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New Urbanism Principles versus Urban Design Dimensions towards Behavior Performance Efficiency in Egyptian Neighbourhood Unit

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Abstract

This paper introduces a method to apply the principles of New Urbanism on an Egyptian neighborhood unit. It extends to their relationship with the common dimensions of urban design. It proposes four objectives: a) Interpret the new concepts of New Urbanism, b) Cite principles of Urbanism and trends emanating from it, c) Discover the structure of the philosophical concept of urbanization and d) Design a matrix inventories the compatibility of the principles of New Urbanism and urban design dimensions. Finally, the matrix tests the combination of the principles and the dimensions in a traditional Egyptian urban fabric, Basilica Church Plaza.

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Keywords: New urbanism; urban design; urban design dimensions; behavioral dimensions

1. Introduction: Urbanism Today

In the last era, in the nineties, sustainable urban design and New Urbanism, as a new trend in Urbanism, emerged in synchronization (Duany, 2001). It integrates both of the perceptual, functional and behavioral dimensions with the sustainable environmental ideas. At the present time, the experts in urban design professional practice taking into account the people-related issues as a base to build cities (Carmona, 2010). Notably, this makes livable cities based on design solutions; convenient to the term of quality of life. On the other side, Y. Artibise said that the ABCs Urbanism is one of the contemporary

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trends that emerged of the New Urbanism philosophy. The trend summarizes the Urbanism in a twenty six approaches appears that arranged by alphabetical English letters (Artibise, 2010), Fig. 1. The ABCs Urbanism aimed to promote Public life in the outdoor places in the city to make livable places, taking into account, the issue of community-oriented design.

Fig. 1. The ABCs of Urbanism
(Source: Author)

1.1. Pressing global problem

Since the early beginnings of the twentieth century, the compact tissues with the mixed land use are the main ideas of planning and design the residential neighborhood unites. With the emergence of modern architecture, it started changing, the dominance of the car on the spatial relationships in city planning professional practice. After the World War II, this new trend named as sprawl or conventional suburban

development (CSD) (Duany, 2001: 3-18). Researches criticized (CSD) because of lacking of town centers and pedestrian priority (Urbanism, 1996:5-10; Duany, 2001). (CSD) spreads out to large areas of the countryside whatever the population growth rate. It pushes higher percentage of car ownership in the absence of any public transport system. Today, New Urbanism suggests action plans to CSD (Steuteviller, 2009). It starts with some principles of enhancing the communities within walking distances.

On the other side, many cities suffer from the overcrowding where the problems of housing, employment, mobility and entertainment exacerbated (Panerai, 2004:141-143), Fig. 2. The spread of the deteriorated areas that include social groups of low level of education and ethics comes without any plans for manipulating in the communities of the developing countries. Not only mistiness of the ability of the project investments for such services, but also the architectural character, traffic problems and environmental issues (Gilderbloom, 2005:40; Steuteviller, 2009). Therefore, the New Urbanism came to improve the communities to develop a car problem in the forefront of their priorities.

Fig. 2. The urbanization as a global problem: (a) the USA; (b) Beijing, China; (c) Cairo, Egypt; (d) informal transportation in developing countries (United Nations Human Settlements Program, 2009: 13); (e) India; (f) informal settlement, Egypt

1.2. Research problem and hypotheses

Although the principles of New Urbanism are the most important for the most livable cities, but still there is an inappropriate use of these principles corresponding with the adequate uses of urban design dimensions. Therefore, the paper suggests a hypothesis addressed as: "if each one of the group of the principles of New Urbanism and behavioral dimensions makes a livable city, the integration between both of them will provide solutions convenience to the quality of life". The paper inventories the principles of New Urbanism inside an Egyptian neighborhood. It extends to their relationship with the common dimensions of urban design. It provides a matrix addressed as "New Urbanism versus urban design dimensions" to be tested upon the case study from the behavioral milieu; it is the most tangible to the principles of New Urbanism (Artibise, 2010).

2. New Urbanism: History and Upbringing

The theory of New Urbanism started as a movement in the field of urban design in the USA in 1980 (Carmona, 2010; Duany, 2001), to enhance the pedestrian movement in the neighboring units. It continued to grow gradually in the direction of reforming the various aspects in urban planning and urban design. It influenced in urban areas according to standards of urban design. This theory comes to reform the built environment. This trend fosters the quality of life and place making. In addition, it retrieves the thought of urban communities. These communities include various activities within a short walking distance. New Urbanism provides walkable places, which give many options for people living an urban lifestyle in comfortable and enjoyable places. It drives the communities towards the utopian city, within the variety of uses, people, forms and meaning (Kelbaugh, 2001).

2.1. The principles of new urbanism

The New Urbanism has clear 27 principles addressed by a charter. A broad range of architects, planners, interested citizens, scholars, elected officials and developers worked to emerge it between 1993 and 1996 (The Congress of New Urbanism, 1996). The fourth annual Congress, CNU: 2000 published the ideas of New Urbanism. CNU has twenty seven principles. The twenty-seven principles are nine principles for each one of the region, the neighborhood and the block. The principles asserted to guide public policy, development practice, urban planning, and architecture design.

According to a literature review pursued on CNU, the principles of New Urbanism, at the level of the neighborhood, modified to be ten principles instead of nine (Carmona, 2010). The ten principles can be listed in five at the level of neighborhood (Fig. 3). These are, firstly, foster the community which gives choices for pedestrian movement with various activities for all users, Secondly, the comparability of urban component, thirdly, applying for the urban Infill, fourthly, achieve a smart network of connection, and, finally, acquire the quality of life.

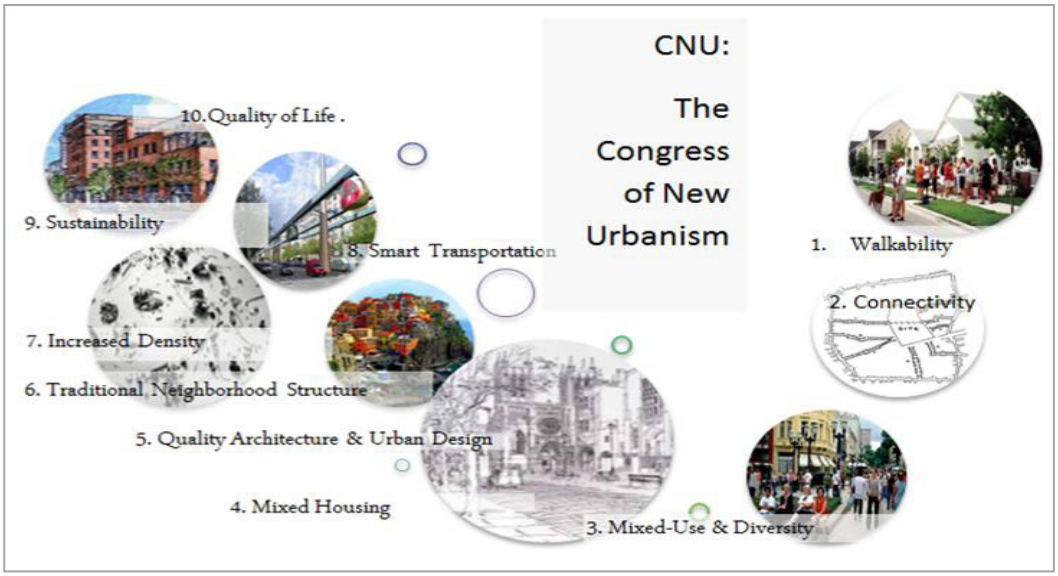

Fig. 3. The principles of New Urbanism from CNU point of view
(Source: Author)

