been faced prompt transformations of traditional places through attraction of some modern structures in recent decades. We analyze here loss of identity in urban spaces of Iranian contemporary city centers to possibly provide an applicable solution for the lack of identity.

Sarshoor bazaar is an example of traditional urban spaces which is dealing with unsuccessful urban regenerations due to the force of planning modern transformations of Mashhad city center. Unfortunately, recent extensive demolishment of old texture of Mashhad city center is not only destroying thousands years old physical features of urban spaces, but also changing cultural aspects of the users. Results of such destructive decision can be clearly realized from fragmented landscape structure of the city center without any logical connections, either inside itself, or to the other zones of the city. Accordingly, public spaces in the city center are turning to become some isolated regions without any cultural and historical solidarity that provides no identity to the users.

This work tries to discuss visual and semantical connections between past and present of urban public spaces to revitalize identity of the place. To this end, we will analyze factors of cultural

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landscape through traditional Iranian bazaars. Accordingly the paper is structured into three main sections of: (*i*) theoretical studies through cultural identity, and (*ii*), the characteristics of Iranian traditional bazaar and (*iii*) a case practical analysis through revitalization of cultural landscape in city center of Mashhad. Theoretical part comprises a comprehensive study through cultural landscape and its representative factors. We also discuss characteristics of the Iranian bazaars as one of the main resources of cultural heritage from ancient Iranian city centers. The result of this part enriches a strategy for preserving identity of the selected case study. Practical section provides analysis of cultural landscape aspects of the old texture of Mashhad city center. Our intervention precisely concerns refurbishment of the Sarshoor traditional bazaar in Mashhad city center from the cultural point of view.

URBAN CULTURAL LANDSCAPE

The origin of cultural landscape theoretically overlaps with the theory of urban morphology and practically arises from the studies of the urban geography (Calcating, 2012). The term "cultural landscape" was firstly used by the German geographer, Schlüter (O'hare, 1997). To him, landscape classifies to: (*i*) the original and (*ii*) the manmade landscapes (Calcating, 2012). Other early researches also have been explained cultural landscape as some patterns created through physical environments by human activities and cultural systems (Whitehand, 2007). More recently, UNESCO (2008) provided a definition of cultural landscapes as the cultural properties representing the "combined works of the nature and of the man". Such properties are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

Ziyaee (2017) clearly discussed the components of cultural landscape in terms of: (*i*) Material and (*ii*) Immaterial features (see Fig. 1). Materials are composed of the physical and visible components of the cultural landscapes. A landscape can also be seen as a cultural landscape from a spiritual or symbolic point of view, even if it has nonvisible. On the other hand, immaterial can generally represent nonvisible characteristics of the place. The 'immaterial' feature of each cultural landscape is the sprite of that place, a nostalgic spatial image of each culture which is implemented through some cultural values, cultural manners or cultural events.

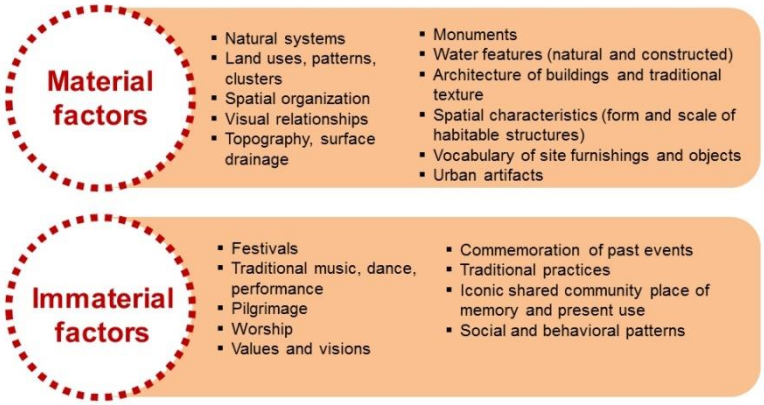

Figure 1. Main components of characterizing "Cultural landscape"

Cultural characteristics of urban landscape are representative source of the place identity. Accordingly, it would not be exaggerating if we say that urban identity is the way of presenting natural, cultural and manmade components of a city. Furthermore, the cultural identity of a city has to be understood as a whole system of social and physical values of the place (Hough, 1990). These factors altogether makes a place different from the others (Kaymaz, 2013). The concept of urban identity has spatial, social, cultural and economic dimensions and process both in macro and micro environments. These components should be managed in a comprehensive totalitarian approach as a system.

Historical city centers are main sources of urban identity, memory and belonging (Ertan, 2016). They can provide users aesthetic portray from the history of the city which is consists of different social, cultural, political, psychological, emotional and architectural aspects. Identity of the historic city centers could tell the stories of the cities and their users. Then, protection of these valuable areas should be promoted through the entire contemporary development project inside central part of the cities.

A successful transformation of the historic city centers requires integration of urban regeneration regulation for cultural, social and economic sides that are working well together. Regeneration of historic city centers includes conserving history and culture while protecting also viability of the place (Ertan, 2016).

Urban areas have been entirely transformed in recent era and it is critical how to link identity of the contemporary cities to their historical values (Carmona et al, 2010). Our surrounding social, cultural and physical environments are extensively affected by two major phenomena of modernization and globalization. Then, traditional patterns of historical city centers are violently under the threat of globalization. Relph (1976) describes this phenomenon by defining the concept of "placelessness". To him,

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placelessness refers to the loss of the spirit of the places which leads to the death of local identity among modern constructions.

Modern architecture changed the facade of urban public spaces by inviting automobiles, infrastructures and industrial buildings to the cities. Then, creation of so called "industrial cultures" undeniably changed our perception from the urban places and their cultural landscapes.

Following sections provide characteristics of the Iranian Bazaar as a traditional public space and analyzes a case study from cultural landscape point of view.

TRADITIONAL IRANIAN BAZAARS

Traditional Iranian cities generally have been followed compact, concentrated and homogeneous structures. Looking to spatial patterns and physical morphology of traditional Iranian cities demonstrate that there were some important factors such as: (*i*) physical environment plateau to trade, (*ii*) historical events and (*iii*) religious, social and political structure of the country which had strong influences on emerging and development of Iranian cities (Kheirabadi, 1991).

Transformation of the Iranian medium cities to the new metropolitan cities started from the 20th century. From then, Iranian cities have been expanded by and large to response to the rapid population growth. Then, spatial patterns of the Iranian contemporary cities have significant differences from their traditional ones. Also, social stratification and diversity in land uses, employment, immigration, and crowd have been caused some emerging complexity of urban area in contemporary era (Madanipour, 1998).

Accordingly, recent developments of Iranian urban areas have been forcefully influenced by globalization and modernization (see Madanipour, 1998 for details) which generally emphasize the role of the state in city development rather than traditional rules of shaping and managing Iranian local urban affairs. This type of urban transformation had more destructive effects on the old traditional areas like bazaars.

