EVALUATING QUALITY OF LIFE IN CITIES – TOWARDS NEW TOOLS TO SUPPORT URBAN PLANNING

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Abstract
Several efforts have surfaced in the last few years to evaluate and monitor the impact of many contemporaneous urban tendencies and to measure the progress achieved in terms of quality of life in cities.
This paper results from an ongoing research study on the city of Porto, in which evaluation methodologies on living conditions and well-being on a local scale have been developed and tested. They have provided new data in support for action on the part of public authorities and to foster dialogue and the coordination of strategies among local agents. The empirical results presented derive from one of this study's dimensions, focused on the subjective approach to the quality of life of specific population groups. The key concern comprises not only the overall levels of satisfaction of these groups but also their relationship with the individuals' aspirations, experiences and values. Direct survey methods of the target populations were employed and, later, multivariate data analysis methodologies.

Keywords: urban quality of life, evaluation of subjective well-being, urban policies

BACKGROUND

Despite the particular focus placed today on the role of cities as engines in the development of a new economy based on knowledge and innovation, they are, above all else, territories where people (in rapidly rising numbers) live their everyday life, establish relational networks, and should be able to achieve fulfilment in the realization of their personal projects. Very recently, in his book "Who's your city" Richard Florida (Florida, 2008) drew our attention to the role that, within a globalized society, the place where we live, and more

precisely, the city where we live, still plays in providing opportunities and well-being, and showed how both the physical conditions and the "public provisions" (education, safety, health, culture and leisure,...) vary significantly among urban centres, offering very distinct life contexts.

In a time where rapid transformations are taking place, not only in terms of employment but also in family structures, in the provision of public services, in the environment (…), it seems essential to identify and measure the effects of all these mutations on the living conditions and well-being of citizens, so as to better support the design and implementation of urban policies. The importance of promoting urban quality of life, which is increasingly more apparent, is not solely due to the fact that cities can provide living standards that meet the needs of its residents. This investment is also decisive so that cities can attract and secure certain groups currently regarded as highly influential for the prosperity of regions, as in the case of creative and talented professionals with an increasing mobility. As Donald (2001) states, in the new economy, cities develop their competitive advantages to a large extent by mobilizing the better prepared human resources, who are crucial to transforming novel ideas into high added value products and services.

Several efforts have surfaced in the last few years to evaluate and monitor the impact of many modern day urban tendencies, and to measure the progress achieved in terms of quality of life in cities, by setting up indicator systems, upon the initiative of local authorities[1], civic associations (particularly in the USA) and even the European Union (Urban Audit).

Although useful to increase local awareness of certain problems and development pathways related to the quality of life of individuals, these indicator systems reveal serious limitations as tools to support and coordinate real everyday decisions made by the various agents acting in the field of urban management and planning. One of the limitations that has been pointed out in this type of experiences is that they rarely focus on the large-scale urban reality (neighbouring communities, neighbourhoods, city blocks), that is, at scales which give us a greater understanding of the differences in living conditions between different groups and spaces, and that can be crucial to support a generation of less standardized and bottom-up urban policies, designed in accordance with combinations of real problems, potentialities, resources and actors or groups. A further limitation which is often mentioned

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[1] In the English case, this sort of initiative has been thoroughly supported by the national authorities. For additional information on the promotion of indicator systems on the quality of life at local scale, see http:\\www.audit-commission.gov.uk.

is that these indicator systems only include objective parameters[2], that is, descriptors of provisions and access on the part of individuals to a set of amenities, goods and services that determine living conditions. In other words, they do not value the subjective perspective related to consumption, to the way people assess their well-being and their experiences of life in the city, a perspective which is, in fact, inherent to the concept of quality of life[3]. In cases where this perspective is the focus of attention and analysis, and the indicator systems consider subjective measures, they usually only include indicators of overall satisfaction, and fail to discriminate the perception that people have regarding the different aspects that influence their well-being. Although they are the most fitting indicators of the degree to which the expectations and needs of people are met (Anderson *et al*, 2009), these holistic opinions do not offer the possibility of establishing priorities for action according to the opinion of the different groups, nor to understand which domains have the most influence on levels of well-being. This limits their practical utility as tools to support urban policies.

