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Urban Morphology vs. Social Cohesion: a Study of Two Neighbourhoods in New Borg Al-Arab City, Egypt

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1 ABSTRACT

Physically and socially, cities are tied together through neighbourhoods that make up their urban fabric. This research hypothesizes that the levels of Social Cohesion in a specific neighbourhood will differ based on the Neighbourhood's Physical Characteristics. This aspect is crucial for politicians responsible for new urban communities in Egypt. The main contribution of this research is to propose and test a model for comparing the levels of Social cohesion in various neighbourhoods. This is done through mixed research methods ranging from a qualitative stage including the literature review of the main neighbourhood design characteristics and social cohesion domains to a quantitative stage including statistical analysis for two neighbourhoods in New Borg Al-Arab City that differ from each other in their Morphological pattern. The data collected from the questionnaire were analyzed using the statistical package for social sciences (SPSS V26). Regarding the investigation of the main variables, this research concluded that there are significant differences in neighbourhood morphology between the two neighbourhoods, while there were no significant differences in social cohesion between the two neighbourhoods. And this result differs when investigating the subdimensions of the model, where there are significant differences in the levels of some of the subdimensions of Social Cohesion between the two neighbourhoods.

Keywords: Street system, Block system, Design Constraints, Social Cohesion, Neighbourhood Morphology

2 BACKGROUND

The term "neighbourhood" is commonly used to refer to a geographically constrained community of individuals who all make use of the same local amenities and have some degree of social cohesion with one another. The word "place" stands out among the three words "people", "location", and "cohesion" that define the neighbourhood. And in order to analyze such a place the branch of "Urban Morphology" is needed.

The study and design of "Urban Morphology" take into account the physical and spatial components of the urban structure of plots, blocks, streets, buildings, and open spaces, all of which are part of the evolutionary process of development in the specific area of the city being studied. Fundamental concepts of morphology include recognizing the evolution of urban landscapes across long time periods and being cognizant of the diverse cultural, social, economic, and political impacts of various time periods (Oliveira, 2016).

"Social Cohesion" can be affected by urban spaces since they attract large numbers of individuals. Streets, squares, parks, sidewalks, bike routes, and urban furniture tare all easily navigable and spacious and encourage people to engage with their surroundings, generate a productive use of space, and boost the vibrancy of a city. It is not enough to just think about dense metropolitan cores; the outskirts must be taken into account as well, with those living there assured of access to high-quality urban places.

The success of New Urban Communities is primarily dependent on social ties. According to our hypothesis, a connection can be drawn between Urban Morphology and Social Cohesion. In order to determine who is accountable for the development of the new urban communities in Egypt, it is essential to take into account the fact that the level of social cohesion of a neighbourhood can differ according to the physical characteristics of the neighbourhood.

3 LITERATURE REVIEW

The dilemma of Urban Morphology vs. Social Cohesion has been investigated through a limited number of research. The most prominent research in this field belongs to Wanas et al. (2014), Hossam Eldin Moustafa (2018), Aelbrecht et al. (2018), and Mouratidis and Poortinga (2020).

Wanas et al. (2014) provide new insight into how Cairo's urban design could play a part in fostering social cohesion among the city's diverse communities. It provides a comprehensive assessment and critical analysis

ISBN 978-3-9504945-2-5. Editors: M. SCHRENK, V. V: POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER, H. R. KAUFMANN – Ljubljana, Slovenia

of the pertinent worldwide and local literature on the subject, allowing readers to gain insight into the state of our current understanding of the field and the gaps that still need to be filled.

Hossam Eldin Moustafa (2018) presents "Sense of community" as the primary strategy for achieving social sustainability on a local level, so his study aims to evaluate its constituent parts from an urban planning perspective in order to get insight into how locals feel about their neighbourhood. This is done through a literature review of the main domains of "Sense of community". By analyzing the layout design features, the researcher was able to learn about the urban characteristics of four distinct neighbourhoods in the "New Maadi" zone to the south of Cairo. Residents' perspectives on the sense of community aspects were surveyed through in-depth interviews guided by a questionnaire. Then, using SPSS, the researcher measured the correlation between these aspects and neighbourhood characteristics.

Aelbrecht et al. (2019) aim to integrate scholarly research on public space design and social cohesion in both the Global North and Global South. It aggregates research from renowned and rising researchers and practitioners from the Global North and Global South to share their knowledge and experience on these challenges. It compares case studies in different cultural and social situations with varied planning and design principles to understand their similarities and differences and to discover new theories and methods that can expand our knowledge of the topic.