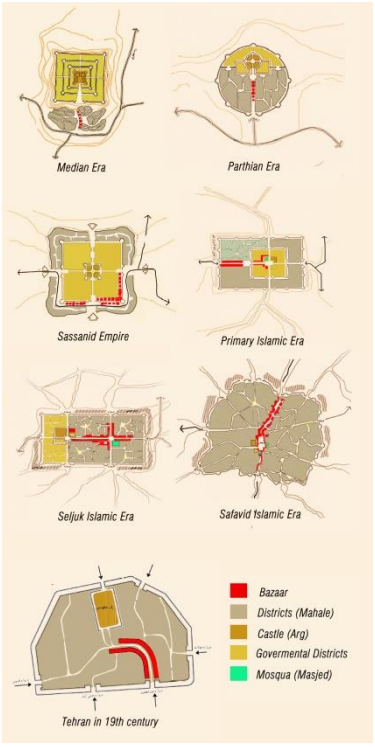

Figure 2. Transformation of Iranian cities. Median Era: 5th century BC, Parthan: 3th century BC, Sassanid Era: from 3th to 7th centuries, Primary Islamic Era: From 7th to 11th centuries, Seljuk Era: 12th century, Safavi Era: 17th and 18th centuries, Old Tehran in 19th century (Habibi, 2001).

Iranian bazaars have been active urban spaces with clear patterns which have been kept the history and the memory of different generations inside itself. The continuity and the unity of bazaars through the time have been kept this masterpiece of construction as cultural place for decades.

Habibi (2001) made a comprehensive work on forms and society of Iranian cities from the very first Persian civilization era to the Islamic era. Fig. 2 is representing changes in the graphical shapes of the traditional Iranian cities through the history. Schemes clearly show that bazaars had a central situation in the settlement texture of the city to play an important passageway role. Hence, Habibi (2001) discussed that the position of bazaar in Iranian communities had been changed through the time due to the changes in structure of the cities. In Median era, the embryonic stage bazaar had been shaped between castle and the main urban link road through the districts. In Parthian era, the bazaar had been followed the area along the main road from the city gate to the downtown. Bazaar was the heart of the city in the Sassanid period and served as the backbone of towns. From then, the plaza connected to the bazaar changed into a place for socio-economic activities. The bazaar during the early Islamic era and to some extent in Seljuki era has been still designed in the Sassanid method. In this period, bazaars were important for city formation and structure.

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There were some general concepts (from urban scale) and some detailed concepts (from the architectural scale) to relate the functions and decorate of the place to the façade of the bazaar.

In general, a bazaar has been consisted of a main passage (Rasteh Bazaar) with different buildings attached to it. The length and the scale of the bazaar were depended to the size of the cities and the corresponding urban economic powers (Soltanzade, 2004). It has been always comprised of simple four-vaulted spaces (Chahar-Taqi) with two chambers on sides. In contrary to this repeated symmetry, attached buildings to the main passage were very different including kinds of governmental, commercial, religious, educational and service buildings. The commercial buildings are considered to be the essential part of the bazaar (Haji Qassemi, 2005). According to Pourjafar (2014) and Soltanzade (2004) the primary elements of the bazaar are the "Rasteh" (bazaar streets), "Saray"(is a kind of corridors which are worked as passage parallel to the Rasteh), "Dokkan" (shops), "Hojreh" (small shops), "Tim" and "Timcheh"(most of the commercial offices of expensive products like Persian carpets were situated in Tim or Timche), "Qaysariye" (some Saray or Carvansaray or Timche that presented lux-products like gold and silks jewelries), "Chaharsouq" (the intersection of two main Rasteh), and "Carvansarai" (is a loading place for the coming carvans). The secondary elements are the "Masjed" (mosque), "Madreseh" (school), and "Hammam" (bath house) (see Fig. 3).

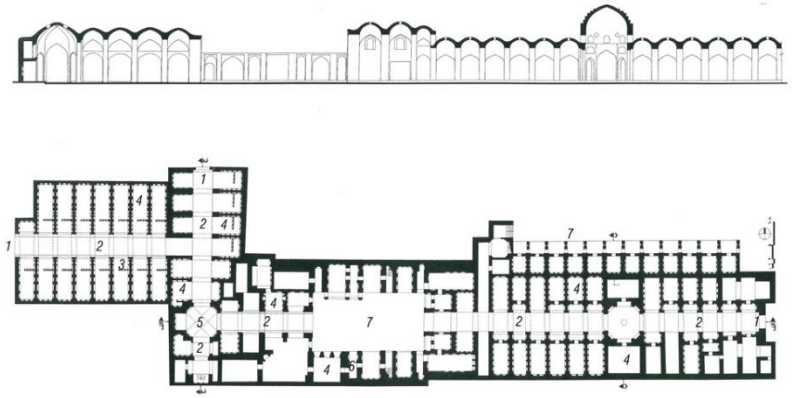

Figure 3. Traditional bazaar of Bam city, the main spaces: 1. Entrance, 2. Corridor (Raste), 3. Eivanche (small platform), 4. Chamber (Dokan), 5. Chaharsouq 6. Courtyard (HajiQassemi, 2005)

Some simple elements and unique modulus has been used in the architecture of traditional bazaars aiming to create spatial values of integration, harmony, balance, visual mobility, symmetry, legibility, lighting, privacy and hierarchy that altogether make the power of these masterpiece constructions (Fig. 4).

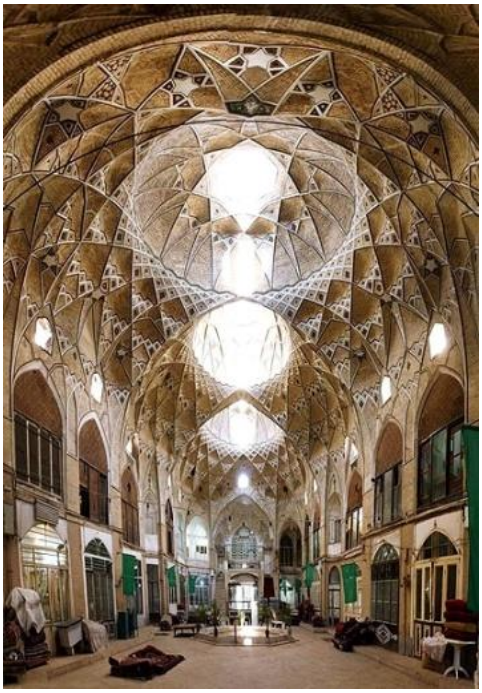

Figure 4. Traditional bazaar of Qum city, Iran representing physical structure, aesthetical values and a sense of unity through the whole construction.

The hierarchy system of connecting space together makes the sense of movement inside the collection of bazaar. The beauty of mixing different open and close spaces through bazaar makes unique spaces for users visually and functionally. The land had an irregular but geometric, right angle shape. All parts of the bazaar follow the same geometric order. This order was characterized by the unchanging rhythm of the spans and the parallelism of the walls. This unity has resulted in some of the chambers filling entirely one side of the corridors (Haji Qassemi, 2005).

The main immaterial landscape of Iranian bazaar could be described by the sense of unity in both physical and nonphysical aspects. Bazaar was a place for making unity in the religious and social behaviors of citizens as well as the quality of their routine life. Each brick of the constructions in bazaars had specific meanings inside their colors, lighting and all their aesthetic patterns. From architectural point of view, these symbols are parts of the traditional Iranian society and represent the ideology and lifestyle of the users. This unity has been made a visual and spiritual identity of the Iranian bazaar from the urban aspects.