This paper stems from research currently in progress on the city of Porto, during which methodologies have been developed and experimented aimed at assessing living conditions and well-being at local scale, that have enabled us to skirt some of the limitations found in the more conventional approaches (mentioned previously), and have provided new data to support public authority action and promote dialogue and coordination of strategies among the local agents.

In one of the lines of work adopted, which addresses the study of intra-urban disparities in living conditions and well-being, key-indicators of the objective type have been identified at the level of statistical sections[4], taking advantage of the increased capacity of computers to process data, of the rise in the supply of georeferenced urban information (namely, by address) and the versatility of data integration and spatial analysis tools available in GIS software programmes. The ultimate aim is to identify spatial patterns of quality of life, based on multidimensional profiles that cater not only for the existing provisions and amenities in the territories, but also for the socio-economic characteristics of those who live in them, which may become new conceptual and instrumental references in the definition of urban policies.

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[2] We call particular attention to the limits of this "objectivity", as the selection of indicators and their reading inevitably introduce elements of subjectivity to these analyses.

[3] For a thorough debate on the concept, refer to Rapley (2003) and Phillips (2006).

[4] They correspond to territorial units, defined for statistical purposes, belonging to one single parish and covering about 300 lodgings. In the case of Porto, the city is divided into 413 sections.

In a different line of work, steered to the subjective approach to the quality of life of specific groups of the population, we aim to characterize not only the global levels of satisfaction, but their relation with the aspirations, experiences and values people have, by using direct survey methods on the target-population, and, in a later stage, multivariate data analysis methods. We therefore aim to test different types of analysis that will provide us with advanced knowledge on the multiple and diverse experiences that people and the various groups living in the city have of well-being. The base of subjective information can thus be strengthened, which may contribute to urban management and planning. This paper will only account for the concrete results achieved in the second line of research described. The population group under analysis is the university population.

SUBJECTIVE WELL-BEING: STATE OF KNOWLEDGE AND NEW CHALLENGES

Nowadays, much more is known about living conditions in cities – both in terms of material conditions, such as standards of living, facilities and services, the environment (...), and of the less tangible conditions, such as health, social capital or even recreational and leisure opportunities (liveability) –, than about the perception people have of their quality of life (subjective well-being). Most of the information available, that is, the information collected and analyzed by the official producers of statistical data, is based on objective indicators. However, and as Phillips (2006) states, any measure of the quality of life that does not take into account whether people are pleased or not with the life they lead leaves out an important aspect of the concept itself. Even if we acknowledge that the levels of satisfaction do not reflect solely the real life conditions experienced, but are the result of other factors such as genetics and the more optimistic or pessimistic nature of individuals, their importance can no longer be ignored. This is obviously helped by the increasingly higher public participation in the decision-making processes related to the governance of territories.

In fact, it is today generally accepted that objective indicators must be complemented with subjective measures[5] that translate the cognitive assessment individuals make of their own life experiences. Generally speaking, these subjective measures are based on surveys where respondents are asked to rate their general satisfaction with life and, in some cases, to rate some specific aspects that are crucial to their well-being (health, work,

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[5] Jowell and Eva (2008) note that the current use of the designated subjective indicators may lead us to misunderstand the analytical merit of these measures. To be more precise, they alert to the fact that it may be possible to confuse what we aim to measure (subjective judgements and assessments) with the method used to measure it, which complies with methodologically strict and demanding criteria that are identical to those used to assess the said objective phenomena.

housing, family, financial situation). As Cummings states, "The definition must reflect current theoretical understanding of the quality of life construct. Most fundamentally, a definition must encompass the person's whole life, not just some of the parts" (Cummings, 1999, 33)[6].

In a recent article, Huppert *et al* (2008) mention that the data collected should not focus solely on the personal aspects of well-being, but should include topics related to social well-being. As stressed by these authors, the way people relate to each other and participate in society also influences their well-being. It is therefore essential to better understand aspects related to interpersonal and social relations (for example, whether they can count on their family and friends for help or if they are involved in voluntary work).There are a number of challenges in this line of research on quality of life, to which several disciplines in the behavioural and social sciences have provided their contributions. Among these are the identification and the role of the different priorities, aspirations, experiences and values of people, and their influence on the degree of subjective well-being. This line of analysis has revealed to be particularly promising in terms of the input it can provide to the design of urban policies, by helping us not only to learn about the actual determining factors influencing the levels of the subjective well-being of the population, but also to track the ongoing changes in terms of needs and preferences shown by the different groups.