2.2. Contemporary implemented CNU

Some contemporary pilot projects had adopted the principles of New Urbanism; these are Adelaide and Copenhagen. The developments in Copenhagen were for 40 years a step by step policy. It followed for turning a car oriented city into a walkable city (Kersi, 2000). The public realm, the rising fuel prices and the increased taxes were the most demands catalysts for this development. In the city of Adelaide reclaiming, Gehl defines 4 terms to match the New Urbanism trends (Gehl, 2002). These terms are the walkability/connectivity, responsiveness, appropriateness and variety/robustness (Fig. 4, 5, 6 and 7).

Accordingly, the research can classify the principles of New Urbanism, from the point of view of CNU and its implication in Adelaide and Copenhagen, into 4 categories, which address as PRAV as follows:

- Pedestrian Friendly/Walkability, Connectivity and Car Oriented.
- Responsiveness.
- Aesthetics, Appropriateness and Quality of Architecture.
- Variety and Robustness.

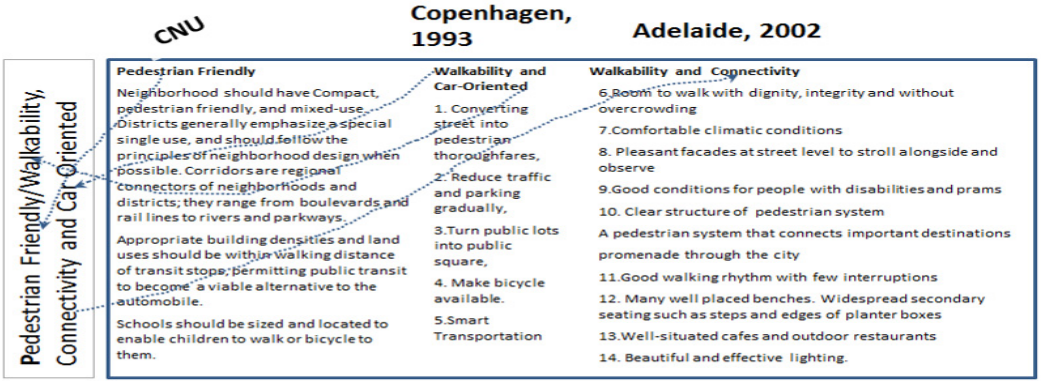

Fig. 4. The principles (Pedestrian Friendly/Walkability) of New Urbanism from CNU point of view and its application in Copenhagen and Adelaide. The dotted line refers to the relationship with the main paradigm (Source: based on Gehl, 2002; Kersi F., 2000; Evans, 2012)

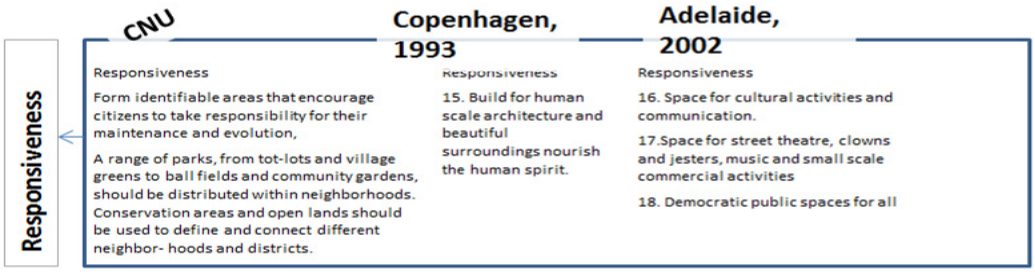

Fig. 5. The principles (Responsiveness) of New Urbanism from CNU point of view and its application in Copenhagen and Adelaide. The dotted line refers to the relationship with the main paradigm (Ibid)

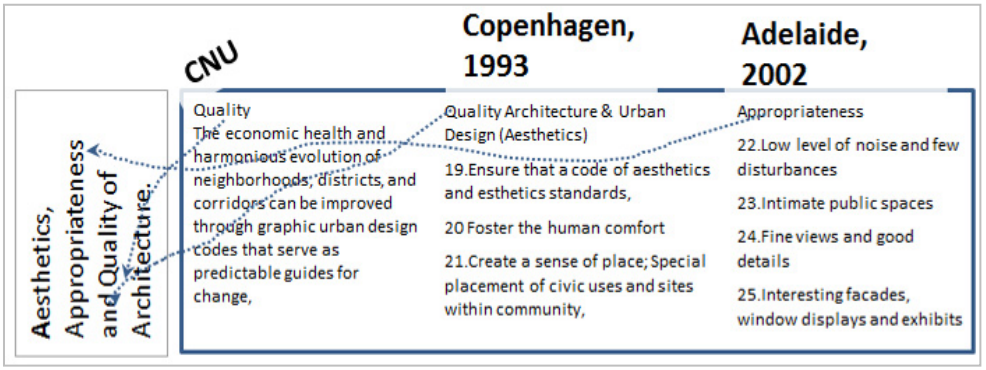

Fig. 6. The principle (Aesthetics, Appropriateness…) of New Urbanism from CNU point of view and its application in Copenhagen and Adelaide. The dotted line refers to the relationship with the main paradigm
(Source: based on Gehl, 2002; Kersi, 2000; Evans, 2012)