Bazaars have been also played an essential religious, cultural, social, and political role in Iranian cities. Besides, bazaars have been places of celebrating important political and/or religious events (Mehdipour, 2013). All elements and principles of traditional bazaar have been providing a message of “unity” for their users. This unity in comprehensive urban dimensions easily has been made the visual and spiritual identity of Iranian bazaar.

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Bazaar was a place for most of social, political and cultural activities and had important role in the economic and civic activities of the citizens. The identity of traditional Iranian cities is connected to the existence of bazaars as the main objects of spatial structures of the cities (Pourjafar, 2014).

The functions of bazaars were more than commercial areas in the city. All social, political, cultural aspects of the cities were affected by the activities in the bazaar. Functional characteristics of bazaar have been provided connection between different parts of the cities. Network of main corridors of bazaar, small meydans, entrances and tiny roads that branched from the main corridors make the cohesion of the system through the cities (Pourjafar, 2014).

In 20th century, automobile bring new forms of accessibility and movement to the Iranian cities and made important changes in the size of streets and traditional structure of the cities (Tafahomi, 2007). Through such physically growth of urban elements, most of the public urban spaces are lost in different layers of the urban transformations.

SARSHOOR BAZAAR IN CITY CENTER OF MASHHAD

Mashhad is annually the destination of a large number of people because of its religious and historical values. This city is one of the most important cities of Iran from its religious, economic and population (with near 3 million inhabitance) point of view (Mashhad Municipality, 2012). A holly shrine for shie –Muslims is located in the city center of Mashhad which is the main reason of developing this city. Spatial domain of the city has been expanded through different physical zones with different historical periods of time (see Fig. 5).

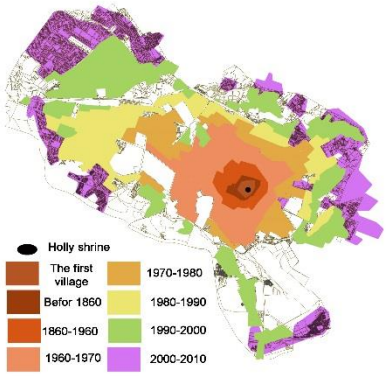

Figure 5. he spatial development of Mashhad city
(Farhoodi et al, 2013); reworked.

More precisely, Mashhad can be divided into four different physical textures of: (*i*) traditional, (*ii*) intermediate, (*iii*) suburb and (*iv*) new contexts (see Fig. 6). The traditional part situated in the city center surrounding the holly shrine. This part has an organic structure which is shaped since 9th century A.D. The intermediate context involves some mixed forms of organized and organic structures. Buildings are mostly constructed here since 1960. The western zone of Mashhad city contains recently constructed streets, highways, modern buildings, towers and shopping malls. And finally, suburb areas are made up of some rural settlements melted in the urban texture during last decades (Ziyaee, 2009).

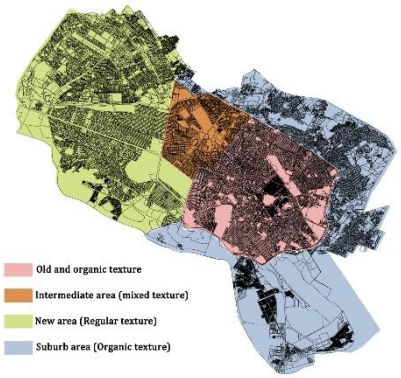

Figure 6. Diffrent urban textures of Mashhad city.

The modernization and the economical profits are two main resources of the changes in the old fabric structure of Mashhad city. The transition from tradition to the modernity has been led to a comprehensive urban transformation in the city center of Mashhad. Fig. 7 shows the main procedure of urban transformation in Mashhad. Such transformation has been led to the loss of valuable historic texture of Mashhad city center, particularly, around the holly shrine.

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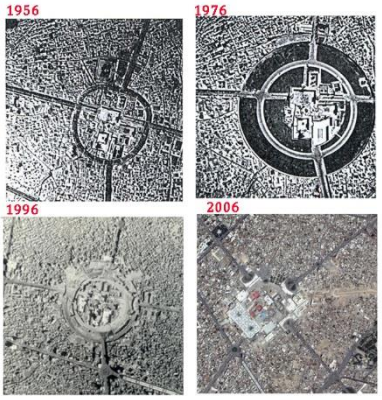

Figure 7. Transformation of the old texture of the Mashhad city center.

Most buildings in central parts of the city are gradually transformed to the commercial sectors. Accordingly, spatial structure of Mashhad's city center became a powerful economical market for pilgrim services. This reconfiguration have been implemented through a comprehensive new master plan of Mashhad, Khazeni comprehensive plan (1967–1992) and Mehrazan comprehensive master plan (1992–2012) approved by municipality of Mashhad (Farnahad Consulting Engineers, 2011). Later on, an enormous reconstruction project of the Mashhad city center started to detail such planning (Tash, 2006). According to this planning project, surrounding areas of the Holly Shrine will be isolated by a green belt and the rest of the old district should be transformed to some modern shopping malls, hotels and residential towers (Fig. 8). Then, the only remaining traditional texture of the city is the one situated around Holly Shrine. Such physical structures are valuable resources representing the urban history of Mashhad.

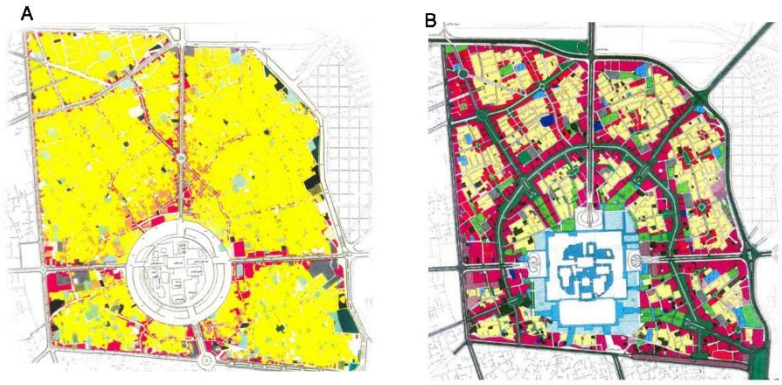

Figure 8. A; the original morphology of the city center and B: the approved new transformation master plan of

Within 19th century, most areas around holly shrine were reconstructed and developed. As a result, main bazaar of Mashhad divided into two parts and the southern part named Sarshoor (Rezvani, 2005). Sarshoor district is one of the oldest areas of Mashhad that is recently subjected to the planning of some structural modern changes. This district is well-known because of a passage and traditional bazaar going along the main part of this district (see Fig. 9). Although the physical structure of the original

bazaar is changed through the time, the memory and the sense of traditional bazaar is still alive there. From the history of this bazaar it is indicated that there were lots of Hammams (traditional public bathrooms) and Caravansaries situated along this bazaar because, by culture, pilgrims needed to take a bath before entering to the Holly Shrine (Zarabadi and Ziyaee, 2008).