As Donovon and Halpern (2002) sustain, there is strong empirical evidence that satisfaction with life is a decisive factor impacting on daily professional performance. When people are gratified with the life they lead, they tend to be more open-minded and creative. By contrast, those whose lives are assessed negatively will most often have a tunnel vision and more restricted thought patterns. Within the context of the current economy, where, now more than ever, creativity is a vital resource in the regions, to guarantee subjective well-being represents an important investment in local progress and prosperity.

MEASURING THE QUALITY OF LIFE OF THE UNIVERSITY POPULATION OF PORTO

A first survey was conducted on higher education students, with the aim of contributing to a thorough understanding of how some specific groups of the

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[6] The Australian Centre on Quality of Life, for which R. Cummings is responsible, is an unavoidable reference in current research on measures of individual well-being, whether considered from a holistic perspective, or as a multidimensional construct. At the corresponding web site, a vast number of tools are available which have come to be applied to evaluate many of these dimensions.

population in Porto assess their quality of life in the city. Before presenting the structural components of this survey, which was designed to evaluate the general levels of satisfaction and the values, priorities and aspirations of the target population, we must explain why we opted to survey higher education students.

Although not always acknowledged, the communities of students are in fact an important resource for urban development. In their book "The Student City", van den Berg and Russo (2004) advocate that university students are the most qualified labour force in the market, as citizens they are the future leaders of companies and institutions in the city, thus actively contributing to its vibrancy and diversity. In addition to this, students tend to show a consumption pattern that is often essential for the economic feasibility of some areas in the urban centres, and, in general, are an important segment of consumers of goods and services in cultural and leisure activities. Although these factors assign a strategic importance to these communities, the authors stress that, especially in European cities, these communities are in some way seen as "invisible populations", and information on them is scarce. Given these facts, it is not surprising that urban management and planning traditionally tend to pay little attention to these communities.

In the meantime, new trends could well be decisive in changing this state of affairs. Within the emerging socio-economic context, where human capital is increasingly taking on relevance as the key factor in city competitiveness, and in which training and scientific production activities are important for the local economy, urban policy will surely tend to place greater value on this population segment. This is particularly so if it is acknowledged that student mobility is on the rise and that competition between urban centres to attract and secure this population also tends to increase. In light of this predictable growth, we are inclined to believe that aspects related to the quality of life of the different areas will come to exert greater influence on decisions, although factors linked to the nature and quality of the education provided, and the chances of market placement will still predominate when choosing the university city.

It was then in light of these aspects that the prospect of exploring the perceptions of this target group gained relevance, as part of the ongoing assessment of the quality of life in Porto.

The city of Porto is an important higher education hub, with more than 60,000 students enrolled in about 50 establishments. The University of Porto (UP), a public university, is currently the largest education and scientific research institution in the country, with 15 schools distributed in 3 university

campuses, covering all levels of education and the main fields of knowledge. It has 69 research units and its share of Portuguese scientific papers indexed annually in the *ISI Web of Science* is of 20%, according to data provided at the respective Web page.

Apart from this well-justified interest in continuing to attract the university population to Porto, to find out what these students think and appreciate and to learn about their life experiences in the city, this study may prove useful for the development of pro-active strategies that will later lead these qualified segments to remain in the city, entering the local and regional labour market.

As mentioned before, the survey prepared was intended to be as comprehensive as possible, and was not limited to aspects related to levels of overall well-being and to well-being in specific domains, such as the urban environment and personal life. Questions were also included on the representation of the very concept of urban quality of life, on the personal experience of living in the city and on the aspirations and preferences of students. Table 1 summarizes the main topics addressed in the survey.

The survey was conducted in 2005 and applied to a sample of 850 students. As a methodological option, it was limited to the students attending education levels corresponding to the current 1st and 2nd Bologna cycles, in an effort to focus on individuals whose personal and professional life project had, for the most part, not yet been devised. In other words, the aim was to collect mainly the views and judgements of those who benefit from their status as students more fully and, as such, whose answers can more easily translate this type of experience. 1st year students were also not included, as many were perhaps newcomers to the city and, as such, had not yet had time to consolidate their opinion on the quality of life in Porto.

The sample was designed to guarantee the representation of students sorted by type of education (university and polytechnic), and by type of institutions (public, private and cooperative, Catholic university). With regard to the field of education, the aim was to include a comprehensive array of areas of knowledge, and students from 25 different disciplinary areas were surveyed (Table 2).