Mouratidis and Poortinga (2020) are using survey and GIS data from the Greater Oslo Area. Their study proposes and tests a model in which urban vitality mediates the relationship between built environment features and neighbourhood social cohesion.

This research aims to provide a comprehensive overview of the necessary regulations, rules, priorities, and design constraints in Urban Morphology that promote greater social cohesion in local communities. The sim is to further elucidate which structural compositions lead to more effective social interaction. Furthermore, it presents a model that assesses the levels of social cohesion based on the different morphologies of neighbourhoods.

3.1 Neighbourhood Morphology

Urban morphology is characterized by factors such as the way buildings and streets are configured, as well as building properties. As the structure of cities is composed of Blocks and the Paths between them; forms of the urban fabrics could be investigated from these two aspects which are known as major components of cities (Arsiya and Mazloomi 2015). With respect to the structure of this research, the researchers present the street system and block system as the main dimensions of Neighbourhood Morphology.

3.1.1 The Street System

The main subdimensions of the Street System range from the Street Network to Street Layout, Street Type, Pedestrian Network, and Access Points.

What is meant by a "Street Network" is the way in which streets are laid out and connected in a given location. A development can benefit from having a well-thought-out structure and an efficient street network. Streets play a crucial role in the planning and layout of both structures and residential areas. It is important to establish links between various street networks (Larco 2014, Auckland Transport 2020). One definition of "street connectivity" is "the number and quality of linkages in the street network." Networks that are connected or permeable make it easier to get around on foot or bike. Similarly to considering how connectivity is concerned with outside connections, permeability looks at how people can move around and interact within a site. The permeability predetermines how easily people can travel between different areas (Bentley 1985, Partnerships 2000, Donnelley 2010, Steiner 2012, Larco 2014, Department of Human Settlements 2019,). Moreover, according to Lynch 1960, "If residents of a connected city can’t get the layout of the place and what goes on there, the community will not work as intended. A readable arrangement is one in which mental representations of the content may be reliably formed. Keep in mind that the user, not the designer, forms the image; the designer is responsible only for the overall physical arrangement."

Although there is a wide range of possible "Street Layouts", the two most common network typologies are gridded and dendritic. Local streets only connect to collectors, and collectors only connect to arterials, under a Dendritic or Suburban Hierarchy. This method often encourages high speeds all the way through and concentrates traffic on the already crowded arterial system, and should be avoided. Successful urban street network designs encourage several street types and a dense system of streets and crossings, allowing for more effective land utilization (Lahart et al. 2013, Auckland Transport 2020). Three different layouts of networks that can be tailored to specific locations are shown in Figure 1. There is a direct correlation between the permeability and legibility of a street network and how orthogonal the streets are.

Considering "Street Type", Any given street will often have what is referred to as "many personalities," which may be associated with a variety of functions or features. Each attribute of a street, such as its width, frontage type, or traffic kind, hints at a concept that may be used to categorize and rank it in relation to other kinds of streets. Table 1 presents a sampling of the subjects that were discussed (Marshall 2004).

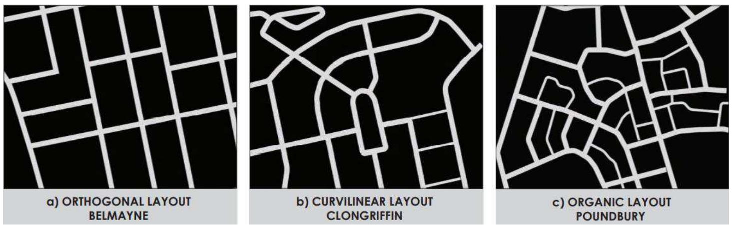

Fig. 1: Gridded Street Networks Layouts. Source: Auckland Transport (2020)

Set of road types	Classification theme	Type of theme
Square, circus, crescent, cross	Shape of space	Form
Dual 3-lane, dual 2-lane, single carriageway	Carriageway standard	Form
Limited access road, distributor, access road	Access control	Form
Street, terrace, mews, court	Built form/frontages	Form
Narrow street, wide street	Width	Form
Civic, commercial, residential, industrial	Urban building type	Form
Shopping street, living street, etc.	Urban uses and users	Use
High volume road, low volume road	Traffic volume	Use
Long distance traffic road, local traffic road	Trip length (origin and destination)	Use
Road type used by any mode	Transport modes	Use
High speed road, low speed road, etc.	Traffic speed (observed)	Use
Route used by tourist traffic, works traffic, etc.	Road users	Use
Spine road, connector street, cul-de-sac	Structural role	Relation
Strategic route, link road, local route, etc.	Strategic role	Relation
National road, regional road, municipal road	Ownership/management	Designation
Special road, principal road, A road	Statutory designation	Designation
70 mph, 60 mph, . . ., 20 mph road	Speed limit (designated)	Designation
Bus only; pedestrian only, etc.	Vehicle or user permission	Designation
'Avenue', 'Street', 'Lane', 'Mansions', etc.	Nominal	Designation
Designated route for tourists, works traffic, etc.	Designated route	Designation

