Mixing Methods in Urban Research: Exploring City and Community Social Capital

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Abstract

How do mixed methods matter to enrich theoretical and empirical urban research? We have examined this integrated research in the theoretical context of a city and community social capital, methods, as well as the discussion of empirical results to urban research and practice. This paper addresses the mixed methods approach in order to explore the city and community social capital research linkages into practice. We discuss this emerging field through an integrated research with qualitative and quantitative data in three different steps: the research design, gathering data and discussing results. Our method uses a mixing of data that includes interviews (n = 17), ethnographic observation, and archives in order to integrate the collection of information based on cross sectional data (n = 402) with open and closed-ended questions about community and social networks' neigborhood. This study has used a combination of methods to obtain a fuller view of the embeddedness of social networks resources in neighbors' networks, as well as the community building to address social capital in the construction and maintenance of neighborhoods. We report detailed information about a specific research project, its methodology, data, discussion and implication to neigborhood social capital. Findings provide evidence that our mixed methods produce an integrative component of the research of neigborhood community social capital concerning four axes: network structure; trust and reciprocity in the neighbourhood; resources; and community engagement. Results suggest three significant clusters with important linkages to neighbourliness as well as relevant qualitative data on the analysis of neigborhood organizations' relevance to community building. This article shows the merits of these methods to urban research and policy.

Keywords

mixed methods; latent class model; neighborhood; social network analysis, social capital

INTRODUCTION

The mixed methods allow the mixture of qualitative and quantitative methods, contributing to advances in research. Social Network Analysis is one of several areas where such methods have been applied. The development of mixed methods in social networks is very recent, (Ann A. Berry, Mary Jo Katras, Yoshie Sano, Jaerim Lee, and Jean W. Bauer, 2008).

This study combines quantitative data from a survey and qualitative evidence from interviews, ethnography, photos, newspaper archives, film, in order to explore city and community social capital. The present study conceptualizes integrated research in the theoretical and empirical context of a city and community social capital, methods, as well as the discussion of empirical results to urban research and practice. It uses a mixed methods approach to offer a better understanding of the research problem than either method on its own (Plano and Creswell 2007). The purpose of this study is to explain, both qualitatively and quantitatively, the city and community social capital's research linkage to practice.

In order to do this, we have designed our study in the following way: firstly, we have carefully reviewed literature; secondly, we continued with research design and mixed methods; thirdly, we handled methodology; then we go on to data analysis and discussion of results, and lastly we have put forward conclusions and perspectives.

LITERATURE REVIEW

Living in cities has been an important area of research within social networks. Since the late nineteenth century that sociologists have expressed their concern about the disappearance of neighborhood social networks, the work of Tönnies ([1887] 1955) on the separation of community and society is an example of this.

In the mid-twentieth century, the contribution of English anthropologists like Malinowski and Radcliffe-Brown, especially the research conducted at the University of Manchester (Max Gluckman, J. Clyde Mitchell, John Barnes and Elizabeth Bott Sigfied Nadel), marked the beginning of research on social network analysis in an urban context (Freeman 2010, Bernard 2010).

After the 1960s relevant investigations were carried out leading to the development of research methods in social networks. An example of this, is the work of Edward Laumann (1969a, 1969b): the Detroit-based interviews which sought to find out from men who where the three co-workers with whom they had a close relationship. In the 1970s, studies about East York, Toronto (Wellman 1979), and studies developed by Claude S. Fischer (1977, 1982), Northern California, extended Elizabeth Bott's pioneering work on the analysis of ego-centered networks which showed how personal networks are multiple, diverse, geographically dispersed and weak (Carrasco, Hogan, Wellman and Miller 2008).

The autonomy of Social Network Analysis (SNA) in the 1970s was marked by a quantitative orientation, to which greatly contributed a series of pioneering studies (White 1961; Freeman, Fararo, Bloomberg and Sunshine 1963; Harary 1969; Fischer 1977; Wellman 1979). Their concern was to demonstrate the importance of theoretical and empirical social networks to individuals, communities and organizations.

Despite the importance of empowerment in the quantitative paradigm of SNA, this process was only possible due to the contribution of qualitative research, especially the work of anthropologists at the University of Manchester.

The development of investigations using the name generator made it possible to identify if the interviewees had any specific link - emotional, financial, personal, sickness or other. This technique was introduced in 1984 in the American General Social Survey to assess networks and social support. In the late 1980s comparative studies were developed and applied, concluding that the inhabitants of Mexico City had fewer members in their personal network than the inhabitants of the city of Jacksonville, United States (Bernard, Killworth, McCarty, Shelley and Robinson 1990. Currently the use of the name generator is a very common practice in the investigation of social networks.

More recently, the development of a third perspective in research methods (in addition to the qualitative and quantitative methods) - the mixed methods - has contributed to sociological research (Tashakkori and Teddlie 1998; Tashakkori and Teddlie 2002; Bryman 2006; Johnson and Onwuegbuzie Turner 2007; Bryman 2008; Bergman 2008; Creswell 2009; Creswell and Clark 2007; Clark and Creswell 2010; Briggs, Popkin and Goering 2010, Dominguez 2010).

RESEARCH DESIGN & MIXED METHODS

Several questions arise when designing research, for instance: How to start the investigation? How to go about doing fieldwork? What questions to ask? What to observe? How to observe? Concerning methods another questions arise: for instance, how and why mix the methods? What are the results from mixing methods?

At the beginning of the investigation, we required information about: the idea of community, the social construction of the neighborhood (Alvalade), the representation of community and city forms of neighborhood, the structure of social networks and many other issues. In all of these cases the available information on research carried out in Portugal was extremely scarce; the need to answer these questions was great.

The interviews with residents of Alvalade, architects, planners, sociologists, President of the Parish of Alvalade helped towards the understanding of the first set of research questions and identified areas to be included in the investigation. Why do people come to live in Alvalade? Who comes to live here? Who is currently residing here? What are the problems of this parish? What is the structure of the neighborhood? What are the support resources among neighbors? Their replies brought about a new set of questions, contributing to the development of the research and the progression of the investigation.

The work of Becker (2007) 'Telling About Society' directed us to the importance of various elements in the representation of society – how movies, photos, maps, literature files, and so on, are important elements to understand society, besides the traditional ethnographic methods, statistics, models, and so forth.