The questionnaire was handed to students during class periods by the respective lecturers, and had to be filled in within approximately 20 minutes.

Table 1 – Summary of the main issues considered on the questionnaire

Urban quality of life	Important aspects for achieving quality of life in a city
	Portuguese cities associated to high quality of life standards
	Foreign cities associated to high quality of life standards
Evaluation of the quality of life in Porto	Positive aspects
	Negative aspects
	Assessment of 26 specific fields
	Degree of overall satisfaction
	Suggestions for the improvement of quality of life in a city
Personal quality of life	Degree of overall satisfaction
	Aspects that have improved
	Aspects that have declined
	The importance of 12 specific aspects
	Degree of satisfaction with the university environment
	Time allocation during week days
	Time allocation at the weekend
	Housing context
Future plans	Intention as to setting up residence in the city
	Factors valued when choosing place of residence
Personal data	Sex
	Age
	Place of birth
	Place of residence during the academic year
	Place of residence for the remainder period of the year

Table 2 – Sample composition

Public University Higher Education	Architecture	58%
	Geographical Engineering	
	Landscape Architecture	
	Biology	
	Astronomy	
	Mathematics	
	Sports and Physical Education	
	Economics	
	Management	
	Civil Engineering	
	Mechanical Engineering	
	Pharmaceutical Sciences	
	Sociology	
	Geography	
	Medicine	
	Law	
	Psychology	
Public Polytechnic Higher Education	Primary Education Teachers	17%
	Nursing	
	Mechanical Engineering	
	Computer Engineering	
	Instrumentation and Industrial Engineering	
	Electrical Engineering	
Private and Cooperative Higher Education	Architecture	16%
	Kindergarten teachers	
	Business Management	
Universidade Católica Portuguesa (Portuguese Catholic University)	Management	9%

ANALYSIS METHOD

After the survey was implemented, the answers for the open type questions were classified so as to guarantee that all data collected would be grouped in a not too extended set of modalities associated to each question.

The analysis of the results was conducted in two phases, the first one consisting of an independent analysis of the answers given to each question in the survey. This provided a reading of the dominant positions and their greater or lesser degree of consensus among the students (for information on some KEY FINDINGS, see below). However, in light of the objectives underlying this survey, mentioned above, this approach turned out to be limited, and we therefore chose to use, in a second additional phase, a multidimensional method of analysis. Having considered that the overarching assessments of individual and social well-being made by the groups that experience the city can become, now more than ever, useful instruments for urban management and planning, helping to further strengthen the

mechanisms involved in public participation, we felt that this second relational approach could explain the profusion and diversity of the well-being experiences of people.

Our option was to use the multiple correspondence analysis (MCA), followed by a hierarchical classification based on factorial coordinates. The MCA is a descriptive and exploratory technique, designed for multivariate analysis, allowing one to identify associations or similarities between the qualitative variables – nominal variables or continuous variables grouped into classes. The goal is to identify homogeneous sub-groups – in this case, students – in the aggregates of answers that may represent similar opinion profiles in relation to the quality of life in Porto, and to characterize them.

In the data analyses obtained through surveys, the questions formulated are the qualitative variables. In this case, the MCA allows us to limit the questions to a small number of numerical variables, and to analyze the relations among them, and between these and the different modalities. Next, factors are obtained that express the latent variables (not observed) and the variability of the data (the answers of respondents). We can determine how the answers given to the different questions in the survey are related, by analyzing the contributions of the original variables to the main factors. Groups of respondents to the survey can then be defined, based on the coordinates of individuals in relation to these numerical variables, where two individuals are considered to be "similar" if they show a high number of common modalities, that is, if they give the same answers to a significant number of questions in the survey.

In the case of the results of the survey applied to the students after the MCA, the groups of individuals were divided by using an ascending hierarchical clustering, based on the coordinates of the first 20 factors. The purpose was to create homogeneous groups, regardless of their size. Then, based on the classification clustering tree, and having taken note of the best automatic divisions, we selected those whose disaggregation was felt to be adequate, with the aim of determining the "City Students' Profiles", presented below.

RESULTS OF THE ASSESSMENT OF QUALITY OF LIFE: KEY FINDINGS

Before proceeding with an overview of the main results obtained, we should first outline a socio-demographic profile of the student population surveyed.