Table 1: A taxonomy of road types, classification themes, and theme types. Source: Marshall, S. (2004)

Access to lots and connections to off-street, pedestrian-only and shared routes are all made possible by the network of footpaths and crossings that serves as the backbone of the "Pedestrian Network". When built according to the best rules, they provide easy access for all pedestrians. Figures 2 and 3 depict some suggested layout principles for them (Larco 2014).

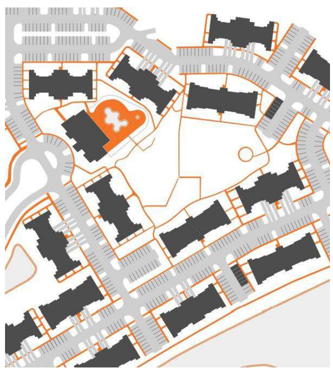

Fig.2: Building sidewalks connecting every destination. Source: Larco et al. (2014), Fig. 3: Street crossings should be marked by painted crosswalks on internal streets. Source: Larco et al. (2014).

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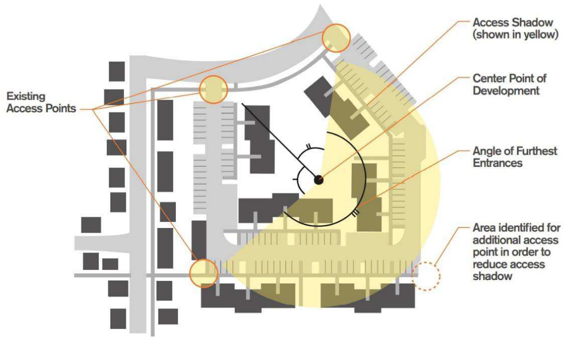
Promoting resident contact with the surrounding community and facilitating resident mobility to neighbouring residential or commercial areas on foot or bicycle requires an adequate number and distribution of "Access Points". Figure 4 shows how increasing the number of Access Points in a development may reduce travel times for residents by making it easier for them to walk or bike to nearby services. As a corollary, the uneven distribution of access points has consequences for site circulation as shown in Figure 5 (Larco 2014).

3.1.2 The Block System

The main subdimensions of the Block System range from the Block Type,to Density, and Mixed-land Use.

Multiple interpretations may be attributed to the land development that took place inside the block's confines. Next is a taxonomy of the most fundamental shapes that an urban block plan may take, based on the many physical configurations that could be used. “Block Types” have been broken down into the following five categories of building blocks: The Perimeter Block, The Row Block, The Point Block, The Ribbon Block, The Courtyard Block, and Other variants of the urban form (Tarbatt and Tarbatt 2020).



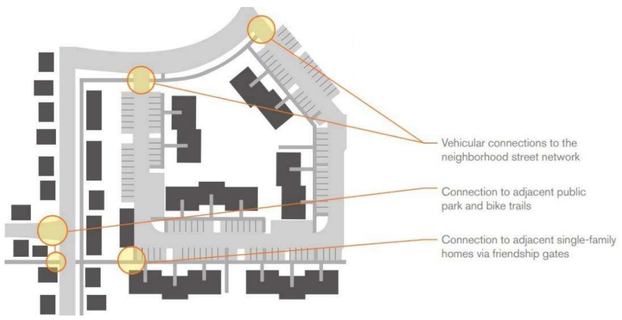


Fig. 4: Implications of Maximizing the number of Access Points.Source: Larco et al. (2014), Fig. 5: Access shadow diagram. Source: Larco et al. (2014)

Rather than viewing “Density” as the result of architectural considerations like accessibility, permeability, assembly, and proximity, it is more common to view density as a “goal”. The fact that density can be tackled from a variety of angles is crucially essential. The difference between Physical and Perceived density is a key concept (Pont and Haupt 2007, Berghauser et al. 2009, Ewing and Cervero 2010, Dave 2011, Dempsey et al. 2012). For the purposes of this research, the "Perceived Density" approach is adopted in the model proposed.