The first phase of the investigation resulted in the integration of a number of important elements for the understanding of the object of study. The movie *Verdes Anos* by Paulo Rocha in 1963 as well as photos of the Photographic Archive of Lisbon are fundamental to the analysis of the construction of Alvalade: the relationship between community and city; the housing policy where the social mix is an important element in the integration new residents.

Throughout this work a set of difficulties emerged, which we sought to overcome through research design. One of the first questions was: how to investigate social networks? That is, what are the tools required to collect data allowing analysis of social networks? The lack of the analysis of social networks in the Portuguese cities hindered the development of the empirical work. This gave rise to another issue - the specificity

of Portuguese cities - that is, to understand some aspects, such as: the size of cities, the late urbanization process, the importance of neighborhood structure, the length of residence, among other, could influence the structure of social networks.

Consequently, the success of the initial question "how to investigate social networks in Alvalade neigborhood?" becomes even more dependent on research methods. The literature review and subsequently the development of the research, allowed us to decide on the advantage of applying qualitative and quantitative methodologies, but especially the combination of both through mixed methods.

Although researchers started to integrate qualitative and quantitative methods decades ago, Tashakkori and Teddlie 1998, mixed methods - mixing the two types of data with research design - are still a recent perspective, formally emerging in the last decade.

The mixed methods consist of a research design encompassing both theoretical assumptions and the methods of investigation. The methodology involves theoretical questions that guide the direction of collecting and analyzing data and the mix of qualitative and quantitative perspectives in different stages of the investigation: it focuses on collecting, analyzing and blending both qualitative and quantitative data in a study or set of studies. The central premise is that the use of qualitative and quantitative perspectives in combination allows for a better understanding of the problems under research than adopting a single perspective (Clark and Creswell 2010).

The design of mixed methods can incorporate a variable sequence, that is, the choice of qualitative methods, followed by quantitative methods or vice-versa (Creswell 2009).

The following figure (Figure 1) presents a three sequential phases: (a) qualitative methods to quantitative methods, (b) quantitative methods to qualitative methods, and (c) a mixture of both.
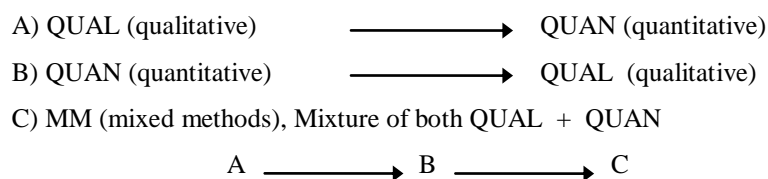
A) QUAL (qualitative)   ⟶   QUAN (quantitative)
B) QUAN (quantitative)   ⟶   QUAL (qualitative)
C) MM (mixed methods), Mixture of both QUAL + QUAN
A ⟶ B ⟶ C

Figure 1 Mixed methods

We propose the design of integrated research, from the initial phase to the analysis and discussion of results, with the application of a mixed methodology. The design of mixed methods in research (Figure 2) included in phase 1, qualitative data and quantitative analysis of neighborhood and community networks, which enabled the first research questions to be answered and the second phase under development, which will intergrate the analysis neighborhood and community networks. The results from the mixed methodology came at a later stage.

Data

- Ethnography (QUAL)
- Interviews (QUAL)
- Newspaper Archives (QUAL)
- Photos (QUAL)
- Survey (QUANT)
- Film (QUAL)

Integration

- Survey design
- Data analysis of open questions
- Clusters name: community, city and village
- Analysis of social networks of the *Vá-Vá* and *Ramiro José*

Results

Analysis of Portuguese context of community and neigborhood social networks (trust, reciprocity, high social capital, dense structure, homophly, community engagement)
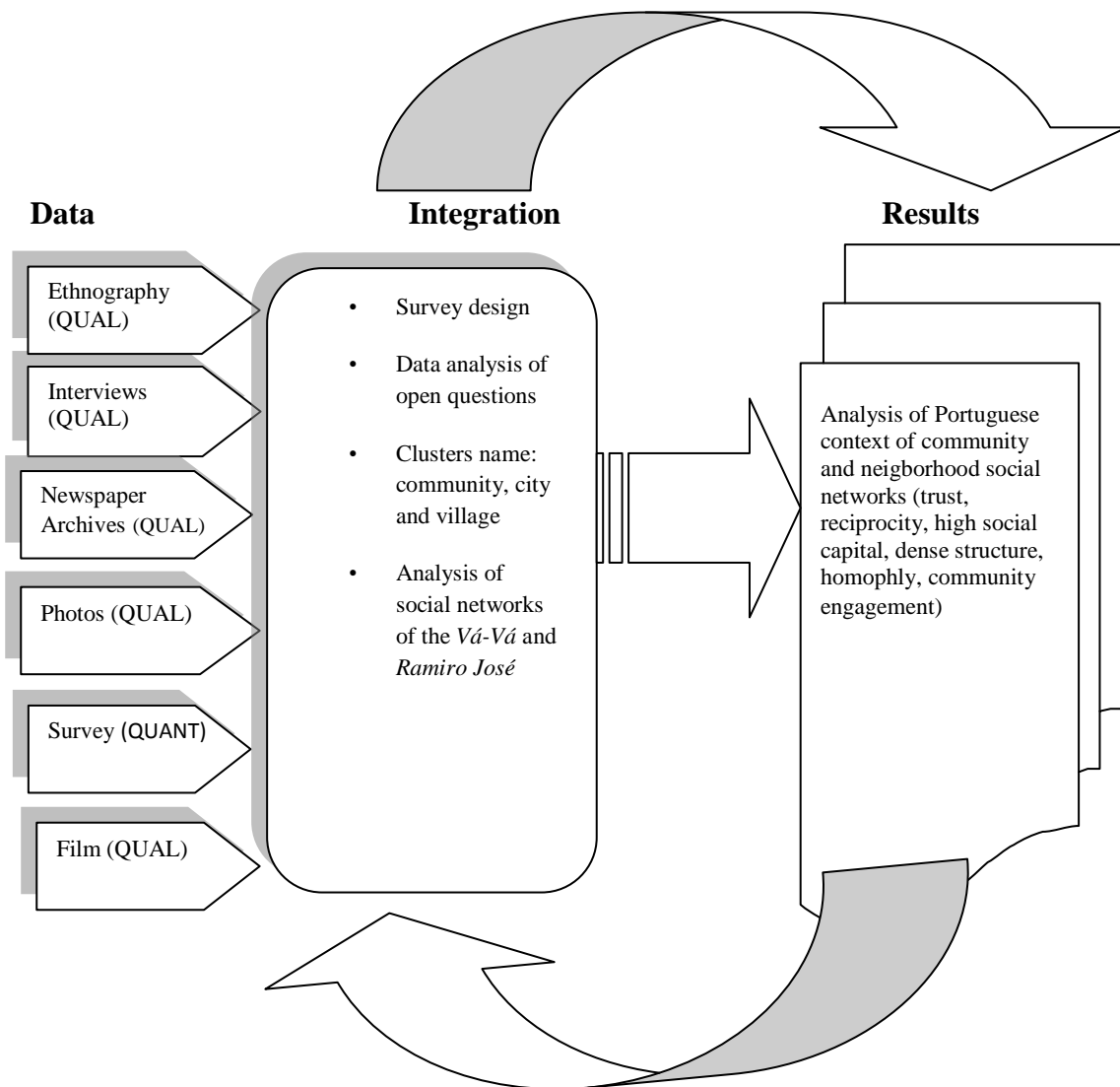
Figure 2 Mixed methods research design