In terms of gender distribution, 56% of the respondents were female and 44% male. A large majority of the students (83%) were aged between 18 and 24 years, 11% were aged between 25 and 29, and 6% were over 30 years old. In terms of occupation, the majority did not have any type of professional activity (83%), 16% were worker-students and about 1% did not answer this question.

Urban quality of life: overall concept

According to the higher education students in Porto, the aspects contributing the most to the local quality of life (92%) are the environmental conditions and the geographical setting. Aspects such as a pollution-free environment, plenty of well-preserved green areas, sunshine and a mild climate, the availability of beautiful beaches and of riverside and seaside promenades are highly valued. A further aspect likewise mentioned by over 50% of the respondents relates to mobility conditions, that is, travelling in urban areas that is easy, comfortable, stress-free and free of traffic jams.

The Portuguese cities that students most associated to high standards of quality of life were the main national metropolitan cities: Porto was referred to by 42% of the respondents, and Lisbon by 38%. The third most chosen city was Braga, indicated by 27% of students.
Regarding the foreign cities seen as examples in terms of urban quality of life, the respondents referred mostly to Paris and London, namely by 43% and 40% of the students, respectively, followed by Barcelona (31%) and Madrid (17%), whereas the first non-European city to be mentioned (ranking 5th in their choice) by 11% of all those who answered this item is New York.

Assessment of the quality of life in Porto

The general opinion of the majority of students (67%) on the quality of life in Porto, on a 5-point scale, is that it is Reasonable (intermediate score). Those who felt that Porto offers a "Good" quality of life totalled 23%, and those who consider it to be "Poor" came to 9%. Both the lowest and highest scores ("Very Good" and "Very Poor") did not total 1% of the respondents.

When asked to assess, in an independent way, 26 aspects of local conditions of life and well-being, those that received the most positive responses (assessed as "Very Good" and "Good" by more than a third of the respondents) were as follows: Commerce and Support Services to the Population (63%), Cultural Facilities (53%), Cultural Vitality of the City (44%), Educational Facilities for Primary and Secondary Education (42%),

Higher Education Facilities (40%), Architectural Quality (37%), Recreation and Leisure Facilities (36%), Health Facilities (36%).

On the other hand, the aspects that received the most negative responses (situations rated as "Very Poor" and "Poor" by more than a third of the respondents) were: Traffic (85%), Poverty and Exclusion (70%), Pollution (72%), Urban Safety (63%), Quality and State of Conservation of Housing (47%), Civic Behaviour (44%), Urban Cleanliness (39%), Public Transports (35%) and Access to Housing (34%).

Personal quality of life

When asked to rate, on a 4-point scale, the degree of overall satisfaction in relation to their current life, a significant number of students (76%) mentioned being "Satisfied". About 18% answered "Unsatisfied", 5% were "Very Satisfied", and a mere 1% said they were "Very Unsatisfied".

About 61% of respondents mentioned that in the last few years (2 to 5 years), their life had improved, especially in terms of Access to Culture, to Sports and Leisure. By contrast, Mobility was the area in which students felt that their quality of life had deteriorated the most.

In terms of importance assigned to the different aspects of their personal life, students listed, in this order, Health, Family Life, Friendships, Education and Personal Training, which were considered to be "Very Important", respectively by 88, 82, 73, 71 and 70 for every 100 respondents. Particularly noteworthy is the relative value assigned to certain aspects, such as Spiritual Life and Neighbour Relations, which are considered to be "Not Very Important", respectively by 22% and 14% of respondents.

Future plans

With regard to the way they feel about their future, there is a clear split of opinions as to their desire to live in Porto after completing their higher education: 53% said they would, and 47% said that they would not like to stay and live in the city.

When asked about the importance assigned to a set of 11 factors influencing the choice of place of residence, the majority of students chose the following as being "Very Important": Good Environment to Raise Children (59%), Job Opportunities (58%) and Economic Conditions (50%).

RESULTS OF THE ASSESSMENT OF QUALITY OF LIFE: CITY STUDENTS' PROFILES

As mentioned previously, multivariate analysis (Multiple Correspondence Analysis – MCA) was also applied to the data collected from the survey, covering all the aggregate variables. This paper only presents the results of this approach regarding two of the central dimensions of the research conducted based on the group of higher education students in Porto (see Table 1): "Urban Quality of Life: Overall Concept" and "Assessment of the Quality of Life in Porto".