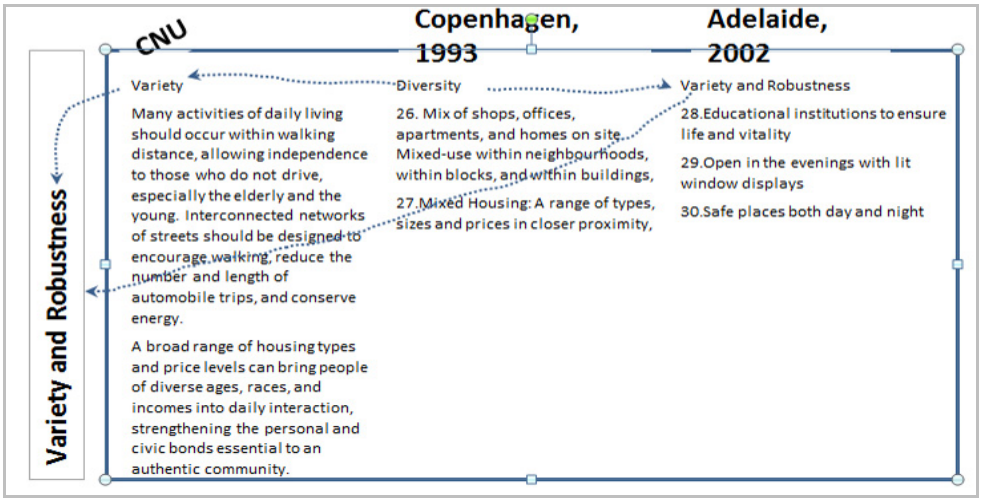

Fig. 7. The principle (variety and robustness) of New Urbanism from CNU point of view and its application in Copenhagen and Adelaide. The dotted line refers to the relationship with the main paradigm
(Source: Ibd.)

3. Urban Design Dimensions: UDD

The urban design through the classified documents relates to the relationship between man and the built environment can be represented in six common dimensions (UDD) (Carmona, 2010). The UDDs are perceptual, functional, visual, temporal, behavioral and environmental dimension (Banerjee, 2001; Baran, 2003; Bartuska, 2007; Carmona, 2010), (Fig. 8). The current paper focuses on the criteria of the behavioral dimension for the reason of being the most tangible dimension to the principles of New Urbanism. Table 1 illustrates the two main descriptive indicators of the behavioral dimension.

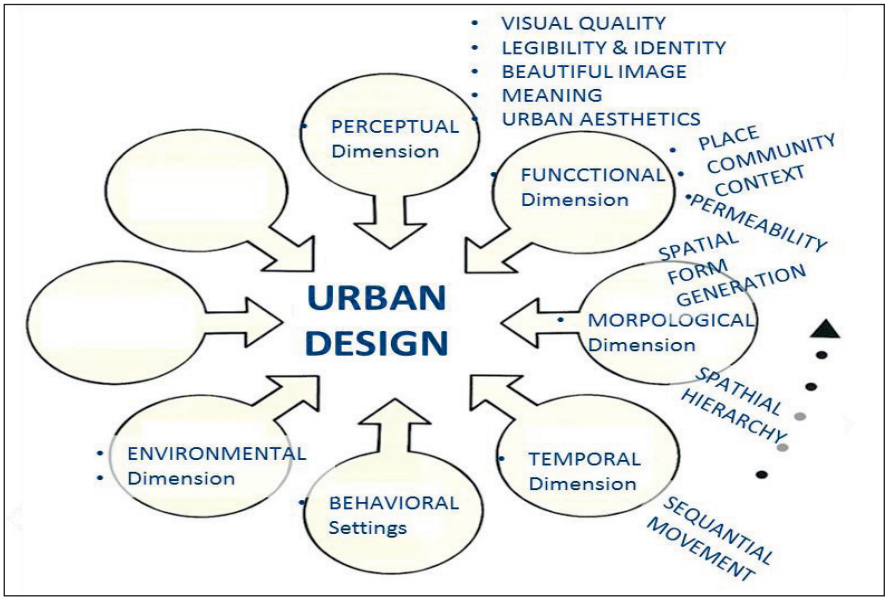

Fig. 8. The six common dimensions of urban design
(Source: Author)

Table 1. The main and sub issues of the behavioral dimension

Issue	Sub-Issue	Indicators
Behavioral Dimension (Desy, 1990; Carr, 1992; Gehl, 2001; Berison, 2008; Ilewelyn , 2010; Evans, 2012)	Non-Physical Issues	The interferes with the effect on human behavior are: ▪ The physiological abilities of the users that affect the behavioral response. ▪ An individual's personality that distinguish him from others, and make him unique in the way interacts with the surrounding environment (personalization). ▪ The social context in which the individual resides determined by the rules by which routes, and the framework of relations between individuals which imposes on all of them. ▪ The cultural background as sets of values and beliefs of the society in which the individual belongs to and that guide the behavior and from the experience. ▪ Human needs such as social, commercial, … ▪ Public participation in all design process and implementations. ▪ Equality between all users. ▪ Freedom to act within the public spaces. ▪ Freedom in the political practices.
	Physical Issues	It interferes with the mutual effect on human behavior and the built environment: ▪ Range of ownership of the vacuum according to the form of property ownership between public and semi-public. ▪ The more limits of the surrounding buildings and trees, the more powerful of the space (enclosure). The defined edges and connected to the greater sense of containment increase the positive interaction between man and the external environment. ▪ Movement system which affects the performance of such places and means of access and movement to the parking space around the pool of housing units or positions of other activities. ▪ The quality of treatment used in the space raises the quality of the efficiency.

(Source: Author)

4. Approach Apparatus

As mentioned, the paper suggests a tool to make cities livable and favorite. It deals with New Urbanism principles in comparison with the one of the six urban design dimensions. Therefore, it is necessary to make a tool to test the principles of the mentioned theory on an Egyptian neighborhood. In addition, it extends to their relationship with the behavioral dimension. Thus, the paper formulates a matrix which called as "New Urbanism vs. Behavioral Dimension", Fig. 9. This matrix tests the behavioral milieu and the principles of New Urbanism upon the case study. Since, it adapts a hypothesis which concedes that the behavioral dimension is the most adjacent to the theory (Dunham, 2000).

The matrix has two main axes: New Urbanism principles and the general framework of the behavioral dimensions. Fig. 10 shows the principles, which conclude from Fig. 4, 5, 6 and 7, list as thirty principles within four main axes. New Urbanism principles are in the vertical column and the behavioral dimensions the horizontal row. The results achieved from the analysis of a matrix of relations between principles and dimensions ranging between high and low: The highest comes from high potentialities with low constrains; medium comes from low potentialities with low constrains, and the lowest comes from low potentialities with high constrains. The mutual impact of the principles versus dimensions shows with dots, no mutual impact shows by blanked cells. One issue is out of author specialization; the physiological abilities (Fig. 10).