The term “Mixed-land Use” is used to refer to the variation in land-related activities that can be found in specific regions. Following is a synopsis of the most important factors to think about while planning a mixed-use development: the Scale of mixed-use, Mixed-use Development Type, Location and visibility of mixed uses [Fig. 6], the critical mass of the supporting population, and the Clustering of uses at nodal points (Partnerships 2000, Barton 2003, Croucher et al. 2012).

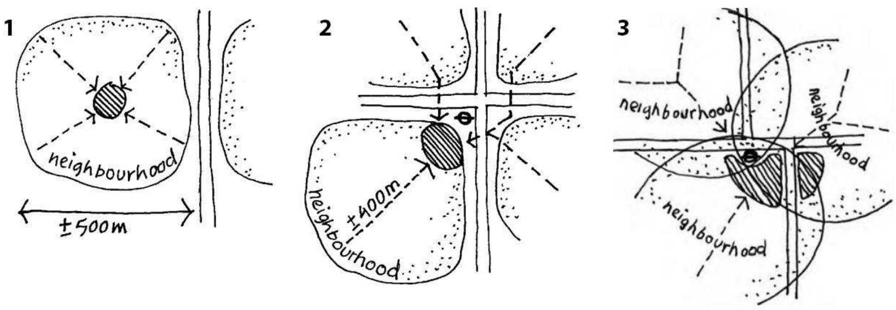


Fig. 6: Location of Mixed Use Areas and Neighbourhood Form. Source: Barton el al. (2003)

3.2 Social Cohesion

Learning what motivates a group to function as a cohesive unit is a central question at the heart of the study of social cohesion. The cooperative relationships between a group's members have their roots in early human evolution. Humans developed the ability to have healthy offspring by learning to work together. Over the course of human history, this capacity for cooperative social conduct has been applied to situations ranging from clans to tribes to peoples to states to supranational bodies (Dragolov et al. 2016).

Surprisingly, the capacity to forge strong social relationships of cooperation is also a driving factor in the breakdown of groups. There is a natural tendency for the relationships between a subgroup and the members of the broader group to diminish or be overlooked when cooperative social bonds strengthen inside the subgroup. This strengthens or destroys the group's cohesiveness as a whole, while simultaneously creating and fostering cohesion inside the group itself (Dragolov et al. 2016).

Given that social cohesion is abstract and still being worked out in terms of operationalization, it is also multidimensional and interrelated. Its definition, measurement, and operational use are all up to debate. A singular focus on one discipline risks obscuring the importance of other factors—weak or strong—in fostering societal cohesion (Megahed 2017).

The Participation/Solidarity dimension, the Safety/Trust dimension, and the Attachment dimension are only a few examples of how academics have attempted to employ these concepts in empirical studies (Megahed 2017, Bottoni 2018, Liu et al. 2020).

4 METHODS

We have chosen two neighbourhoods for comparison; named neighbourhood two and neighbourhood three; in district one in New Borg Al-arab City, in Egypt, which differ from each other in their morphological pattern, as shown in Figure 7 and Figure 8. Then we examined the inhabitants‘ perception of both neighbourhood morphology and social cohesion. A random sample consisting of 193 participants was chosen for in-depth interviews using a structured questionnaire. The structured questionnaire can be divided into two main variables; Neighbourhood Morphology and Social Cohesion.


Fig. 7: Neighbourhood Two. Source: Google Earth, Fig. 8: Neighbourhood Three. Source: Google Earth.

The main variable Neighbourhood Morphology is branched out into two dimensions; Street System and Block System. The subdimensions of the street system that have been investigated in the questionnaire are Street Network (Q1:Q6), Street Type (Q7:Q10), Pedestrian Network (Q11:Q12), and Access Points (Q13:Q14). Then the main subdimensions of the Block System are Perceived Density (Q15:Q16) and Mixed-land Use (Q17:Q18).

The main Variable Social Cohesion is branched out into three dimensions: Participation/Solidarity, Safety/Trust, and Neighbourhood Attachment. The main subdimensions of Participation/Trust are Community (Q19:Q20), Political (Q21:Q22), and Solidarity (Q23:Q24). Following are the subdimensions of Safety/Trust: General Trust (Q25:Q26), and Institutional Trust (Q27:Q28). Then the subdimensions of Neighbourhood Attachment are; Identity (Q29:Q30), Ownership and Memory (Q31:Q32), and Belonging (Q33:Q34).

A five-level Likert scale with “Strongly Disagree” until “Strongly Agree”, comprises the measurement level of the questionnaire. The data collected were analyzed using SPSS version 26. The Skewness and kurtosis tests were conducted to evaluate the normal distribution to choose between parametric and nonparametric tests. In comparing the two neighbourhoods, we performed the selected test on the three levels of the Questionnaire; The main Variables, the main Dimensions, and The main Subdimensions.