From qualitative to quantitative methods

This section reviews the methods used in the qualitative research (urban ethnography, semi structured interviews and archives) and how the results of this phase led to the design of quantitative methods (survey).

Urban ethnography

The participant observation was developed based on the work of Herbert Gans (1962, 1967) and the goals are: to gain knowledge of the urban parish of Alvalade, to analyse the nature of social networking neighborhood and to assess the existence or absence of community life in the city. It consisted of the observation and data collection over a period several weeks and several hours a day.

The first phase of field work in the parish of Alvalade was characterized by ethnographic observation and interviews took place between February and October 2008, marking the beginning of work. The knowledge of the territory, the interaction between the neighbors, the old ways of living and urban residents and the organization of public space were elements of observation. Throughout this period they were living in the community, in particular knowledge of social actors and institutions. The information was recorded in a field diary and later coded and analysed.

Date
Local
Observations _____

_____

Time	Local	Context	Characteristics	Networks	Dimension	Type
…						
7:30						
8:00						
8:30						
9:00						
...						

Figure 3 Model of fieldwork diary to collect data of neighborhood social networks

The first results obtained from ethnographic observation showed relevant data about the nature of the Alvalade Landscape. The first questions: What is the importance of neighborhood units in momentum of the parish and community structure? What are the aspects that characterize the urban design of Alvalade? How important are the different types of housing and the social diversity in Alvalade? What is the involvement of people in the community? How do the residents of Alvalade organize their neighborhood networks?

The initial question – 'What to look for in Alvalade?' – has gradually developed throughout the investigation. The first few days of observation allowed us to analyse the experience in this territory without any orientation, which means without any selection of elements of analysis. In the first phase of integration in the field, there were several items of be noted: (1) the ways of living and models of social networks (interaction between residents versus isolation and anonymity), (2) forms of appropriation of private and public space, (3) forms of participation in community life, (4) maintenance, conversions of buildings and / or new construction, as well as the dynamics of the new residents (in particular, we analyzed the balconies, the new furniture, the arrangement of the exterior and the flowers, which can generally represent examples of lifestyles and cases of gentrification), (5) problems (parking, street cleaning, vandalism, etc.). The ethnographic observation was made in public spaces (gardens, squares and streets), commerce sites, churches, market (near the neighborhood of the cuttings), *café Va-Va* and *Ramiro José*.

When we chose to study Alvalade, we thought that in most recent quarter, and as a result of a housing plan, it would be difficult to find a life in community and neighborhood networks would be weaker. The data collected showed that the much to our surprise the presence of neighborhood networks, so that surprised us were the unforeseen and urban ethnography. In this context, the discovery of the original building of the Group *Ramiro José*, (whose a temporary headquarters at the time were a container), in the same street had been demolished, was astounding. We were impressed with that organization in the Lisbon inner city! We thought, how could you get on the ground. In the first observations it seemed to us as a "village", where people knew each other since childhood and many maintained strong family ties and friendships. We thought: how is this possible? What was this organization? How had it arisen? Who were the people who gathered there? This community would have some importance this

work? The uniqueness of the space, characterized by a profound knowledge of the people who attended it, who had the momentum, and the characteristics revealed that generally, those people were all from *Travessa Henrique Cardoso's* neighborhood – aroused our immense curiosity. Thereafter, *Ramiro* became part of the research.

The tight-knit nature of the organisation created some initial difficulties, it demanded an appropriate approach, and perhaps the best way was through some of its members, who were not within the research. We contacted the members of the club and interviewed several elements. Later the invitation to also be a partner come, we also began to attend meetings. In addition to information about this institution we also obtained a lot of data about the experience and evolution of Alvalade, especially *Travessa Henrique Cardoso*.

Interviews

The interviews started almost at the same time as the urban ethnography. We interviewed members of institutions such as the *Group Ramiro José*, the President of the Alvalade Parish and residents in this parish. However, they were mostly aimed at architects and planners to better understand the importance of community and neighborhood in the design plan for Alvalade. Among these architects, were two key names, Nuno Teotonio Pereira and Gonçalo Ribeiro Telles, who were involved with the construction of the Neighborhood from the beginning the interviews with Teotonio Pereira were of great historical and sociological value, they allowed us to understand the urban design of the district, evaluate outcomes and analyse the relevance of the housing policy. Gonçalo Ribeiro Telles, who at the time was the landscape architect responsible for the gardens of the buildings, also gave an important contribution: reference should also be made to Nuno Portas. Our informal talk, allowed us to gather information on the relationship between sociology, architecture and urbanism, including the development of new urban policies and housing in Portugal.