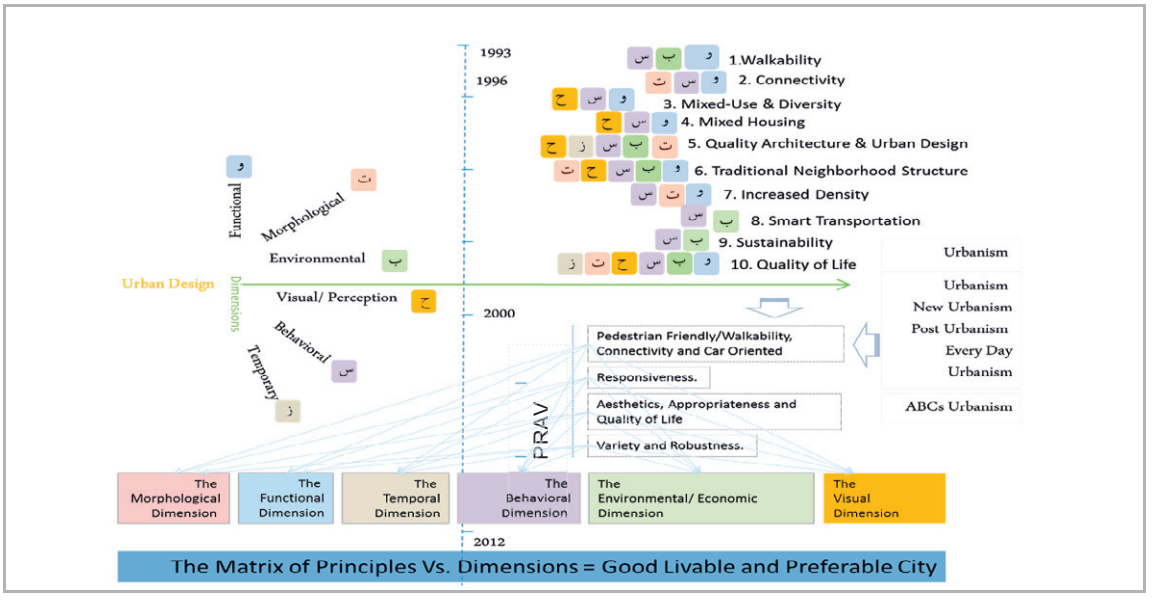

Fig. 9. The relationship between the urban design dimensions and principles of New Urbanism. It shows that the behavioral dimension is the most connected to all New Urbanism principles
(Source: Author)

4.1. The field survey

The process of surveying aims at verifies the validity of the principles of New Urbanism in the Egypt. Table 3 shows the surveying techniques and methods of the required task. Therefore, the field survey encompasses three main phases: appreciate the context, site analysis, and finally, getting out the concluded remarks (Table 2).

		Behavioral Dimension													
		Physiological Abilities	Personalization	Social Context	Cultural Background	Human Needs	Public Participation	Equality Between all users	Freedom to act within the Public Spaces.	Freedom in the political practices	The ownership	Enclosure	Movement system	The Quality of Treatment used inside the space
Pedestrian Friendly/Walkability Car Oriented and Connectivity	Principle 1				●	●				●	⊠	●	●	
	Principle 2			●	●	●							●	
	Principle 3			●	●	●				●	●		●	
	Principle 4					●							●	
	Principle 5					●			●				●	
	Principle 6				●	●			●			●		●
	Principle 7			●	●	●			●					
	Principle 8			●		●					⊠	●		●
	Principle 9			●		●		●	●					●
	Principle 10			●	●	●						●	●	
	Principle 11		●	●	●	●						●	●	●
	Principle 12		●	●		●				●		●		●
	Principle 13		●	●	●	●			●					●
	Principle 14		●	●		●				●				●
Respons-iveness	Principle 15		●	●	●	●			⊠	⊠		●		
	Principle 16		●	●	●	●			●	●				
	Principle 17		●	●	●	●			●	●				
	Principle 18		●	●	●	●		●	●	●	●		●	
Aesthetics, Appropriateness and quality of Architecture	Principle 19		⊠	●								●		●
	Principle 20		●	●	●	●			●			●		●
	Principle 21		●	●	●	●						●		●
	Principle 22		⊠	●		●								●
	Principle 23		●	●	●	●			●					
	Principle 24		●	●	●	●			●			●		●
	Principle 25		●	●	●	●			●			●		●
Varity and Robustness	Principle 26			●	●	●		●	●		●			
	Principle 27			●	●	●		●	●	●	●			
	Principle 28			●							●			
	Principle 29			●	●									
	Principle 30			●	●	●			●	●	●		●	

No Relationship ● Mutual Relationship ⊠ Conflicting Relationship Out of Author Specialization

Fig. 10. The matrix "New Urbanism versus behavioral dimension"
(Source: Author)

Table 2. The survey techniques and the related methods

Survey Technique	Methods.
1. Appreciate the context.	1. Site visit and data collection.
2. Site analysis: site characteristics of New Urbanism principles (PRAV).	2. Designing a matrix followed by analyzing the collected data: the site problems, the site potentialities and the site constraints.
3. Concluded remarks.	3. Further interpreting of analytical the case study, survey outcomes.

(Source: Author)

Fig. 11. (a) A bird-eye view of the Basilica Church Plaza; (b) a panoramic view of the Basilica Church Plaza; (c) Nazih Khalifa Street; (d) Haroon El-Rushed Street; (e) The Metro line in El-Ahram Street; (f) Belgium building style; (g) Osman Ian Affine street
(Source: (a), (b) Ibrahim Shewei; (c), (d) Ibrahim Shewei; (e), (f), (g) Ain Shams University, 2011)

4.2. Basilica Church Plaza: Appreciate the context

The Basilica Church Plaza is the most predominance, functionally and visually, square in the city of Heliopolis*. It is in an intermediate zone between the two main districts, Korba and Medan El-Gamaa

* The city of Heliopolis was built in the first decade of the previous century. The Egyptian government granted to Baron Empan a concession for the urbanization of approximately 5952 desert hectares. He gave a behest to Gaspar, the architect, to plan a new community. The ancient Heliopolis lies in the Cairo suburban of Materia (Dobrowlska, 2006; Morsi, 2010). Heliopolis has two

(Fig. 12, 13). The choice of the Basilica Church Plaza, as a study area, is for its location as a focal point. It contains various elements of movement and behavioral aspects which could be analyzed from the perspective of New Urbanism. In addition to its location, the cohabitation field of the researcher makes exploring the site more reliable. The Basilica Church Plaza locates within a distinctive place, as well as containing principles which contribute to configure responsive community. On the other hand, the master plan of the Basilica Church Plaza presents negative aspects from the perspective of the New Urbanism that need to be analyzed to overcome them.