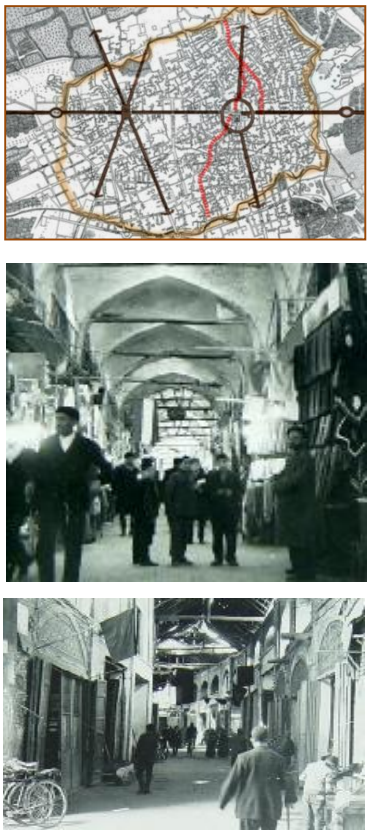

Figure 9. The original bazaar of the Mashhad before transformation.

Next section assesses structural characteristics of Sarshoor bazaar through a cultural landscape analysis of materials and immaterials. It is proposed that the result of this part could helpful to capture and possibly improve cultural identity of the case study.

MATERIAL FEATURES OF THE TEST CASE

From physical and aesthetical point of view, the shape of Sarshoor bazaar follows the general pattern of Iranian bazaars while including several chambers around a main passage. It is ceiling and covered by traditional materials and schemes (Rezvani, 2005). Fig. 10 shows a serial vision survey through the bazaar that could help us to recognition the physical structure of it in contemporary situation. According to our investigations, main material factors of this bazaar are listed as bellow:

- there are different zones for commercial activities and pilgrims services

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- interference of the pedestrian passages and cars movement
- variety of forms, sizes and shapes of buildings is clear
- rarely designed façade
- crowd of awnings
- no brief landmarks through passages
- main open spaces are generally occupied as vehicle parking
- traditional shops and their vitrines are still alive here

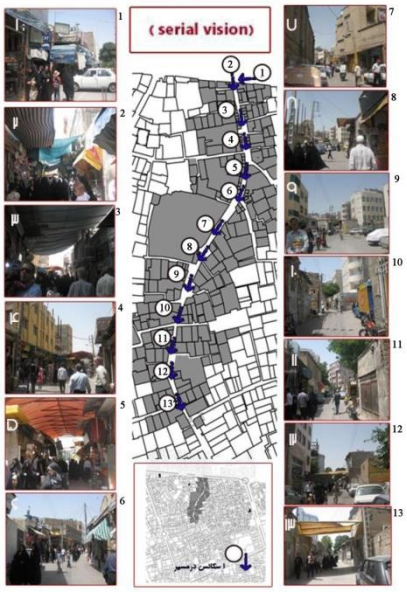

Figure 10. A serial vision survey of the Sarshoor bazaar.

We, generally, see that recent situation of Sarshoor bazaar confirms weekly protection of the traditional physical elements in studied case study.

IMMATERIAL FEATURES OF THE TEST CASE

The immaterial factors of this case study mainly include some traditional religious programs that are annually setting up in urban public spaces of Iranian cities. Sarshoor bazaar is also an important place for the following social main activities:

- "Ashura" which is a kind of mourning for the third leader of Shia-Muslims
- Traditional "Nazri" as a social activity of preparing gratis food and offering to the pedestrians
- "Tazie-khani" is a kind of traditional theater as a social and traditional pattern from the past which are rarely existed now.

Fig. 11 represents the direction of religious movement programs through Sarshour bazaar. Fig. 12 also represents behavioral patterns of the users along main Sarshoor bazaar passage. High

number of pedestrian movements is considered in the northern entrance of the bazaar as well as the middle parts.

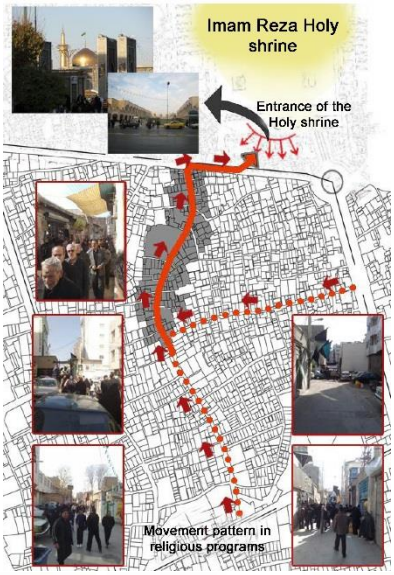

Figure 11. Movement passage of the religious program in Sarshoor bazaar ending to the holly shrine.

Figure 12. The Behavioral pattern of users through the bazaar.

Fig. 13 represents a comprehensive analysis of physical and non-physical characteristics of the Sarshoor bazaar. This map presented different important functional zones in the bazaar including: (*i*) the commercial parts which are mostly crowded around northern entrance of the bazaar, (*ii*) the traditional residential areas, (*iii*) the hostels and touristic apartments. There are also two abandoned spaces through the case study that are now using as parking spaces. These spaces are situated beside local streets and have enough potential for transfering to the small piazza as traditional chaharsooghs in original bazaar.

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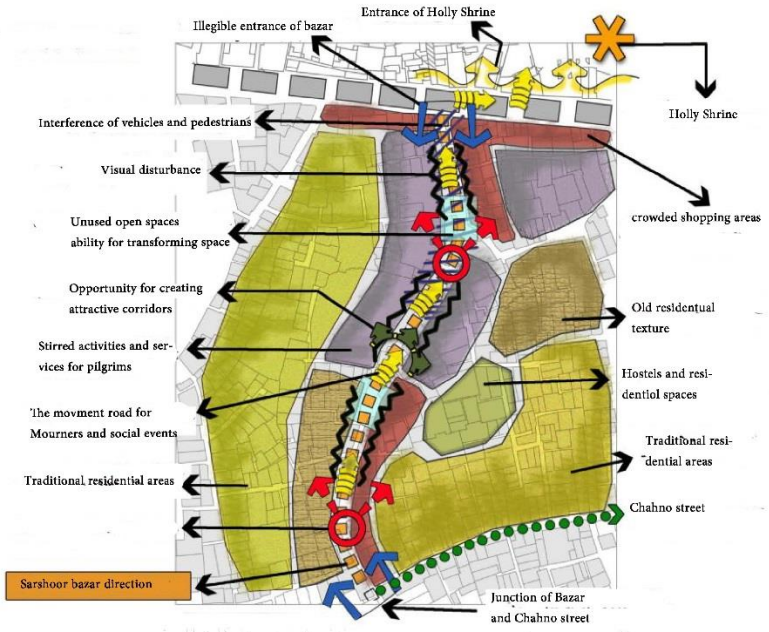

Figure 13. The analaysis map of the Sarshoor bazaar.