In total there were seventeen interviews, of which twelve were residents, aged between sixteen and eighty-seven. Each interview lasted about two hours and they were either held at the interviewees' homes or organizations to which they belonged. These were recorded and the most important parts were transcribed and coded into categories for analysis. In general the respondents' anonymity has been kept (except in some cases, such as architects). Therefore, we have used pseudonyms for the quotes from interviews

included in this work. The process of interpreting the results of the interviews is based on the Grounded Theory (Charmaz 2003; Amaro 2007; Bernard and Ryan 2010).

The interviews were semi-structured (Schutt 2004; Newman 2003; Rubin and Rubin 2005; O'Reilly 2005; Flick 2009; Carmo and Ferreira 2008; Bryman 2008), the questions sought to understand the structure, size and types of social networks of neighborhood and analyse the types of support provided among neighbors- sickness, financial, emotional or other- and their participation in the community through religious associations, recreation clubs and so on.

Archives

In order to analyse and understand the construction and evolution of Alvalade since the 1940, we consulted Photographic Archives. The excellent document collection and organization of the Photographic Archive enabled us to perceive the structure and dynamics of Alvalade neighborhood. The photographs helped us to understand the urbanization process of the territory, the social composition of the residents, the architectural features of the buildings, among many other issues.

The archives gather a variety of exhibits on the city, highlighting the newspaper articles, for example, the newspaper o "*Século*". Some of the articles published during the inauguration of the neighborhood have been of great sociological importance, providing insight into the expansion of the city of Lisbon. 'The New Lisbon', as it was then called, represents a process of city growth determined by a housing policy for the middle class, characterized by social mix. The Alvalade landscape by Faria da Costa proposes the design of an urban district of sociological importance - the neighborhood units - as an alternative to the development of neighborhood networks in cities.

At Video Library Hall, the video archive of CML, we studied the film *Verdes Anos*, an important documentary about sixties in Lisbon, Alvalade with relevant data on the social composition of residents, neighborhood and housing, *etc.*

From the quantitative methods to qualitative methods

This section reviews the quantitative methods and discusses how some of the survey results (open questions) have been analysed using qualitative methods.

In order to display an overall picture of data -a multidimensional one –we have used Latent Class models for profiling the cases. These statistical models allow us to test if a group of unobserved classes (latent) conveniently justifies the association

among the observed variables. In this context, a specific solution, constituted by a group of latent classes, is reasonable when it leads to the minimization of the association among observed variables, inside each class. This minimization is the result of the basic assumption of independence or conditional independence.

Thus, postulating an heterogeneous population, constituted by S groups or homogeneous sub populations (latent classes), the latent class model is defined by the variable Y with S categories or latent types of citizens, described through the observed variables, X_1, X_2,..., X_p, with I_1,...,I_p categories, respectively. Let $\lambda i1i2...iP$ be the probability for a certain individual to belong to the categories (i1, i2,..., iP), relatively to the conjoint variable (X_1, X_2,..., X_p), with i1 =1,...,I_1,..., iP = 1,...,I_P.. In these conditions, supposing the existence of a latent variable Y, with S categories, explaining the relationships among the observed variables, the probability $\lambda i1i2...iP$ can be defined by the model

$$\lambda_{i_1 i_2 \ldots i_P} = \sum_{s=1}^{S} \lambda_Y(s)\, \lambda_{X_1|Y=s}(i_1)\, \lambda_{X_2|Y=s}(i_2) \cdots \lambda_{X_P|Y=s}(i_P),$$

where

- $\lambda Y(s)$ represents the probabilities of Y = s, probabilities that an individual belongs to the latent class s (s = 1...,S), that is, the probabilities of the latent classes, also designated by relative sizes or mixture proportions, which estimate the likelihood that individuals belong to each one of the classes.

- $\lambda_{X_P|Y=s}(i_P)$, p = 1,...,P, represents the conditional probability that the variable Xp is in the category ip, knowing that the latent variable Y is on level s.

Survey

The survey (Newman 2003, Schutt 2004; Czaja and Blair 2005, Bryman 2008, Fink 2009) applied in the parish of Alvalade to a stratified sample of 402 residents (n = 402), over the age of fifteen; developed through the perspective of Social Network Analysis, comprises eight themes: (1) residence, (2) review of the district, (3) trust in neighbors, (4) degree of happiness, (5) social network, (6) capital, (7) civic participation and community involvement and (8) socio-demographic characteristics (gender, age, education, religion, profession and address the employment situation).

It consisted of closed questions and some open questions, the second was compiled from data collected through qualitative methods, especially interviews and urban

ethnography (using qualitative information to develop a questionnaire). The evaluation of open questions was made through content analysis. Open questions appeared in three situations: (1) Identification of problems in the parish of Alvalade. Furthermore, respondents could identify "other" problems and name them. The categories were: lack of cleanliness, expensive housing, degraded pavements and extra cars. (2) In the analysis of responses to the question "why do neighbors care about each other?" The categories were: good neighborhood, community, warmth, support, and have knowing each other for a long ago. (3) The analysis of the responses to the reverse question (why do not they care?), these were the identified categories: change, selfishness, older adults, and distrust.

After completing the questionnaire, a pre-test was carried out with about fifteen people to assess possible typing errors, analyse the motivation to answer these questions, to clarify the doubts and correct some errors. The final wording of the questionnaire benefited from critical reading by a number of colleagues whose suggestions improved the final content. Once the sample was built the application of survey required the indirect selection and training of interviewers. Fifteen students were selected and underwent training in the following aspects: presentation of research objectives, information on the location of research, conducting interviews; rules for the survey, sampling quotas; technique of random paths (rules of selection of respondents, where to start, route, choice of homes, people not wanting to be interviewed, difficulties in itinerary, how to solve eventual problems, etc.).

The survey took place between December 2008 and January 2009; most of work was done in the first two weekends of December. The remaining work, the last quotas, required us to interview younger people of both genders living in this area, which proved to be more difficult so in some cases the surveys went into January.

This work went well, people cooperated and many wanted to know details about the study and its publication o. Adverse weather conditions, with low temperatures and rain, as well as the shorter days this time of year meant less time to contact people, were the main difficulties encountered.