ISBN 978-3-9504945-2-5. Editors: M. SCHRENK, V. V: POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER, H. R. KAUFMANN – Ljubljana, Slovenia

5 RESULTS

In terms of measuring normality, Skewness values between -2 and +2 and kurtosis values between -7 and +7 are considered acceptable in demonstrating normal distribution (Hair et al. 2014). Table 2 displays the results of the normality test, which show that the values of Skewness and kurtosis for the model's constructs fell within the acceptable range. Thus, The parametric test is the appropriate test. Since we are interested in comparing the two neighbourhoods, the appropriate parametric test is independent-samples t-test.

Construct	Notation	N	Skewness	Kurtosis
Street Network	SN	193	-0.463	1.907
Street Type	ST	193	0.354	-1.178
Pedestrian Network	PN	193	-0.574	-1.023
Access Points	AP	193	-0.489	0.187
Perceived Density	PD	193	-0.311	2.53
Mixed Land Use	MLU	193	0.052	-1.342
Community	COM	193	1.331	5.01
Political	POL	193	1.202	1.107
Solidarity	SOL	193	-0.82	0.924
General trust	GT	193	-0.037	0.657
Institutional trust	IT	193	-0.344	-0.806
Identity	IDE	193	-1.633	2.852
Ownership & Memory	OM	193	-1.042	0.596
Belonging	BEL	193	-1.023	0.86
Street System	SS	193	-0.373	-0.653
Block System	BS	193	-0.043	-1.005
Participation	PAR	193	0.416	0.932
Trust	TRU	193	-0.359	-0.503
Neighbourhood Attachment	NA	193	-1.138	0.306
Neighbourhood Morphology	NM	193	-0.128	-1.074
Social Cohesion	SC	193	-0.553	0.248
Remark: Normality assumption attained				

Table 2: Normality diagnostics. Source: Researchers.

5.1 Comparing The Main Variables

Table 3 provides some descriptive statistics that illustrate the difference between the neighbourhoods in terms of the main variables; neighbourhood morphology and social cohesiveness. Based on the data presented in the table and the graph in figure 9, it is clear that the second neighbourhood is distinctive from the third in terms of its morphology. Despite the fact that there appeared to be no visual discrepancies between the two neighbourhoods in terms of social cohesion. The results of an independent t-test are shown in table 4 to determine whether or not the observed differences are statistically significant.

Variable	Neighbourhood	N	Mean	SD
Neighbourhood Morphology	2	95	3.6794	.32241
	3	98	2.9288	.31232
Social Cohesion	2	95	2.9936	.45698
	3	98	2.9342	.46530

Table 3: Descriptive statistics of the main variables regarding the neighbourhoods. Source: Researchers.

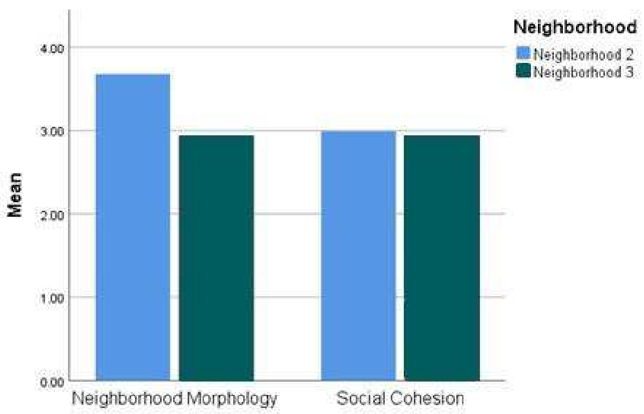


Fig. 9: Bar chart for the difference between the neighbourhoods regarding the main variables. Source: Researchers.

Variable	Levene's Test for Equality of Variances			t-test for Equality of Means		
		F	P-value	t	df	P-value
Neighbourhood Morphology	Equal variances assumed	0.348	0.556	16.429	191	0
	Equal variances not assumed			16.421	190.24	0
Social Cohesion	Equal variances assumed	0.139	0.709	0.893	191	0.373
	Equal variances not assumed			0.894	190.97	0.373

Table 4: Independent Samples t-test for the Main Variables. Source: Researchers.

According to the results of the independent-samples t-test, the morphological differences between the two neighbourhoods are statistically significant ($t=16.429$, $p<0.01$). P-value > 0.05 indicates that there is NO statistically significant difference in Social Cohesion between the two neighbourhoods. ($t=0.893$, $p>0.05$).