STRATEGY AND CONCEPTUAL DESIGN

As we analyzed in previous section most of physical structures of studied bazaar does not provide any clear aesthetical qualities even in pavement and urban furniture. Accordingly, our suggested strategy of preserving lost identity of Sarshoor bazaar attentions to reconstructing façade and decorating open spaces and facilities of the case study. Our main goal here is keeping coherence of the structure and visual patterns of the Iranian bazaar. Secondly, proposing plan should have opportunity of protecting social and religious characteristics of this bazaar. The medium intervention to create better commercial units along the bazaar could bring the sense of traditional activities in addition to improving visual identity of the bazaar.

According to the final proposed plan, material features of the bazaar can be improved by keeping the organic structure of the bazaar route. Two main junctions through the main passage are transformed to the small piazzas. The entrances of the bazaar will increase the sense of invitation for the users (see Fig. 14).

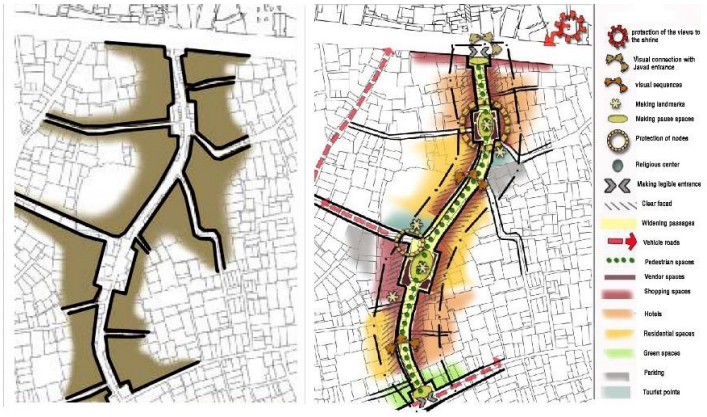

Figure 14. The phisical and functional concept for refurbishment of Sarshoor bazaar.

As there are not any existence roofs in the physical fabric of the bazaar and it is also costly to construct them, it is suggested to improve the sense of enclosure by creating some semi-enclosed corridors along the bazaar's pathway. Also it is suggested to use the traditional and nostalgic scheme of Iranian architecture for decorating the facade of the 1st and 2nd floors. Fig. 15 shows a proposed section for reconstruction of the bazaar. The whole space of bazaar should be dedicated to the pedestrian movement. Then, immaterial quality of the space will improve by setting up some social activities through this safe area. Some traditional materials with symbolic patterns are also suggested for the pavements and urban furniture. Furthermore, the two proposed piazzas are equipped with the theatrical platforms possibly assigning to the social and religious programs.

Figure 15. The detailed architectural design for the entrance of the bazaar.

In order to response to the need of touristic services in the territorial areas around the holly shrine, the land use in both sides of the bazaar are dedicated to commercial and residential (e.g. hotels) functions. Then hotels and residential services could be situated in the above floors of the bazaar.

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CONCLUSIONS

Within modernization of the cities in recent era, transformation of traditional city centers may face some gaps of cultural identity. We studied representative elements of cultural landscape for Sarshoor bazaar in Iran to capture identity of the place through any future transformation of this area. Precisely speaking, we assessed a suite of "material" and "immaterial" features of cultural landscape through Sarshoor bazaar aiming to detect, protect and possibly refurbish missed cultural identity of the studied place. Analysis generally noticed: (*i*) capability of the case study for performing social and religious programs and (*ii*) physical patterns of traditional Iranian bazaar can capture cultural identity of the place through transformation process.

Our practical analysis for Sarshoor bazaar in Iran suggests that cultural landscape of this study area can be improved by some modification of the façade and open spaces through the passage area. To this end, coherency of the visual and physical elements and safety of the pedestrians are also considered. Then, improving connections and sequences of different open spaces can stand as a solution for revitalization of urban identity through studied area.

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The Evaluation of Cultural Identity by the Preservation of the Historical Heritage of Saint George in Mondonico

Francesca Andrulli*
Chiara Bonaiti**
Alessia Silvetti***

Abstract

The knowledge of the location, history and current state of conservation of historic built landscape is the best way to warrant its protection. We can only pass on to the next generations what we know and recognize as worthy and representative of our memory, improving the quality of life. Conservation of the architectural heritage is an opportunity to increase the economic resources also: "the historic buildings are a resource because they can satisfy new uses, compatible with their exiting features, that brings income and social advantages" (Della Torre, 2010). The organizations for designers' training have a main role to suggest the right approach to reuse historical buildings. We don't have to adhere to the common practice of simple renovations, refurbishments that deeply distort the entity and the environment in which it has been for hundreds of years. The case study of Saint George in Mondonico, is an example of that phase of the conservation process that deals with a profound knowledge of all the features of the buildings with the aim to discover and display the value.

We can understand and decide the minimal conservative restoration interventions thanks to material and state of conservation of the building's surveys and the detailed analysis through historical research

Keywords: *Ancient village, diagnostics, minimum intervention, compatibility, authenticity.*

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needed to identify the construction phases and the interactions with the surrounding territory.

Only this way we can clearly understand and use the remaining potentialities of the building and its surrounding. The valorisation of its potentiality is fundamental for the awareness of the value of the historic heritage for the local community that produced the objects in the past, and that has the duty to protect the remains, although if not always in a conscious way.

INTRODUCTION

The project of preservation and valorisation of the built heritage in Mondonico, an ancient village of Dorio municipality (Northern Italy, Lecco lake area), is an example of diffusing knowledge, protection of the Cultural heritage.

Figure 1. Mondonico from an aerial view

The methodology bases on the multidisciplinary analysis of the site, performed both within an international workshop of Politecnico di Milano and Ball State University (march 2014) and the studio of the Restoration course at Politecnico. The aim is to give an example of protection of the Italian historic built landscape (Rosina, 2017), particularly focusing on the preservation of Saint George Church in Mondonico.

Despite it is not being a monument, the church strongly characterizes the site and it is linked to the historic village of Mondonico and Dorio, by means of the physical connections (roads and pathways) and intangible connections, because it remains a reference for the local community at present as it was in the past. It is an example of the perseverance of the cultural values of the community at present.

The project of valorisation of the village and the church, therefore, starts with the project of preservation of the buildings; in the

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present paper, the authors report the main steps and achievements of the project on the church.

The intervention requires to achieve the acknowledgement of the values that persist in the building, also to strengthen and display the discovered values (Cavada, 2002).

'*Restoration is the methodological moment of recognition of the work of art, in its physical consistency and in its dual aesthetic and historical polarity, with a view to its transmission to the future*.' - Cesare Brandi, 1977, *Theory of restoration*, second edition

The first step of the knowledge; the historic-critical documentation, the recognition of the existing and possible future functions, of the spaces is pivotal for the next step of the intervention. In the present Italian debate on restoration, the focus on the mandatory documentation is well defined by Amedeo Bellini, the founder of the Specialization School of Architecture Preservation at Politecnico di Milano: "We can preserve only what we know, the first question is: what preserve and not how to preserve in the conservative restoration – (Bellini,1994).