Sample

The sample was built using a cluster sampling plan and a confidence level of 0.95, which resulted in an optimum size of 402 individuals, distributed by age and gender, as can be seen in the following table 1

Table 1 The sample by age and gender

Age	Men	Women
Up to 19 years old	23	28
20-29	23	26
30-39	22	27
40-49	23	30
50-59	19	32
60-69	20	29
70-79	20	30
80 or more years old	16	34
Total	166	236

Data analysis

We used latent class models and information criterion AIC_3 as data analysis methods, Fonseca (2010) for model selection, in order to uncover the unknown patterns from the used clustering base variables.

DATA ANALYSIS, RESULTS AND DISCUSSION

The use of mixed methods in research has become widespread, as can be seen from the number of books published in this field. Furthermore, mixed methods are increasingly being referred to in papers presented at conferences and scientific journals with referees, which seems to demonstrate the benefits derived from the analysis and discussion of data and its enrichment factor to the subject of study. However, the disadvantages - more time spent, resources and training of researchers – are no longer becoming a reasonable justification, because we can almost always join qualitative and quantitative researchers in the same research. The need to better understand the research issues of Alvalade was the main reason for the use of qualitative and quantitative perspectives in combination - mixed methods. The general reasons for the use of mixed methods (Bryman 2006), in this case were: (1) triangulation, the corroboration between the qualitative and quantitative data, (2) development, where results from one method

allowed the development of the other method, and examples of this was (a) the importance of qualitative data collected in ethnographic research, which was fundamental to the making of the survey questionnaire, and (b) the importance of qualitative data collected by interviews, which were instrumental in the *validation* of clustering structure. There was also (3) the initiation, ie the search for new perspectives, such as knowledge about the characteristics of neighborhood networks in Portugal, (4) expanding further perspectives on the communities of neighborhood networks through the use different methods. The results of the methodology have been discussed throughout this work, from the literature review, to data collection, to mixing, to the discussion of the results.

The mixture of qualitative and quantitative data came in two phases. First, the analysis of open questions through the data collected in interviews, the urban ethnography and archives (qualitative analysis) were very important to the consistency and efficiency of the questionnaire. Second classifying of neighbours into clusters: achieved with the Latent Class Analysis approach and resulted in a three-cluster solution. The first representing 53 percent of the respondents, the second and third 22 percent, each with different characteristics in relation to neighborhood networks. We used interviews results to confirm the clustering structure. The use of clusters implied assigning them a name according to their characteristics or variables; attributes and interviews results were combined to name clusters.

The combination of the quantitative and qualitative methods of data derived from interviews, archives, photographs and other data enabled a better understanding of the characteristics of these clusters and helped to sort them out.

We used latent class models to search for clustering in Alvalade. We could have used theoretical information criteria or likelihood ratio tests but in this case, because of the entire clustering base variables are in categories, we used AIC_3, Fonseca (2010). The Parameter estimates for a three-cluster latent model clustering solution are displayed in Table 2.

Table 2 Parameters estimates for the three-class latent model

	Class 1	Class 2	Class 3
Cluster Size	0,5551	0,2487	0,1963
Indicators			
HOME			
I live alone	0,0498	0,0741	**0,5492**
1	0,2323	0,277	**0,342**
2 to 3	**0,5296**	0,5058	0,104
4 to 5	**0,1822**	0,1394	0,0048
6 to 7	0,006	**0,0037**	0
NEIGHBORS			
Doesn't know people	0,0019	**0,1042**	0,0151
Knows few people	0,0792	**0,5777**	0,2636
Knows a lot of people	0,2406	0,2318	**0,3324**
Knows most of the people	**0,6784**	0,0864	0,3889
ACQUAINTANCES			
None	0,0045	**0,1568**	0,028
1 to 3	0,0804	**0,5261**	0,2601
4 to 7	0,2009	0,2473	**0,338**
8 to 12	**0,2561**	0,0593	0,2241
13 to 19	**0,1891**	0,0082	0,0861
More than 20	**0,2691**	0,0022	0,0637
FAMILY			
Alvalade	**0,2461**	0,077	0,1864
Near Alvalade	**0,1997**	0,1204	0,0013
Lisbon	**0,3002**	0,2203	0,2219
Lisbon Metropolitan Area	0,1062	0,1768	**0,3467**
Other part of country	0,124	**0,287**	0,1783
Abroad	0,0239	**0,1185**	0,0654
FRIENDS			
Alvalade	0,3163	0,0318	**0,437**
Near Alvalade	**0,1375**	0,1306	0,0008
Lisbon	**0,358**	0,3445	0,2058
Lisbon Metropolitan Area	0,1557	0,3144	**0,337**
Other part of country	0,0393	**0,1204**	0,0194
Abroad	0	**0,0514**	0,0001
TRUST			
Don't trust people in Alvalade	0,0001	**0,0514**	0,0435
Trust few people in Alvalade	0,1341	**0,3905**	0,2147
Trust many people in Alvalade	0,4271	0,3063	**0,4944**
Trust most people in de Alvalade	**0,4388**	0,2345	0,2474
Don´t know people	0	**0,0171**	0
FAVOR			
Yes	**0,8044**	0,3814	0,3774
No	0,1956	0,6186	**0,6226**
PESSFAMI			
0	0,0818	**0,1608**	0,1555
1 to 3	0,6284	0,685	**0,6865**
4 to 6	**0,216**	0,1391	0,1274
7 to 10	**0,054**	0,0206	0,0172
11 or more	**0,0199**	0,0045	0,0034
PESSPARE			
0	0,6268	0,6358	**0,775**
1 to 3	0,2928	**0,3078**	0,2033
4 to 6	**0,0495**	0,0472	0,018
7 to 10	**0,0156**	0,0144	0,0031
11 or more	**0,0053**	0,0048	0,0006
PESSAMIG			
0	0,0727	0,102	**0,2747**
1 to 3	0,3812	0,4303	**0,5106**
4 to 6	**0,4106**	0,373	0,1951
7 to 10	**0,1055**	0,0771	0,0178
11 or more	**0,03**	0,0176	0,0018
PESSVIZI			
0	0,3848	**0,8532**	0,7267
1 to 3	**0,4771**	0,1423	0,2558
4 to 6	**0,1077**	0,0043	0,0164
7 to 10	**0,0227**	0,0001	0,001
ILLNESS			
Husband, wife, partner	0,6381	**0,6617**	0,1004
Close relative living separately	0,2929	0,1658	**0,3769**
Distant relative living separately	0,0002	0,0002	**0,1951**
Friend	0,0384	**0,1545**	0,0005
Neighbor	**0,0225**	0,0001	0,0233
Coworker	0	**0,0171**	0
Known	0,0077	0	0
Charitable institution, volunteers	0	0,0001	**0,0651**
Prefers not to ask for help	0,0001	0,0004	**0,2387**

From this model we can see that we have a cluster with 53 percent of people, a second one with 25 percent and a third cluster with 22 percent in Alvalade.