5.2 Comparing The Dimensions of The Main Variables

The difference between the neighbourhoods in terms of the dimensions of the main variables; Street System, Block System, Participation, Trust, and Neighbourhood Attachment; are illustrated in table 5 through some descriptive statistics. Based on the data presented in table 5, the graph in figure 10, and table 6 of the results of Independent Samples t-test, there are a statistically significant differences in the Street system, block system, and Neighbourhood attachment levels between the neighbourhoods, while there are no statistically significant differences in the levels of participation and trust.

Dimension	Neighbourhood	N	Mean	SD
Street System	2	95	3.8088	0.35971
	3	98	3.0514	0.45775
Block System	2	95	3.5500	0.52415
	3	98	2.8061	0.49939
Participation	2	95	2.4842	0.48808
	3	98	2.5782	0.51618
Trust	2	95	2.8158	0.67950
	3	98	2.7653	0.64996
Neighbourhood Attachment	2	95	3.6807	0.57100
	3	98	3.4592	0.69364

Table 5: Descriptive statistics of The Dimensions regarding the neighbourhoods. Source: Researchers.

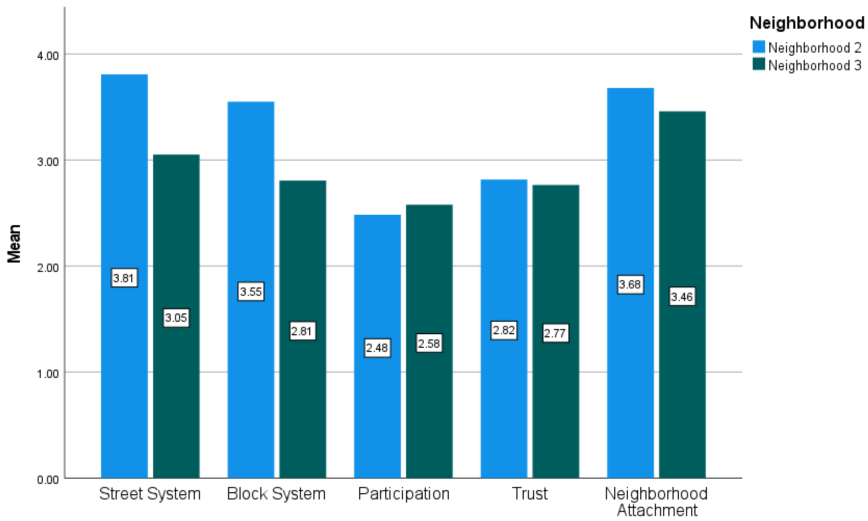


Fig. 10: Bar chart for the difference between the neighbourhoods regarding the main Dimensions. Source: Researchers.

Dimension	Levene's Test for Equality of Variances			t-test for Equality of Means		
		F	P-value	t	df	P-value
Street System	Equal variances assumed	11.389	0.001	12.754	191	0.000
	Equal variances not assumed			12.801	183.221	0.000
Block System	Equal variances assumed	0.042	0.838	10.096	191	0.000
	Equal variances not assumed			10.089	189.799	0.000
Participation	Equal variances assumed	1.581	0.210	-1.299	191	0.195
	Equal variances not assumed			-1.301	190.884	0.195
Trust	Equal variances assumed	0.000	0.999	0.528	191	0.598
	Equal variances not assumed			0.527	189.914	0.599
Neighbourhood Attachment	Equal variances assumed	5.414	0.021	2.418	191	0.017
	Equal variances not assumed			2.425	186.148	0.016

Table 6: Independent Samples t-test for the Main Dimensions. Source: Researchers.

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5.3 Comparing The Subdimensions of The Main Dimensions

5.3.1 Comparing The Subdimensions of Neighbourhood Morphology

According to the data presented in the table 7, figure 11, and the results of the independent t-test in table 8; there are a statistically significant differences in the following subdimensions of Neighbourhood Mophology: Street Type, Pedestrian Networks, Access Points and Mixed-land Use levels between the two neighbourhoods, while there are no statistically significant differences in the levels of subdimensions Street Network and Perceived Density.

Subdimension	Neighbourhood	N	Mean	SD
Street Network	2	95	3.9053	0.47655
	3	98	3.9388	0.56233
Street Type	2	95	4.0456	0.52953
	3	98	2.5374	0.34058
Pedestrian Network	2	95	3.5474	0.78236
	3	98	2.3163	1.08025
Access Points	2	95	3.7368	0.55468
	3	98	3.4133	0.69618
Perceived Density	2	95	3.2842	0.48735
	3	98	3.2704	0.68175
Mixed Land Use	2	95	3.8158	0.74037
	3	98	2.3418	0.67578

Table 7: Descriptive statistics of The Subdimension of Neighbourhood Morphology. Source: Researchers.