The coordinated use of the information coming from the archives, iconography, texts and the assessment/survey of the building is the effective tool to recognize the features of a historic building in a technical data organization, that has the aim to scientifically support the restoration. The comprehension of these steps is due to a constant, recurrent observation of the building, its materials and its environment: "any intervention on the historic building requires a preliminary, prolonged, accurate process of knowledge, because only going beyond the appearance and comprehending the inner and hidden structure of architecture is possible to lead the conservation activities" (Docci, 1999) and the most respectful and successful project for the new use. In fact, the documentation and assessment allows to know the potentiality of the building, lead the choices of the transformation for the new use with the highest respect for its features. The "education to restoration and conservation, substantially the education to listen the building (COTAC, Understanding Conservation, UK) is associated to the leading criteria for the intervention: compatibility, reversibility, least intervention and recognition (Mileto, Vegas, 2011).

THE KNOWLEDGE

History

The historic documentation of Saint George church included the research in the parish, state archives and the libraries about the

historic and cultural background, the building typology and techniques, the history of modification and intervention.

Dorio is one of the Como Lake's villages and it's set along three horizontal orographic lines. Upstream there is the ancient village Mondonico. Over time the inhabitants moved downstream close to driveway and lake.

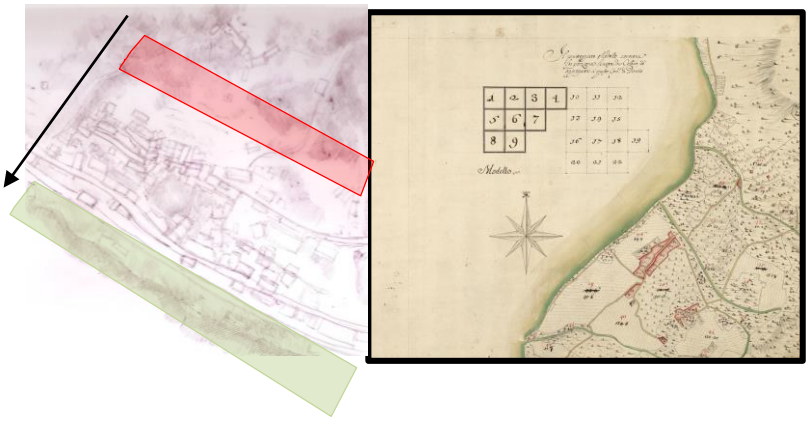

Figure 2. Mondonico: an ancient village on the side of Lecco lake

In Mondonico village, at the southern edge of the urban blocks, a small white church and its bell tower rise on the top of a small hill, close to the Mills valley.

Figure 3. Mondonico: the masterplan of the village

It is the first church built in Mondonico community. It is dedicated to the warrior martyr Saint George, a dedication very popular in the area. The inhabitants set the church in a sacred area separated from other buildings, instead of building the church in the middle of the other housing and farming constructions. Near the church, in the past, up to the 19th century, there was a cemetery. The church entrance has its orientation towards west, according to the tradition. The churchyard lies on an artificial terrace, on an upper level from the natural slope of the hill, supported by a constraining stone dry wall.

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The courtyard has a double function: to create a respectful area in front of the church and build the base of the façade, together with the stairs on the side.

Figure 4. The church of Saint George in Mondonico, aerial view

The first documentation of the church dates back to 1412; the description mentions a porch in front of the church for public meetings before religious functions. In 1506, the church of Saint George in Mondonico became an autonomous parish, due to the fervent request of Dorio and Mondonico's population that could not reach Dervio church during the winter. (ACAM) Saint George remained a parish until 1677, when the title passed to the new church of Holy Virgin Mary in Dorio, where most of the inhabitants had relocated to in the meantime.

The report after the pastoral visit of cardinal Ferrari, in 1905, refers that the ancient and small church of Mondonico was enlarged in the 16th century, the original date is unknown: "Saint George is an ancient church. It's unmemorable and her origin is unknown. It was increased in 1500, it's small. Now the church is unused. But there isn't the bell that must be set by the municipality, that doesn't give any response". (ACAM)

To quote Andreani's description (Andreani,1898), the building underwent numerous modifications over the passage of time. The present structure mainly dates back to the 16th century and partially to the second half of 17th century.

Furthermore, in 1804 other variations to the façade were made. In fact, the small windows (with iron grids and stone frames) were opened during the counter-reformation time to allow the population to pray looking at the Eucharist although the church was closed. The doorframe dates to the beginning of the 17th century. The small nave is 5 m wide and 12.5 m long, it has a flat ceiling, whilst a barrel vault covers the presbytery. The apse is a semi-circle, and this is the most ancient remains of the previous church: the masonry does not fit with the dimensions and axis of

the nave (as it is a little larger) and it was 'pasted' on a new construction.

In the past, frescoes should have had decorations on the interior plasters; now the only one is the painting (cm. 352 x 297) on the northern side, dating back to the 15th century. It has six framed pictures that represent leaves, branches and small rounded decoration. The dates of the painting are on the bottom: 1492 and 1497.

Material analysis

The survey on field is the second step towards knowledge.
Material identification is important to understand the historical and cultural value of the church. The analysis was supported by a study upon traditional building techniques used when the church was built. The facades' analysis highlighted these materials:

- Local stone;
- Rough plaster as finishing material (civil plaster just on the main façade);
- Cement mortar for the basement part of the building;
- Granite for details: windowsills and doorsteps;
- Lime and cement mortars as patches on the walls;
- Iron for drainpipes and eaves;
- Wood for the entrance door and a window on the north side;
- Lombard cotto overlapped by Italian 'piode' made by local stone for the roof.

Inside the church, the main materials are granite and Lombard cotto for the floor and civil plaster on internal walls. The altar was of marble.

Figure 5. North-West elevation: an example of surface mapping of materials

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Diagnostics and degradation analysis

After an initial visual evaluation, the following hypothesis was proposed: "Lake Como's climatic context, in combination with the microclimatic conditions of Mondonico, is the cause of surface damages including erosion, biological attack and overall degradation". The deterioration survey has the aim of listing building's damages and make theories upon the possible reasons that produced a particular pathology, that the diagnostic analysis later confirms or rejects.

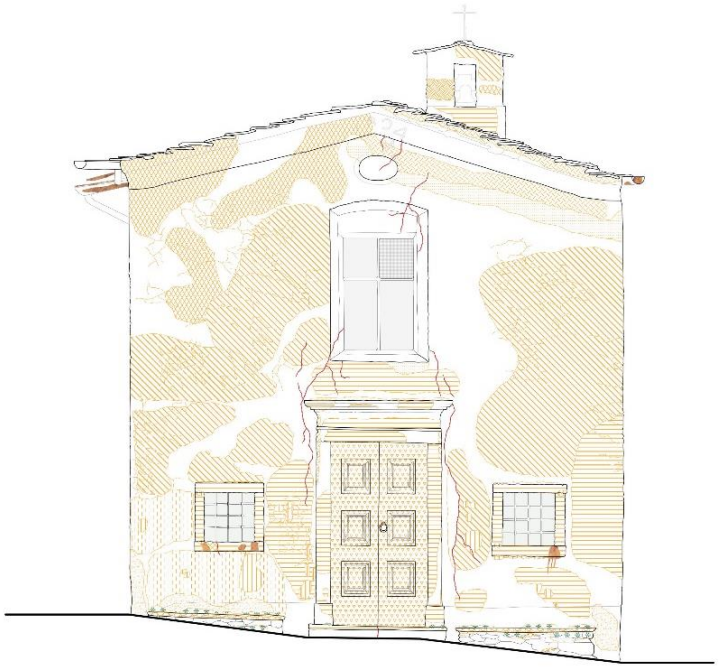

Figure 6. North-West elevation: an example of surface mapping of damages

Two different methods were used to identify damages and possible causes: infrared thermography and psychrometric analysis.