Table 2 Parameter estimates for the three-class latent model (continued)

	Cluster1	Cluster2	Cluster3
Cluster Size	0,5551	0,2487	0,1963
MONEY			
Husband, wife, partner	0,3555	**0,5279**	0,0024
Close relative living separately	**0,341**	0,2716	0,1939
Distant relative living separately	0,049	**0,0522**	0,1436
Friend	0,0534	**0,0868**	0,0004
neighbors	**0,0077**	0	0
Coworker	0,0077	**0,0172**	0,0001
Charitable institution, volunteers	**0,0154**	0	0,0001
Prefers not to ask for help	0,1558	0,0441	**0,5705**
Never needed to ask for help	0,0146	0,0001	**0,089**
PERSONAL CRISIS			
Husband, wife, partner	**0,3318**	0,3233	0,002
Close relative living separately	0,2176	0,192	**0,3172**
Distant relative living separately	0,0154	0,0002	**0,1304**
Friend	0,3365	**0,4493**	0,1338
Neighbor	0,0447	0,0002	**0,0474**
Coworker	0,0231	**0,0343**	0,0002
Known	**0,0077**	0	0
Charitable institution, volunteers	0	0	**0,0217**
Prefers not to ask for help	0,0231	0,0006	**0,3039**
Never needed to ask for help	0	0	**0,0434**
DOCTOR'S APPOINTMENTS			
Never	0,7439	**0,9818**	0,7022
Once a year	**0,1608**	0,0175	0,1509
2 to 6 times a year	0,0592	0,0006	**0,0714**
7 to 12 times a year	0,0364	0	**0,0496**
Once a week	0,005	0	**0,0077**
More than once a week	0,0048	0	**0,0083**
INVITATIONS			
Never	0,3428	**0,819**	0,6712
Once a year	0,1643	0,1177	**0,1737**
2 to 6 times a year	**0,2907**	0,0555	0,131
7 to 12 times a year	**0,1329**	0,0072	0,0287
Once a week	**0,0443**	0,0007	0,0046
More than once a week	**0,0151**	0,0001	0,0008
GIFTS			
Never	0,2519	**0,8249**	0,507
Once a year	0,2464	0,1386	**0,2598**
2 to 6 times a year	**0,3606**	0,0348	0,199
7 to 12 times a year	**0,0971**	0,0016	0,0281
Once a week	**0,0365**	0,0001	0,0055
More than once a week	**0,0075**	0	0,0006
LEISURE			
Never	0,4933	**0,8257**	0,8248
Once a year	**0,073**	0,0625	0,0627
2 to 6 times a year	**0,1651**	0,0724	0,0728
7 to 12 times a year	**0,1239**	0,0278	0,028
Once a week	0,0564	0,0065	**0,0065**
More than once a week	0,0882	0,0052	**0,0053**
NEED SHOPPING ERRAND			
Never	0,5714	**0,9944**	0,7167
Once a year	0,0600	0,005	**0,0607**
2 to 6 times a year	**0,1322**	0,0005	0,1044
7 to 12 times a year	**0,0693**	0	0,0434
Once a week	**0,0917**	0	0,0455
More than once a week	**0,0743**	0	0,0293
CIVIC PARTICIPATION			
Signing petitions	0,1752	**0,1902**	0,0256
Participating in discussion of problems in the neighborhood	**0,0751**	0,0211	0,0004
Organizing or participating in boycotts, protest marches or	0,0153	**0,0173**	0,0001
Contacting a politician to solve a local problem	0,0362	0,0186	**0,0484**
Contacting a radio station, television channel or newspaper	0,0307	0,0001	**0,0436**
Being involved with neighbors to defend neighborhood	**0,1105**	0,001	0,1
Other initiatives	0,0762	0,0867	**0,1537**
No problems	0,3673	**0,5223**	0,477

Table 3 Parameters' estimates for the three-class latent model (covariates)

	Cluster1	Cluster2	Cluster3
Cluster Size	0,5551	0,2487	0,1963
Covariates			
GENDER			
Female	0,5912	0,4586	**0,6427**
Male	0,4088	**0,5414**	0,3573
MARITAL STATUS			
Married	**0,4194**	0,1966	0,2185
single	0,3515	**0,5088**	0,1901
living together	0,0369	**0,1732**	0,0248
Divorced	0,0456	0,052	**0,1321**
Separated	0,038	0,0354	**0,0438**
widow	0,0933	0,034	**0,3906**
OCUPATION			
1	0,1069	0,0557	**0,1497**
2	**0,2232**	0,2149	0,1194
3	0,0925	0,1285	**0,1419**
4	0,1113	0,1011	**0,1234**
5	**0,1103**	0,0569	0,0948
6	**0,0537**	0,0518	0,0219
7	0,0001	0,0342	**0,0438**
9	0,0377	0	**0,0894**
RELIGION			
Catholic	0,6432	0,5618	**0,6918**
Orthodox	0,0308	**0,0514**	0,0218
Protestant	0,023	0,0001	**0,0437**
Jewish	**0,0154**	0	0
Muslim	0,0077	0	**0,0218**
No religion	0,2113	**0,3503**	0,0688
Another	0,0532	0,0355	**0,1312**
EDUCATION			
None	0,0077	0	**0,0437**
1st cycle	0,131	0,0381	**0,2126**
2nd cycle	0,0162	**0,034**	0,1072
3rd cycle	0,1611	0,138	0,0878
Secondary	0,224	**0,3035**	0,1794
Bachelor	**0,0752**	0,0353	0,113
Graduation	0,3177	**0,4297**	0,1901
Master	**0,0454**	0,0207	0,0194
PhD	**0,0256**	0	0,0228
AGE			
From 15 to 19 years old	0,1488	**0,2003**	0,0001
From 20 to 29 years old	0,1305	**0,2528**	0,0291
From 30 to 39 years old	0,1149	**0,1938**	0,0829
From 40 to 49 years old	0,1391	**0,1536**	0,0650
From 50 to 59 years old	**0,1370**	0,0885	0,0881
From 60 to 69 years old	0,1312	0,0354	**0,2375**
From 70 to 79 years old	0,0918	0,0550	**0,2153**
80 or more years old	0,0991	0,0200	**0,2610**