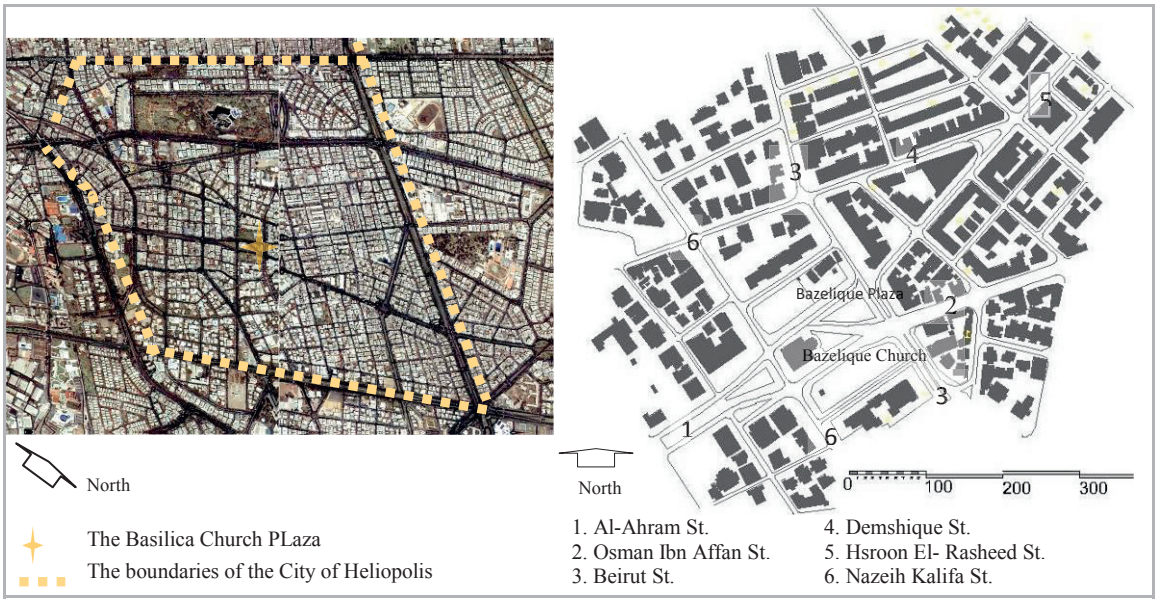

Fig. 12. (a) The city of Heliopolis; (b) the micro scale of the study area
(Source: Author based on Dobrowlska, 2006 and Sara Noeir)

4.3. Testing principles vs. dimensions: Site analysis

Analyzing the site aims to find out the current status of the Basilica Church Plaza. Fig. 14, 15, 16 and 17 represent the four elements of PRAV versus the behavioral dimension. In addition to, this phase endeavor answers to the following question: to what extent does the Basilica Church Plaza conforms to the PRAV?

Firstly, the pedestrian friendly/walkability, connectivity, and car oriented: The routs system achieves a high connectivity/permeability due to the street/block system which characterized by the medium size and street hierarchy (Dobrowlska, 2006). The site has several types of movement; these are the private cars, metro, buses, and the pedestrian movement.

The private car represents the main means of connectivity in this area (Fig. 11b, d, and 13c,). They benefit from the high connectivity realized by the street/block system. The street/block system gives all public spaces and places the quality of accessibility. Although this high connectivity is a positive factor

districts; Beirut Street separates between them. The first district is Korba. It lies to the south. It has both the average and the above-average housing. The second district lies in the northern part of the site. It addresses as Medan El-Gamaa. The second district devoted to economic housing and crafts areas. Baron Empan derived the idea of electrical tram to develop remote areas and raise their value by linking them to down town.

for New Urbanism, the car has the main dominance. This, in turn, affects the variety of activities and the exploitation of spaces by the other movement elements.

The shortage in parking places creates a basic problem that limits the capacity of urban spaces to achieve principles of New Urbanism; Cars can only park on the sides of the commercial axes. They even park sometimes on the sidewalks, these hazards in the pedestrian movement from physical barrier to their movement (Fig. 13 b). The tram runs through Al-Ahram Street, passes adjacent to the Basilica Church and joins Osman Ibn Affan Street. As a result, Al-Ahram Street enjoys animated shopping activities. Although the public buses cover Korba district, the dependency on this mod is missing; the quality of buses and bus stop locations are not suitable to the Heliopolis inhabitants' way of life. In the initial layout of Heliopolis, the routs appeared not separated from vehicle movement. Many factors enhance the efficiency of these paths and encourage people to use them; arcades to provide shadow for walkers. The site enjoys various types of landmarks; Basilica Church church, The Mosque (Gamal El-Dein) (Fig. 13 f), and Church Patriarch. These enhance paths orientation, in addition to, exploring the place. The occupation of sidewalks by vendors and shops extensions represents another negative factor (Fig. 13d).

Fig. 13. The characteristics movement pattern in Basilica Church Plaza: (a) the high capacity of traffic in Al-Ahram Street; (b) the occupation of sidewalks by shops extension and roadside parking; (c) bad treatment of sidewalks pavement; (d) The occupation of sidewalks by vendors (e) the greenery area nearby the Basilica Church surrounded by a fence; not accessible and not used as outdoor space; (f) Medan El-Gamaa district (source: (g) the unsafe pedestrian movement

(Source: (e) author; (f) Ibrahim Shewei; (g) Ain Shams University, 2011)