Infrared thermography is a non-destructive method of analysis and diagnosis of historical buildings. By means of this method, it's possible to identify presence of humidity, previous openings of doors and windows, structural systems covered by layers of plaster and walls that have been demolished. Diagnostics is also used to detect the entity of wall's cracks to highlight the pass-through ones and to identify the parts affected by detachment phenomenon.

An infrared camera displays images with different color gradations that show surface temperatures. Each material has a different thermal capacity, this is the reason why are able to observe the differences between the high temperature of window frames made by granite and the low temperature of plaster in the thermal images. To analyze the main façade (on the north-west side): the right portion is partially shaded by trees, so it has a

lower temperature, while the left part is completely exposed to sunrays and it has a higher temperature. In the right portion, from the basement level to the windowsill, the temperature is quite low (15°C) compared with the rest of the façade; this can be suggestive of the presence of upwelling humidity with consequent phenomena of biological patina and plaster detachment. In the right upper part, there's another low temperature zone (15,5°C), which can be explained by the presence of water's seepage from the roof.

In the left portion, which is warmer, the basement part has a higher temperature (20,5-22°C); this is the typical effect produced by a plaster detachment, and this hypothesis is confirmed by the dull sound produced by knocking on the wall. There are some sporadic thermal gradients irregularly distributed along the entire façade; this is the effect of an uprising micro-cracking phenomenon and possible erosion.

Figure 7. North-West elevation: an example of application of infrared thermography

Another diagnostic method is the psychrometric analysis that gives a measurement of humidity and temperature. It's possible to understand the movement of air inside the building and from the interior to the exterior and vice versa. The greater the difference between the dry and wet temperature is, the lower the relative humidity is. When humidity is high, the stress on the building's envelope increases and the amount of damages is bigger. Taking measures in different points inside the church allows to understand where the warmest points are and where the humidity is concentrated. In the left portion, which is warmer, the basement part has a higher temperature (20,5-22°C); this is the typical effect produced by a plaster detachment, and this hypothesis is confirmed by the dull sound produced by knocking on the wall. There are some sporadic thermal gradients irregularly distributed along the entire façade; this is the effect of an uprising micro-cracking phenomenon and possible erosion.

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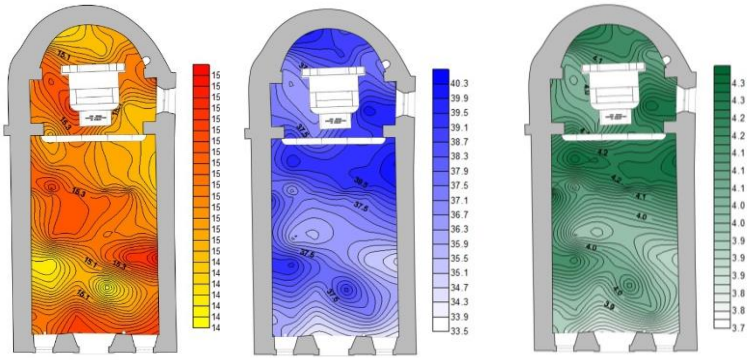

Figure 8. Psychrometric analysis: maps of temperature, relative humidity and specific humidity

The temperature data indicate that the eastern side of the apse is the warmest area inside the church because of the constant sunlight hitting this façade. The maximum amount of moisture was found in north and south facades, probably due to the lack of sunlight received.

The relative humidity data yield good results. The spread of humidity is relatively homogeneous and doesn't have any high concentration in a specific point. Data from specific humidity is similar to the relative humidity data.

Finally, after all the analyses, it can be said that the infiltration of water and moisture found in some points is linked to the phenomenon of capillary rise, leading to the formation of biological patina and mold. From a structural perspective, there is a possibility of failure at the foundations as observed from the cracks on the floor and on the main façade.

The structural cracking ensued the worst damage, probably due to the location (on a steep slope) and the soil. Without a rigorous monitoring of the cracks, it is not possible to design an appropriate intervention. It is strongly recommended to start structural monitoring, as soon as possible, with the aim to obtain the necessary data at least for the application of provisional strengthening that could prevent further damages.

The church suffers from a of lack of maintenance or inadequate maintenance intervention, in fact the most coverage of damages

on the surfaces result in superficial deposit, discoloration and biological patina.

The final objective of surface mapping and diagnostics analysis is to individualize the most appropriate interventions for the building. Every building is unique and it's necessary to conserve it in its authenticity. The intervention solutions must be focused on the specific case, they can't be general and repetitive. Nowadays there's a development of a sense of responsibility towards the identity of our monuments.

INTERVENTION OF CONSERVATION

Intervention's keywords

To get an ideal architectural design from the perspective of conservation it is imperative to follow five basic keywords:

- MINIMUM INTERVENTION
- REVERSIBILITY
- PHYSICAL AND CHEMICAL COMPATIBILITY
- DISTINCTNESS
- AUTHENICITY

This is exactly what has been done in this case.

The minimum intervention consists of repairing compromised or missing elements but also in the design of lines, shapes, developments and volumes, which, if missing, make the architectural image incomplete. The strength of a good restorer is the ability to stop the project before intervention becomes invasive.

The concept can be summed up with the maxim:

'The restoration ends when the hypotheses start'.

Another sentence best describes the second keyword:

'*Reversible changes should be considered temporary. Non-reversible change should only be used as a last resort and should not prevent future conservation action'* – (Burra Charter, 1979)

According to the philosophy of reversibility, an intervention can later be removed as if the intervention had never occurred, leaving no indelible harm to the asset. Those changes, where possible, any permanent harm to the historical significance of the building fabric or the use of the building are to be avoided. It is an interesting perspective to see us as custodians of the

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historic buildings we inherit and it is our responsibility to maintain them, and often to develop them, for the enjoyment of future generations.

It's clear that in order to carry out a proper conservative intervention conducted with compatible techniques, it is necessary to know the physical properties of the materials in situ and their current state of conservation. In this way, you can associate the best materials for consolidation.

Authenticity is the most important keyword, because somehow it includes all the others, if respected it helps to avoid the label of 'historical fake'.

The minimal intervention, the simplification of the silhouettes, the reconcilability, without exaggeration, the use of modern materials and constructions, the opening up to the technological contribution of the various sciences applied are the acquired criteria that must guide the design of the distinctiveness of the 'repairs'.