They are statistic/probabilistic/ models, because they use maximum likelihood method of estimation, with algorithm EM, and probabilities as proximity measures. The values of the last three columns are probabilities and conditional probabilities: (1) 0.53, 0.25 and 0.22 are probabilities of belonging to clusters 1, 2 and 3, respectively; (2) all the other values are conditional probabilities of answering in a certain way, given that (s) he belongs to a certain cluster. For instance, 0.052, 0.0585 and 0.4060 are conditional probabilities of answer *I Live alone*, given that they belong to cluster 1, 2 and 3, respectively; thus, *living alone* is a characteristic of people belonging to cluster 3 (because of 0.4060 is the highest value).

Table 4 Neighbors' profile from the used attributes

Indicators	Community 53 percent	City 25 percent	Village 22 percent
HOME	Two to five	six to seven	Live alone; one
NEIGHBORS	Knows most of the people	Doesn't know people; Knows few people	Knows a lot of people
ACQUAINTANCES	More than eight	None to three	Four to seven
FAMILY	Alvalade; near Alvalade; Lisbon	Other part of country; Abroad	Lisbon Metropolitan Area
FRIENDS	Near Alvalade; Lisbon	Other part of country; Abroad	Alvalade
TRUST	Trust most people in de Alvalade	Don't trust people in Alvalade; Trust few people in Alvalade; Don´t know people	Trust many people in Alvalade
FAVOR	Yes	-	No
FAMILY PERSONS	Four or more	None	One to three
RELATIVES PERSONS	Four or more	One to three	None
FRIEND PERSONS	Four or more	-	None to three
NEIGHBOR PERSONS	One or more	None	-
ILLNESS	Neighbor; Known	Husband, wife, partner; Friend; Coworker	Close relative living separately; Distant relative living separately; Charitable institution, volunteers; Prefers not to ask for help
MONEY	Close relative living separately; neighbors; Charitable institution, volunteers	Husband, wife, partner; Distant relative living separately; Friend; Coworker	Prefers not to ask for help; Never needed to ask for help
PERSONAL CRISIS	Husband, wife, partner; Charitable institution, volunteers	Friend; Coworker	Close relative living separately; Distant relative living separately; neighbors; Charitable institution, volunteers; Prefers not to ask for help; Never needed to ask for help
DOCTOR'S APPOINTMENTS	Once a year	Never	2 to 12 times a year; once or more than once a week
INVITATIONS	Once a year; 2 to 12 times a year; once or more than once a week	Never	-
GIFTS	2 or more times a year; once or more than once a week	Never	Once a year
LEISURE	Once to 12 times a year	Never	Once or more than once a week
NEED SHOPPING?	Two to twelve times a year; once or more than once a week	Never	Once a year
CIVIC PARTICIPATION	Participating in discussion of problems in the neighborhood; Being involved with neighbors to defend neighborhood	Signing petitions; Organizing or participating in boycotts, protest marches or Organizing or participating in boycotts, protest marches or no problems	Contacting a politician to solve a local problem; Contacting a radio station, television channel or newspaper; Other initiatives

As we can see from Table 4, concerning the clustering base variables, a community exists given the family and acquaintance network: they know most of the neighbors and they have family and friends close to Alvalade. As for trust and reciprocity with neighbors, we can see that neighbors in class 1 trust majority of the people in Alvalade, and they did /recieved a favor. We have four or more of the respondents say that they turn family, relatives and friends, one or more neighbors; a charitable institution or

volunteers for financial support. Whereas in times of crisis they choose the support of their spouse, partner, a charitable institution or volunteers. They need company to for doctors' appointment once a year; giving/receiving gifts or socialising ranges from two to six times a year to more than once a week; once to twelve times a year for leisure activities with neighbors. Shopping errands vary from two to twelve times a year or once or more than once a week. Concerning civic participation, in class 1 we have respondents that participate in discussion of problems in the neighborhood and that were involved in defending the neighborhood with other neighbors.

Table 5 Neighbors' profile from the used covariates

Covariates	Community 53 percent	City 25 percent	Village 22 percent
GENDER	-	Male	Female
MARITAL STATUS	Married	Single; living together	Divorced; Separate; widow
OCUPATION			
RELIGION	Muslim	Orthodox; no religion	Protestant; Catholic; Muslim; another
EDUCATION	Bachelor; Master; PhD	2nd cycle; Secondary; Graduation	None; 1st cycle
AGE	From fifty to fifty nine years old	From fifteen to forty nine years old	Sixty or more years old

Concerning covariates, Table 5, we now have a better understanding of the respondents the three classes. In the community most of the respondents are married, between the age of fifty and fifty nine, married and either have a bachelor's degree, master, or PhD

This can be reinforced by some interviews, such as:

> ... This seems to be a *community*, the people you know, say hello and help. Recently I had problems with the gas and it was a neighbor on the first floor who helped me; also my neighbors have always helped with my daughter for six years" (Mariana, 37 years).

In city the ratios change: the respondents have a relationship with six to seven people (family or acquaintances); three to zero don't know anyone (neighbors) and they have family and friends living far away from Alvalade, in another part of country or abroad. Concerning trust and reciprocity with neighbors, we can see that neighbors in city don't trust people in Alvalade, they trust few people in Alvalade or they don't know the people in Alvalade; In case of financial support they depend on their

spouse/partner, distant relative, a friend or co-worker, and a friend or co-worker for personal crisis. They never need company to go to a doctor's appointment, get invited over to a neighbor's, or give/receive gifts. These respondents have signed petitions, organized and participated in boycotts, protest marches. This group is mostly made up of fifteen to forty nine year old men, single or living with someone, they are either orthodox or have no religion, their schooling varies from 2nd cycle, secondary to a degree.