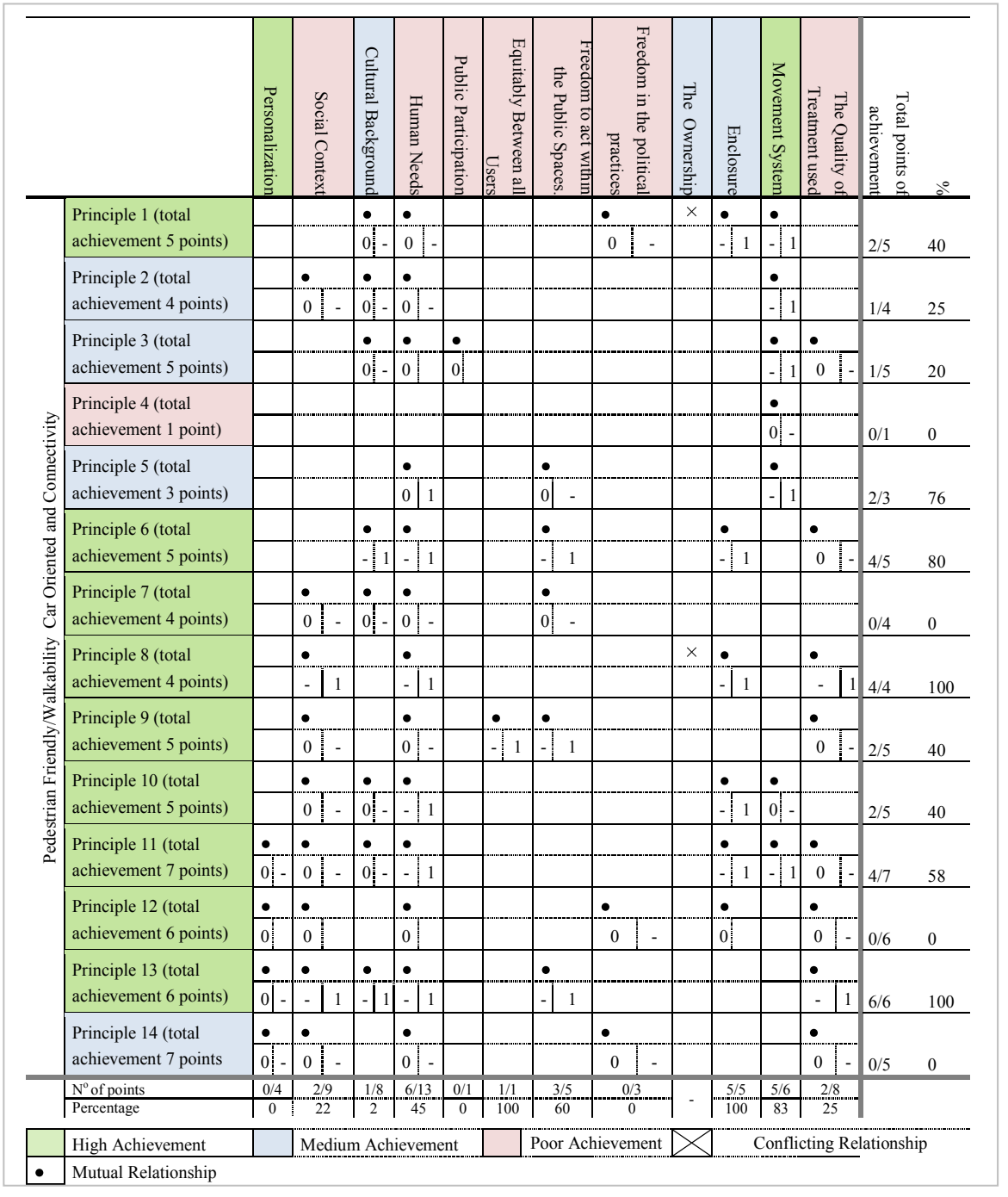

Fig. 14 the matrix 'Pedestrian Friendly/Walkability, Car Oriented and Connectivity" versus behavioral dimensions (Source: Author)

Secondly, responsiveness (Fig. 15): In designing Heliopolis, Gaspar, the architect of Heliopolis, followed the same rules those implemented in Europe (Dobrowlska, 2006). Strict regulations imposed fostering the human scale, the spirit of place and visual appropriateness, as follows (Ilbert, 1981): (a) each house should have a private garden. Accordingly, the built up area would not exceed 50% of the land area. (b) The building height should not exceed three or four stories. (c) The pedestrian pathway intervals between the built-up area and the street borderline, range from three to four meters, should be secured. Despite of the designing and planning process, the site has some constraints which restrict the outdoor activities, Fig. 13e.

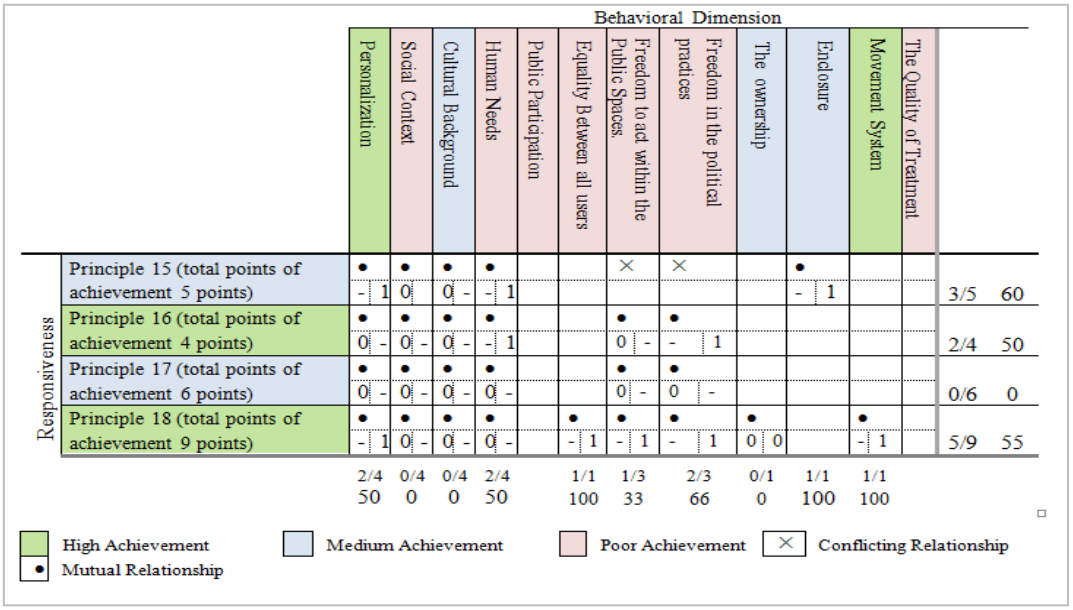

Fig. 15. The matrix 'Responsiveness' versus behavioral dimensions
(Source: Author)

Thirdly, Aesthetics, Appropriateness and Quality of Architecture (Fig. 16): The visual appropriateness creates a sense of place. This sense comes from the special placement of the civic uses. The initial design of the city of Heliopolis ensures standards of aesthetics. The current status changes because of the encroachment of the commercial uses, Fig. 13c and 13 d. In addition to, there are some areas suffer from urban deterioration, namely Medan El-Gamaa (Fig. 12c).

Fourthly, variety and Robustness (Fig. 17): In Korba and Medan El-Gamaa, the indoor activities at the ground level contribute to the animation of the outdoor spaces. Some indoor activities may take advantage of the extension outwards into adjacent public space. There is a lack of sitting and watching activities in the main spaces. In addition to, there are no sating areas in the streetscape. This affects the space usage as prospering public space despite the wide range of uses. As (Bentley, 1985:72) mentions, in some situations - most residential - with careful detail design, street can be made robust enough to be shared by both vehicle and pedestrian. The situation is different in the Basilica Church Plaza; both commercial and residential streets are Shared Street. The range of places for sitting and relaxing, such as cafes and restaurants shops, are rare in the site. This all reduces the robustness in the site.