'*The good restoration can be called a drowning of itself in the face of the past. The more the artist today bows, kneels, gets married against the monument, the better he performs his own*.' – (Boito, 1880)

Proposed interventions

'*The architect in charge of restoration must be a skilled and knowledgeable builder not only from a general point of view, but from a particular point of view, must know the constructive processes adopted in the different eras of our art and in the different schools*.' - Viollet Le Duc

In order to fix the problems, found during the diagnostic analyses, the following interventions are proposed:

To avoid the problem of the instability of the old shallow foundations to respond adequately to the loads and stresses transmitted from the building, the designer can prepare different principals. The static improvement of the foundations can take

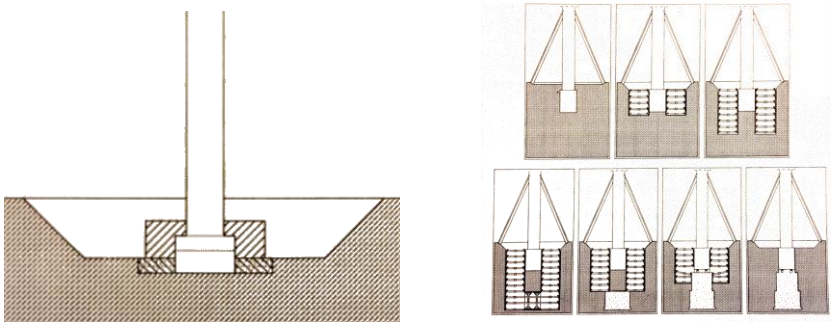

Figure 9. Consolidation backdrop with tiling bead and underpinning masonry (Carbonara, 1996)

place through the addition of elements in reinforced concrete that can be placed beside or below them.

Normally, you create works that increase the support section alongside the existing foundations with new structural elements connecting them closely with the original foundation walls. These interventions are not very invasive due to needless temporary works and limited excavation depth (50-100 cm).

This first hypothesis of intervention is to be excluded in our case study in view of the impossibility of engagement of the support elements to the original foundations stone.

In our case, we must recourse to underpinning placed at greater depth so that the original foundations may rest on the new structural elements without the need for fasteners. Another method of intervention to strengthen the foundations is the use of an underpinning piles or micro-piles. We resort to these solutions only in special cases of the presence of water or land very soft requiring high excavation depth. For the case under consideration this is a method too invasive, expensive and unnecessary (Carbonara, 1996). To understand the magnitude and evolution of all the cracks we need a careful periodic monitoring. With more accurate information, we can proceed to implement targeted interventions.

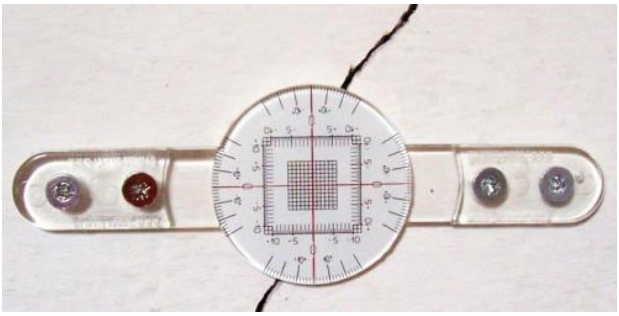

Figure 10. A simple and cheap tool for monitoring cracks

To solving the problem of presence of humidity it is suggested to decrease the contact surface of the walls with the ground after having adequately conveyed water away from the building and the surface.

To remove water from the perimeter walls we propose a drainage system.

'*If the architect responsible for the restoration of a building needs to know the shapes, the styles of this building and the school from which it has come out, it is even better if it is possible to know its structure, its autonomy, its temperament, because first of all you have to live it.*' – (Viollet Le Duc, 1854)

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The first method consists of excavation on the left side of the foundation, to put at the base, a drainage pipe that collects water and conveys it in a controlled discharge. The excavation is filled with drainage material.

Another solution consists of constructing a gap like a trench. In this way, it is easier for the evaporation of water in the masonry, possibly absorbed by capillarity by the foundations. It is necessary to have a space of 40-50 cm to construct an effective gap. It is also important that the cavities are ventilated to ensure the air circulation and permit the elimination of moisture that evaporates from the wall. Even if expensive, this technique is one of the most effective ways to protect the walls of new buildings from contact with water. In our case, in a building with ancient foundations, the addition of this system is particularly complicated and invasive due to the presence of grid or metal flashing along the perimeter of the church. For these reasons, between the two drainage methods proposed, the first is preferable.

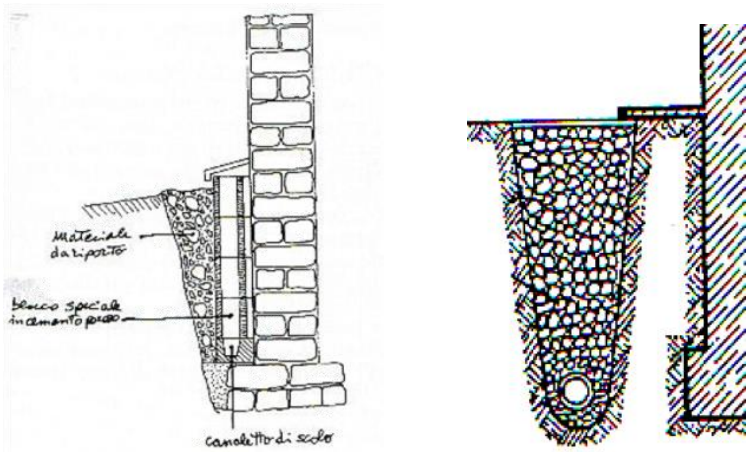

Figure 11. Scheme of two drainage methods

To perform the best removal of the water, it is proposed to redo the waterproofing layer bitumen (recommended thickness: at least 4 mm) already present at the base of the facade on the north-east and to arrange the stones in a protective sheath.

Figure 12. The western masonry of the Church

It is experimentally verified that for walls with a thickness ranging between 40 and 80 cm, as it is in this case, passive methods (waterproofing associated with drainage) decrease up to 2/3 the surface contact between building and ground.

CONCLUSION

Architecture is an expression of cultural identity and the traceability of a historic building shouldn't have to be perceived as a problem, it can be considered an opportunity to learn the past to conserve and to emphasis on to pass on to the next generations with an increased economic value as well.

This paper describes the methodology implemented on the main façade of the Saint George church, which is a part of the project of conservation and rehabilitation of the whole church and the landscape surrounding it in the village of Mondonico (Rosina, 2017).

A *SWOT* (strengths, weaknesses, opportunities and threats) analysis flags off the process of strategic planning for the village, aiding the proposal for the possible re-use and revitalization of the historic church and the other buildings included in the project with the possibility to accentuate the collective memory of the past related to the church and the landscape surrounding it, resulting in the idea of a museum with the aim to give the users an experience of the past. The next phase of execution involved obtaining the permissions, which would include all the plans, elevations, sections and technical details of the whole building. Later Different technologies have been used to identify and analyze the problems in the building to propose appropriate interventions which are problem specific and are more effective and prevent problems that general interventions would cause in the future. One such problem to be identified is the rising damp in the church of St' George and appropriate interventions have been discussed.

The aim of this work is sensitize the designer to the historical value and include meticulous analysis of the present condition of the historic building to be able to conserve it better and transmit the historic significance to the next generations. This is done explained a methodology of conservation that enables us to understand the significance of the history of a monument and valorizes the use of local materials and building techniques, enhancing the potential of the project with an emphasis on the stimulus to the economic development. This methodology can be exported to other scenarios to be able to protect the built heritage in other contexts as well.

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Resume

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