> I only know my front door neighbor. He has my key and when I need something, he helps me. My family is abroad, in Venezuela, I live alone, I trust my neighbors but in the city people do not interact with each that much, don't you think so? (Antonio, 51 years old).

The film *Verdes Anos* shows the diversity present in a city: comprised of an elite, educated and cosmopolitan, people that welcomed rural people to work in unskilled and poorly paid jobs; some of them went on to be successful in the construction business, though. In the Alvalade case, this migration process began in a period prior to the film and went on for further several decades.

> The first time I saw the city of Lisbon, I thought to myself: this land is like a lady which has to be wooed ,very slowly, not in a rush, and you must walk slowly, with your eyes wide open, not smell from feet, and we must remember at all times that we were born in a village and we must learn to deal with it. In my neighbourhood, they almost all kicked out of the city, they came in such a rush that they hit their noses against the wall. My neighbors must be a bit suspicious of me because they never heard say that I was in trouble; all they do is complain about each other. In the city one still played for a fool but only who go to the construction business we see who's the fool … this city has chewed up many, but with me things went wrong they encountered a sour broth instead of chicken… (Film, *Verdes Anos*)

The initial project was aimed at Alvalade's middle class and became a symbol of social mix as the archives journal of 1940s shows.

> New Lisbon is being born, bathed in light, with wide avenues with jolly and colorful buildings, still smells of cement, and fresh paint. The paint blotches covering the ground that just a few months ago was covered with vegetable patches and orchards, near to the old city, which ate up all its vegetables and fruit. Now the farms are disappearing forever, are further away, out in Sacavém and Moscavide. The land has been torn apart, to embrace the design of architects who live today's life, artists and planners who have created, with a stroke of audacity and talent, the city of tomorrow…
> This New Lisbon, which is being born and that was imagined and created in a little over two years it will soon have forty-five thousand inhabitants - the population of a city - transferred in some hundreds of buildings, constructed with new technical design, without the traditional frippery nor the sort of oriental influence of the monstrous blocks where

man and his family disappear like the human values and only its set and its number mark a position. … (Newspaper *O Século* 22-09-1948)

Photo 1 Bairro das estacas, Alvalade.
Source: Arquivo fotográfico, photo by Armando Serôdio, 1958

The village profile reports: most of the respondents live alone, they have four to seven acquaintances, they know a lot of neighbours and have family and friends living in Lisbon Metropolitan Area and Alvalade. They trust many people in Alvalade, but they have never done/recieved a favor, they have one to three relatives and no to three friends. They prefer not to ask for help or have never needed to ask for financial aid to a close relative, a distant relative, neighbors, a charitable institution or volunteers. They are accompanied to doctor's appointment, buy gifts and run shopping errands once a year, partake in leisure activities once or more than once a week. Concerning civic participation the respondents contact a politician to solve a local problem, contact a radio station, television channel or newspaper and get involved in other initiatives. This groups is made up mostly of sixty-year and more old women, who are divorced, separated, or widow, they are either protestant, Catholic, Muslim or another religion, their schooling is very low; only the 1st cycle.

This (Alvalade) sometimes seems like a *village*, in some areas more popular, people know each other's business, and they are suspicious …you will not find many people who care about their neighbors" (Maria, 74).

... I've been living in this building for over 40 years, and the life here is like a small village, I *know* that the city it is different but here ends up being the same thing because we meet in the staircase, in the hall and talk about so-and-so who is sick. This building has 12 floors, is a kind of a village street and instead of being in width it's in height we talk at the doorstep (Inês, 69).

CONCLUSION

This paper examines the development of research methods in social network analysis for neighborhood and community. The research was developed through combined methods - a combination of qualitative and quantitative methods began from the initial choice of the subject of research, to literature review, study design, but was in the collecting, analyzing and interpreting data phases that this methodology was most developed. The mixture of both methods was essential for the interpretation of social networks and neighborhood communities in Alvalade (Portugal) and it allowed to understand social capital (value of social networks of neighbors) in the various features.

In the first class, community is the most appropriate designation corroborated by the references in the interviews and the analysis of characteristics of social networks. The second class, the most appropriate designation is city, found in the characteristics of the urban experience of the film *Verdes Anos*, as well as some interviews where these forms are more diffused social networks like those that characterize in this class. In the third case, the term is village, a reference which was often made in interviews as a way to characterize some neighborhood networks indicative of greater mistrust among neighbors, but also know them better: characteristics of social networks in this class.

The neigborhood has been characterized by the modernity of some of the buildings' architecture that gives it a city-like atmosphere, as well as a small community and sometimes a special context of a rural village with social control over its inhabitants. Neighborly relations and trust between neighbors characterize the generality of the ties of neighborhood, but there are other examples that suggest other ways of living in Alvalade.

Verdes Anos was filmed in one of the newest and trendiest neighborhoods in the city - Alvalade – the action takes place by the *café Vá-Vá* and is based on the love story between Julius, a nineteen year old shoemaker who comes from the countryside to Lisbon and meets a girl of the same age, Ilda- a maid. The small community of the province where they had grown up contrasted with the great metropolis. The difference between country and city - "there is no way a man born a *patego* can trust the city people the city - this city ... has chewed too many " - the film introduces one of the most important sociological debates: community and society. The argument of the film helps us to understand the idea of community and city that has prevailed in Portugal. It reports two different non-interceptable realities - the idea that the city has developed without incorporating the community.

Since the beginning of its construction, Alvalade had a dimension of a village and a city. The way the Alvalade Landscape, integrated the beginning of the modernist movement, visible in several buildings (some of them got international awards for architecture), made it coexist with built in villages. Courtyards and social housing that extend to several arteries, including the Church Avenue, exemplify the two dimensions. This environment marked the social life of Alvalade, designed the neighborhood networks and has contributed to the construction of this community. Although the Landscape was intended for social housing, the diversity and considerable high prices, contributed to the development of the neighborhood as a place with different classes, allowing integration of a variety of socio-economic groups – social mix - characteristic that continues today.

Alvalade neigborhood developed with a social mix and, even today, most of the neighbors still know and support each other and state that "like a neighborhood the neighbors still greeting each other" or that "when they have a problem they can count on the support of their neighbors."

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