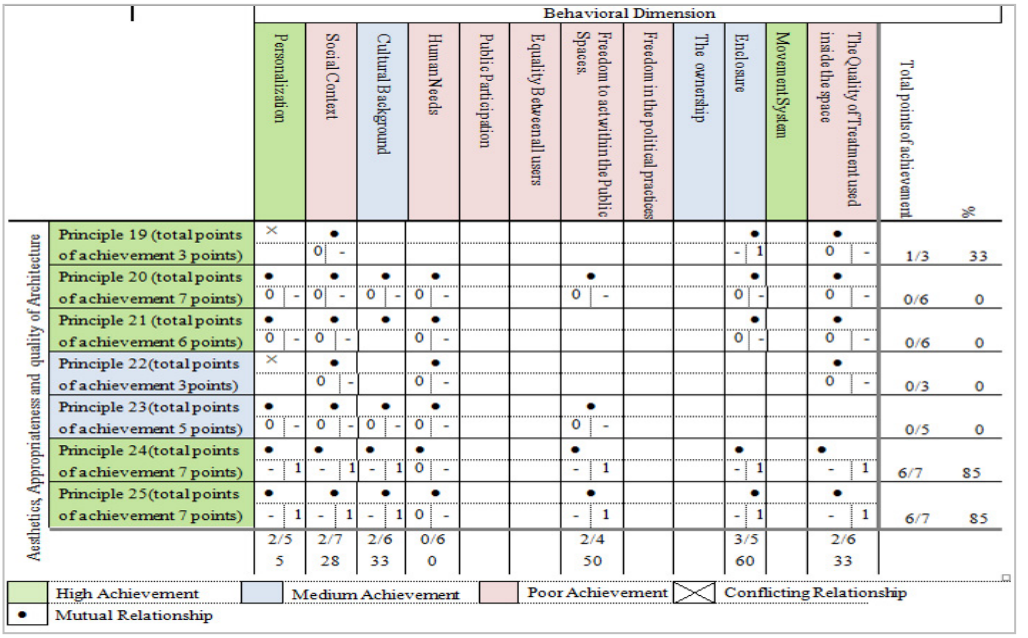

Fig. 16. The matrix 'Aesthetics, Appropriateness and Quality of Architecture' versus behavioral dimensions
(Source: Author)

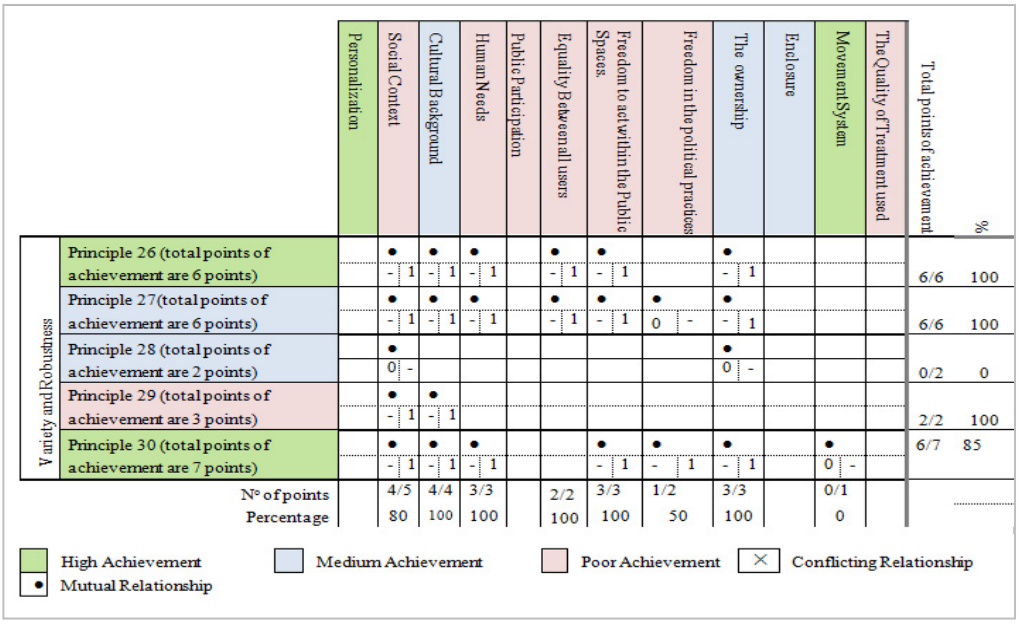

Fig. 17. The matrix 'Variety and Robustness' versus behavioral dimensions
(Source: Author)

4.4. Concluding remarks: Survey out comes

Fig. 14, 15, 16, and 17 find out results horizontally and vertically using a quantitative analysis. From Fig. 15, the paper concludes some remarks. There is no correlation between New Urbanism and both the properties and the public participation. Vertically, the issues equal between all users; enclosure and transportation are taking a high percentage of grades. Consequently, it leads to the percentage of a weak equity among all users. On the other hand, the percentage of the grades that follow express of the enclosure, the movement system, and the freedom to act in the outdoor public spaces range from medium to high. Ultimately, the following three principles; 6th (room to walk with dignity…), 9th (good condition for people…) and 13th (well-situated café and outdoor…) received the highest percentage. Furthermore, the last sub issues of the behavioral dimensions received a weak percentage of the grade in comparison with the New Urbanism principles. Horizontally, the relationships between both 8th and 13th principles comparing with the behavioral milieu score a high percentage (100%). The same as the previous step, the principles such as, 4th (Make bicycle available), 7th (comfortable climatic…), 12th (many well placed benches…), 14th (beautiful and effective lighting …) have 0 % in compatibility with the behavioral issues. Therefore, these mentioned principles should have the action priority in redesigning process; especially, they have the highest achievements in the study area.

From Fig. 15, the matrix finds out some notes vertically and horizontally. Vertically, the public participation has no impact on the principles of the New Urbanism. The social context, cultural background and the ownership achieve 0% of the number of mutual relationships between them and the principles of the New Urbanism. This percent is tangible with a critical issue which is achieving the responsiveness. Bad responsiveness may affect negatively on achieving the New Urbanism principles. The freedom to act within the Public spaces, the ownership and the quality of treatment has a high ratio (100%) on the responsiveness quality. Horizontally, all principle, except principle 17 has a poor relationship with the behavioral dimension. Principle 17 has no feedback on this matter.

Fig. 16 indicates some regards vertically and horizontally. Vertically, there is no correlation of the New Urbanism principles with the issues of public participation, ownership, and freedom in the political practices. Poor percentage of the total number of relationships between The issues of personalization, social context, cultural background, human needs, and the quality of treatment inside the space with the New Urbanism principles. In spite of, the percentage of the most of the issues before being poor personalization issue have a high impacts on the site. Medium percentage (50 and 60%) of the total number of relationships between the issues of the freedom to act within the public spaces and enclosure with the New Urbanism principles. Horizontally, a poor percentage of the behavioral milieu with the principles 20 (Foster the human comfort), 21 (create a sense of place…) and 22 (low level of noise…). In spite of, the percentage of most of the principles before being poor, the principles 22 and 23 have medium impacts on the site. High percentage (85%) of the total number of relationships between the principles 24 (fine views and good…) and 25 (interesting facades…) with the behavioral milieu. Previously, the above provides a future vision to the urban designer to enhance the values of the site. It provides a significant importance for testing and developing the matrix. That refers to the importance of the strengthening of the correlation between the New Urbanism principles and the urban design dimensions.