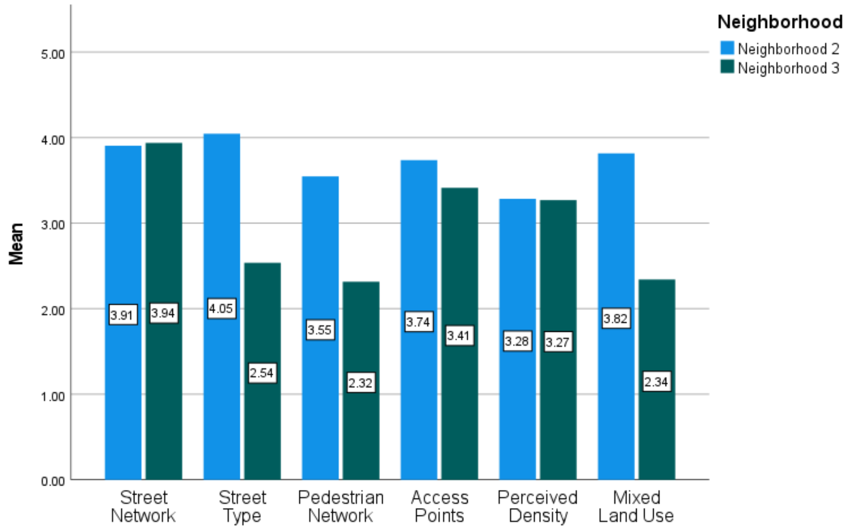

Fig. 11: Bar chart for the difference between the neighbourhoods regarding the subdimensions of Neighbourhood Morphology. Source: Researchers.

Subdimension	Levene's Test for Equality of Variances			t-test for Equality of Means		
		F	P-value	t	df	P-value
Street Network	Equal variances assumed	1.352	0.246	-0.446	191	0.656
	Equal variances not assumed			-0.447	187.672	0.655
Street Type	Equal variances assumed	68.258	0.000	23.606	191	0.000
	Equal variances not assumed			23.453	159.631	0.000
Pedestrian Network	Equal variances assumed	23.893	0.000	9.043	191	0.000
	Equal variances not assumed			9.088	176.920	0.000
Access Points	Equal variances assumed	14.522	0.000	3.564	191	0.000
	Equal variances not assumed			3.577	184.149	0.000
Perceived Density	Equal variances assumed	6.106	0.014	0.161	191	0.872
	Equal variances not assumed			0.162	175.809	0.871
Mixed Land Use	Equal variances assumed	1.007	0.317	14.453	191	0.000
	Equal variances not assumed			14.432	188.192	0.000

Table 8: Independent Samples t-test for the Subdimensions of Neighbourhood Morphology. Source: Researchers.

5.3.2 Comparing The Subdimensions of Social Cohesion

According to the data presented in the table 9, figure 12, and the results of the independent t-test in table 10; there are a statistically significant differences in the following subdimensions of Social Cohesion: Political, Identity, and Ownership and Memory levels between the two neighbourhoods, while there are no statistically significant differences in the levels of subdimensions Community, Soldarity, General Trust, Instituational Trust, and Belonging.

Subdimension	Neighbourhood	N	Mean	SD
Community	2	95	2.3684	0.57985
	3	98	2.4286	0.48162
Political	2	95	1.4632	0.78633
	3	98	1.7143	0.78648
Solidarity	2	95	3.6211	0.58671
	3	98	3.5918	0.74039
General trust	2	95	2.9000	0.64247
	3	98	2.7551	0.49349
Institutional trust	2	95	2.7316	0.89565
	3	98	2.7755	1.08438
Identity	2	95	3.8421	0.35925
	3	98	3.4643	0.70437
Ownership & Memory	2	95	3.5842	0.72439
	3	98	3.2806	0.83748
Belonging	2	95	3.6158	0.75952
	3	98	3.6327	0.87211

Table 9: Descriptive statistics of The Subdimension of Social Cohesion. Source: Researchers.