The concept of urban quality of life

In this case, the active variables employed were all those associated with the question "Important aspects of quality of life in a city". All the others were included in the analysis as descriptive variables.

Once the MCA was accomplished and following an ascendant hierarchical classification of the individuals, based on the coordinates of the first 20 factors, the sample was divided into 6 groups based on the resulting clustering tree. Table 3 presents a brief characterization of these groups.

Table 3 – Clusters concerning the concept of quality of life

Cluster	No. of indiv. (%)	Characterization of the cluster (active variables)	Other descriptive elements of the cluster
A	47.6	Important aspects of QOL in a city: Environment and Mobility Several economic and social aspects are not central to the QOL concept: Standard of Living and Labour Market, Commerce and Diversified Services, Housing, Social Cohesion, Civic Participation	Lisbon is not associated with an image of a city with good QOL Worker-students Social Cohesion is not regarded as a negative aspect in Porto's QOL
B	23.7	Several social aspects are important to QOL in a city: Job Opportunities; Housing, Social and Health Care, Education and Safety Aspects not mentioned as important in terms of QOL: Environment, Social Cohesion, Urban Design and Layout, Commerce and Services, Basic Infrastructure and Civic Participation. Aspects not mentioned as important in terms of QOL: Environment, Social Cohesion, Urban Design and Layout, Commerce and Services, Basic Infrastructure and Civic Participation	Lisbon is identified as a city with good QOL The Income Level and Labour Market are mentioned as negative aspects of Porto's QOL Leisure Time is identified as an "important" aspect of personal life Future plans to live in Porto motivated by a sense of Attachment Opportunities are "very important" as a factor in choosing the place to live Attending the Catholic University (Economics)
C	8.8	Important aspects for QOL in a city: Commerce and Diversified Services Aspects not mentioned as important in terms of QOL: Social and Health Care Services, Environment, Civic Participation and Education	Porto's provision of Commerce and Services is considered "very good" and is acknowledged as one of the most positive aspects of local QOL Mobility and Varied Infrastructures are referred to as a negative aspect of QOL in Porto Overall, QOL in Porto is considered "good"
D	8.5	Important aspects for QOL in a city: Social Cohesion Aspects not mentioned as important in terms of QOL: Environment, Civic Participation, Public Transports and Safety	Social Cohesion is mentioned as a negative aspect of QOL in Porto Mobility and Varied Infrastructures were not mentioned as a negative aspect of QOL in Porto Cultural Life is identified as a "relatively important" aspect of personal life Residence in non-school time in the Minho-Lima region
E	6.4	Important aspects for QOL in a city: Strong Civic Participation Aspects not mentioned as important in terms of QOL: Basic Infrastructure, Social and Health Care Services, and Safety	The Civic Behaviour of People is mentioned as a negative aspect of QOL in Porto Interpersonal Relations are a dimension of Porto's QOL which is considered "very good", where as Civic Participation is "poor" The home is identified as a "relatively important" aspect of personal life Proximity to Family is only "relatively important" as a factor in choosing where to live

Cluster	No. of indiv. (%)	Characterization of the cluster (active variables)	Other descriptive elements of the cluster
F	5.0	Important aspects for QOL in a city: Good Urban Design and Layout, Good Basic Infrastructure and Green Areas Aspects not mentioned as important in terms of QOL: Social and Health Care Services, Safety, Job Opportunities and Commerce and Diversified Services	Culture, Leisure and Sports are identified as very positive aspects of QOL in Porto Urban Planning and Management surface as more negative aspects of Porto's QOL In terms of provision of facilities (elementary and secondary education, health care and higher education), the offer in Porto is considered "very good" Urban Conditions are considered "very important" as a factor in deciding where to live

The use of the MCA and the consequent division into groups, by identifying similar response profiles, enabled us to highlight the distinct representations that higher education students in Porto have of the concept of urban quality of life, and to associate these representations to certain personal preferences and concrete opinions on the living and well-being conditions in the city. Generally speaking, we can say that the opinions revealed by the groups on the current situation of the city – positive or negative – tend to be more consensual with regard to the dimensions of quality of life acknowledged as more important, and enabled the discrimination of the groups themselves.