From Fig. 17, the matrix finds out some notes vertically and horizontally. Vertically, there is no any correlation between the public participation and New Urbanism principles. The issues of social context, cultural background, human needs, the freedom to act within the public spaces and ownership take the percentage between 80-100% of the total percentage of the relationships between the previous dimensions and New Urbanism principles. Therefore, the principles 30 should take into account the political issues in Cairo. Horizontally, the percentage of the principles of variety and robustness in its relationships with the

behavioral dimensions ranging between 80-100%. As well as, the principle 28 in its relationships with the issues (human need) and (movement system) hasn't taken any percentage.

5. Conclusions

This paper tried to find out the relationship between the principles of New Urbanism with one of the urban design dimensions. This was under a certain hypothesis. The hypothesis will be true if taken into account the following notes. First, the public participation can play a role in motivating the principles and dimensions, towards a real application. For examples, although the New Urbanism called for bicycle as a clean transportation, some communities are against the idea. Second, the principles of New Urbanism should respect the cultural context of the certain context. Third, the percentage of the mutual impact between the principles and the dimensions numerically needs to be done by a digital model.

Current work followed the inductive analytically and an empirically approaches. The first focused on the quantitative analysis whereas a case study analysis depends on the results of the previous quantitative; by using the matrix that combines the principles of New Urbanism versus the human behavioral dimension. The second was the introducing the principles of New Urbanism in a comparative way with the urban design dimensions. The paper designed, for this purpose, a matrix which addressed as the principles of New Urbanism versus the behavioral dimension. In addition to, the matrix verified the validity of the principles of New Urbanism versus the dimensions of urban design in an Egyptian neighborhood unit, taking into account the of the urban design dimensions to accommodate the change in the human needs and rights.

The paper proposes future researches as to develop the proposed integrated approach, test a matrix that addressed the role of all urban design dimensions compared with the New Urbanism principles, and enable expanded the matrix to cover all the Urbanism principles that exist within the urban design dimensions. In addition to, the PRAV may play a role in the constructive integration within neighborhood units inside the smaller Arab communities than Cairo.

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References

Artibise, Y. (2010). *The ABCs of Urbanism.* New York: online version.
Balachin, N. P. (1985). *Urban Land Economics.* London: Macmillan Publishers.
Banerjee, T. (2001). *The Future of Public Space Beyond inventing Street and reinvented Places*. *APT Journal* 76(1), 9-24.
Baron, J. (2003). *Redesigning Cities: Principles, Practice, Implementation.* Chicago: Planner Press.
Barton, H. D. (1995). *Sustainable Settlements: A Guide for Planners, Designers and Developers.* Luton, the Local Government Management Board.
Bartuska, T. a. (2007). *The Built Environment Definition and Scope.* Canada: Crisp Publications Inc.
Bentley, A. M. (1985). *Responsive Environments: A Manual for Designers.* London: Oxford OX2 8DP.
Berison, B. (2008). *Human Behavior.* New York: Brase World Press.
Bonta, J. (1979). *Architecture and its Interpretation.* London: London: Lund Hmphries Press.
Carmona, M. T. (2010). *Public Places- Uraban Spaces: The dimensions of Urabn Design.* New York: Architecture Press.

Desy, C. a. (1990). *Designing Places for People.* New York: a hand book on Human Behavior for Architects Designer.
Dobrowlska, A. a. (2006). *Heliopolis: Rebirth of the City of the Sun.* Cairo: The American University in Cairo Press.
Duany, A. E. -Z. (2000). *Suburban Nation: The Rise of Sprawl and the Decline of the American Dream.* San Francisco: North Point Press.
Dunham, J. E. (2000). *Personal Correspondence.*
Evans, R. (2012). *Developing Quality Places: Urabn Design Compendium 2.* London: ENGLISH PARTNERSHIPS & THE HOUSING CORPORATION.
Gehl, J. (2002). *Public Spaces and Public Life: City of Adelaide:2002.* Adelaide: South Australian Government: Planning SA.
Gehl, J. (2001). *Life Between Buildings.* New York: Copenhagen, Van Nostrand Rein hold in New York.
Gibbered. (1995). *Town Design.* London: Architecture Press.
Gilderbloom, J. M. (Winter, 2005). Hope IV: A Study of Housing and Neighborhood Satisfaction. *Stain: A Journal of Environmental and Sustainable Issues*, p. 40.
Grave, S. (2004). *Urban Transportation System: Choices For Comunnities.* McGraw-Hill.
Hanson, J. a. (1990). *Domestic Space organization: Two contemporary space codes compared.* London: Cambridge University Press, In Architecture and Behavior.
Ilbert, R. (1981). *Heliopolis: Le Caire 1905-1922.* Paris: Centre National de la Recharch Scientifiue.
Ilewelyn, D. (2010). *Urban Design Compendium.* London: English Partnerships, The Housing Corporation.
Kelbaugh, D. (2001). Three Urbanisms and the Public Realm. *3rd International Space Syntax Symposium*, p. 14. Atlanta.
Krier, R. (1997). *Urban Space.* London: Academy Edition.
Krier, R. (2009). *The Architecture of Community.* Washington DC.: Island Press.
Lynch, K. (1960). *The Image of the City.* London: Massachusetts Institute of Technology.
Maki, M. M. (2008). *Nurturing Dreams: Collected Essay on Architecture and City.* MTI Press.
McCluskey, J. (1992). *Road Form and Townscape.* Butterworth-Heinemann.
Morsi, M. (2010). Heritage: Saving Heliopolis? *Al-Ahram Weekly Online*.
Moughtin, c. w. (Second edition 2005). *Urban Design: Green Dimensions.* London: Architectural Press is an imprint of Elsevier.
Neary, J. S. (1994). *The Urban Experience: A People-Environment Perspective.* England: Urban Renewal Research Unit, University of Manchester.
Panerai, P. C. (2004). *Urban Form: The Death and Life of the Urban Block.* London: Architectural Press.
Program, U. N. (2009). *Planning Sustainable Cities: Policy Directions: GLOBAL REPORT ON HUMAN SETTLEMENTS 2009.* London: UN- Habitat.
Quay, H. (2007). *Manual for Streets.* Britain: Thomas Telford Publishing, Thomas Telford Ltd.
Seamon, D. (2012). Retrieved 2012, from http://www.arch.ksu.edu/seamon/ResponsiveEnvts.htm
Stephen Carr, M. F. (1992). *Urban Space.* London: Cambridge Press.
Steuteviller, R. P. (2009). *New Urbanism: Best Practices Guide.* The online version on http://www.newurbanism.org/newsreports.html: New Urban News.
Taarup, K. F. (2000). *The Charter.* Retrieved 8 5, 2012, from http://www.copenhagencharter.com/TheCharter.pdf
Urbanism, T. c. (1996). *Charter of The New Urbinism.* New York: Mc Grew-Hill.