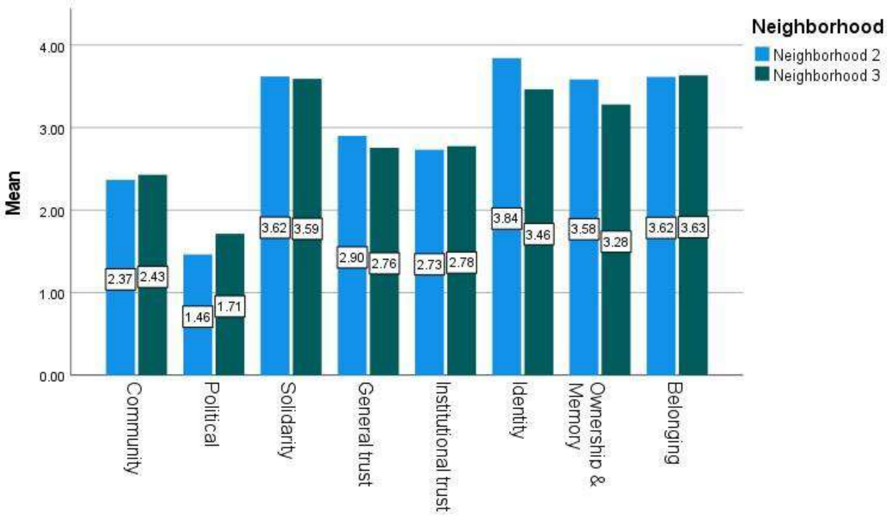

Fig. 12: Bar chart for the difference between the neighbourhoods regarding the subdimensions of Social Cohesion. Source: Researchers.

Subdimension		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	P-value	t	df	P-value
Community	Equal variances assumed	0.934	0.335	-0.785	191	0.433
	Equal variances not assumed			-0.783	182.619	0.435
Political	Equal variances assumed	0.563	0.454	-2.218	191	0.028
	Equal variances not assumed			-2.218	190.816	0.028
Solidarity	Equal variances assumed	3.996	0.047	0.303	191	0.762
	Equal variances not assumed			0.304	183.790	0.761
General trust	Equal variances assumed	0.741	0.390	1.760	191	0.080
	Equal variances not assumed			1.753	176.366	0.081
Institutional trust	Equal variances assumed	6.233	0.013	-0.306	191	0.760
	Equal variances not assumed			-0.307	186.336	0.759
Identity	Equal variances assumed	35.496	0.000	4.672	191	0.000
	Equal variances not assumed			4.715	145.251	0.000
Ownership & Memory	Equal variances assumed	1.865	0.174	2.690	191	0.008
	Equal variances not assumed			2.696	188.588	0.008
Belonging	Equal variances assumed	3.193	0.076	-0.143	191	0.886
	Equal variances not assumed			-0.143	188.863	0.886

Table 10: Independent Samples t-test for the Subdimensions of Social Cohesion. Source: Researchers.

ISBN 978-3-9504945-2-5. Editors: M. SCHRENK, V. V: POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER, H. R. KAUFMANN – Ljubljana, Slovenia

6 DISCUSSION AND CONCLUSION

This research was keen on comparing the levels of Social coehsion based on different morphologies of Neighbourhoods. In doing so, the research started by tackling some design constraints regarding the neighbourhood that leads to better social cohesion. Then the research presented a model that investigates social cohesion at a micro level by conducting a structured questionnaire on a random sample of the residents of two neighbourhoods in New Borg Al-arab City in Egypt that differ from each other in the morphological pattern. This model is based on comparing the two neighbourhoods and is divided into three levels.

The first level compares the main variables which are Neighbourhood Morphology and social cohesion. What turned out after conducting the statistical test using SPSS that there are differences in the neighbourhood morphology between the neighbourhoods, while there is no statistical significance difference between Social cohesion in the two neighbourhoods.

The second level of the model investigates the dimensions of the main variables, which turned out that there are differences in the street system, block system, and neighbourhood attachment.

The third level of the model is much deeper and investigates the main subdimensions of the main variables. Regarding the subdimensions of Neighbourhood Morphology, there are differences in Street type, pedestrian network, access points, and mixed land use, while there are no differences in street network and perceived density. Considering the subdimensions of social cohesion, there were differences in political identity, ownership and memory subdimensions.

Through this model, much more understanding of the main differences between social cohesion at a micro level is gained. But in general, regarding the main hypothesis, there were no differences considering social cohesion. This may be due to the following reasons that were known during the questionnaire, Neighbourhood Two is considered adjacent to Neighbourhood Three, and also although the residents of Neighbourhood Two are tenants and are not owners like the residents of Neighbourhood Three, the residents of the two neighborhoods have the same social background, and also Neighbourhood Two does not contain amenities like social cafés, which makes its residents resort to the adjacent neighbourhoods for entertainment.

7 ACKNOWLEDGEMENT

The researchers thank Ibrahim Mohamed Taha, who enriched our knowledge in the statistics in this article. Also Engineer Tarek El Shafie for his precious help in collecting the data in the questionnaire.

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