It is important to note that this first multivariate analysis did not show a strong association of quality of life concepts and certain socio-demographic characteristics, for example, gender, place of birth or age bracket. The disciplinary area attended by the students, which could reflect in some way on the identification and valorisation of the dimensions of quality of life, does not turned out to be a strong cohesion element in the groups. Indeed, the disciplinary area is simply a prominent characteristic in one of the clusters (B), suggesting that, in most cases, some possible greater awareness and a more thorough knowledge of certain subjects does not interfere in the choice of the main determining factors of urban quality of life.

Cluster A corresponds to the largest group of respondents. Here we find the students who feel that living conditions and well-being in an urban centre are mostly dictated by the conditions that it offers in terms of the environment (green areas, lack of pollution, urban cleanliness,...) and mobility (traffic conditions and public transport availability). The respondents tend to underestimate several economic and social aspects, among which the standard of living itself and job opportunities. They do not have a common example of cities with a high quality of life, in both the national and international context.

More specifically, they do not see Lisbon as a reference at this level. We can not associate this group to a well defined assessment on the quality of life in Porto. Student-workers tend to be included in this group.

As to cluster B, the factor that unites the individuals is, above all, the importance given to the job offers, although aspects such as housing, social and health care, education and safety are likewise privileged dimensions. The focus on the economic sphere is also visible at other levels, particularly in the assessment made by the students in this group – in this case, a negative assessment –, of the level of income and the local labour market, and on the preponderance given to job opportunities when choosing their place of residence. Although the individuals in this group associate Lisbon more than Porto to high quality of life standards, they intend to take up residence in Porto for various reasons (family, friendships and contacts). One of the characteristics of this group is that it acknowledges leisure time as an important component in their personal life. The Economics students at the Universidade Católica tend to be included in this group.

In cluster C, the individuals see the diversified offer of commerce and services as a preponderant aspect in quality of life within an urban centre. They also share the opinion that, in this field, Porto is well provided for in this sense, which contributes strongly to the local quality of life. In overall terms, these students believe that quality of life in Porto is good, and they identify the mobility conditions and road infrastructures as the most negative points.

As for clusters D and E, what we must highlight is the fact that, for the individuals in these two groups, the areas of quality of life they consider most important are no longer related to the "traditional" dimensions. To live in a healthy environment, to have access to a good job and education, to have a diversified provision of goods and services, and to be safe from crime are common expectations of a community, generically recognised by its elements. There are, however, other less consensual aspects on what makes an urban centre a pleasant and gratifying place to live. For example, to live in a society that guarantees all its citizens access to an adequate standard of living and opportunities to follow through individual life projects or, on the other hand, to belong to a community in which the citizens are committed to solving problems and participate actively in the decisions related to the collective interest, are some of the well-being dimensions which, as a rule, do not receive identical relevance. In the case of clusters D and E, it is precisely the importance given to the areas of social cohesion and to civic participation that are decisive for the individualization of these two groups of students. In both

cases, the opinion expressed by the respondents is that the situation in the city of Porto is unsatisfactory.

One last group of students, rather residual in size, stands out by virtue of the relevance given to the layout of the city, from a morphological and functional point of view. The quality of urban life requires, firstly, good urban layouts, good provision of basic infrastructures and green areas. The urban conditions are marked as a relevant factor when choosing where to live. For this group of students, the availability of activities related to culture, leisure and sports represents the aspect that contributes most favourably to the quality of life in Porto. The provision of collective facilities is also considered to be very good, although the general opinion on urban planning and management is negative.

Evaluation of the quality of life in Porto

The perception of students of living conditions and well-being in Porto was likewise subject to multivariate analysis. This time, we used as active variables those associated to the issues "More positive aspects", "More negative aspects", assessments of 26 specific domains and also the overall assessment of urban quality of life, expressed on a 5-point scale (from "very good " to "very poor"). The remaining variables were included in the analysis as illustrative variables.

Once the MCA was accomplished, and following an ascendant hierarchical classification of the individuals, based on the coordinates of the first 20 factors, the sample was divided into 4 groups based on the resulting clustering tree. Table 4 presents a brief characterization of these groups.

From the overall reading of the profiles of the various groups, we can legitimately state that the students' perceptions of the living conditions and well-being in the city tend to be more or less favourable according to the degree of satisfaction of their personal situation. To be more specific, the students who assess their quality of life and their daily experience positively have, as a rule, more positive perceptions, and the opposite also applies.

Cluster A includes the individuals who feel that the overall quality of life in Porto is reasonable. This group has the largest number of respondents (57.3%). In their opinion, the situation in the city is reasonable in almost all domains assessed, as only a few cases are assessed as poor. The most critical situation is related to the environment. In this cluster, we find the students that are generally satisfied with their life, and who, as a rule, show that they are satisfied with the university environment in which they are established. They

specifically value the learning context as positive, as well as the opportunities to make new friends, access to information and communication technologies and the opportunities available to develop extra-curricular activities.

Cluster B, with the second largest number of students (22.1%), is associated to the most positive assessment of the quality of life in Porto. In this case, the situation of the city is seen as generally good. In terms of the assessment according to specific domains, the city is, in most cases, considered as good and even very good; only a small number of respondents stated that it is reasonable. The domains assessed as most positive, and which reveal a consensus among the respondents of this group, are mobility and social cohesion. These individuals are generally very satisfied, and also satisfied with their personal quality of life, they thoroughly enjoy the university environment in which they are established. They referred mostly to Porto, in the national context, and to New York and Paris, in the international context, as the cities with high quality of life standards. Additional features of this group are that they belong to the younger age bracket (under 20 years) and attend science courses.

Unlike the previous groups, the individuals represented in cluster C (19.7%) share an unfavourable idea on the quality of life in Porto, which they see as being generally poor. When they assess the different domains that form the local well-being conditions of the populations separately, the judgements are similar, and nearly all are related to situations considered as poor or very poor. The dimensions which nonetheless are more optimistic, are education, health, civic behaviour, culture and leisure, and this is the group in which we also see strong importance given to the relevance of some institutions in the city and their surrounding areas (Fundação de Serralves is one of the most emblematic examples). As expected, the students in cluster C do not see Porto as a standard city in terms of quality of life. However, on a more positive note, they feel that there is not one single example of an urban centre with a high quality of life, be it at national or world scale. On the contrary, this represents a bond between these students: the feeling of unsatisfaction regarding their personal life, as a whole, and the university environment in which they live. As to the latter, the respondents feel unsatisfied and even very unsatisfied with most of the aspects they were asked to assess. Other characteristics shared by this group are the age bracket (over 30 years) and the place of residence in the periphery of Porto.

Table 4 – Clusters concerning the quality of life in Porto

Cluster	Nº of indiv. (%)	Characterization of the cluster (active variables)	Other descriptive elements of the cluster
A	57.3	The overall situation of QOL in the city is considered "reasonable" Current situation of the city is considered "reasonable" in a majority of the dimensions and "Poor" in a restricted subgroup Aspect judged as most negative: Environment	Individuals who as generally "satisfied" with their personal QOL Individuals who declare they are "satisfied" with several domains related with their University Environment
B	22.1	The overall situation of QOL in the city is considered "good" Current situation of the city is considered "very good" and "good" in a majority of the dimensions and "reasonable" in a restricted subgroup Aspects judged as most positive: Mobility and Social Cohesion	Individuals who are generally "very satisfied" or "satisfied" with their personal QOL Porto (in the national context) and New York and Paris (at international level) are identified as cities with high QOL standards Individuals who state they are "very satisfied" with their University Environment Students aged under 20 years Attending the Faculty of Sciences
C	19.7	The overall situation of QOL in the city is considered "poor" Current situation of the city is considered "very poor" and "poor" in a majority of the dimensions and "reasonable" in a restricted subgroup Aspects judged as most positive: Education, Health, Civic Behaviour, Culture and Leisure, and also City's Spaces and Institution	Individuals who are generally "unsatisfied" or "completely unsatisfied" with their personal QOL Porto is not associated with the idea of a city with good QOL Individuals who state that they are "very unsatisfied" or "unsatisfied" with several aspects related with their University Environment Students aged over 30 years Residence during school time in Greater Porto (surrounding municipalities)
D	0.9	Current situation of the city is always considered "very poor"	Individuals who are generally "unsatisfied" with their personal QOL

CONCLUSION

As mentioned before, the communities of students are, very often, "invisible" populations, in other words, populations on which little is known and which are barely acknowledged in urban policies. They are however beginning to be recognized as a strategic asset in cities. In addition to the contribution they give to economy, vitality and diversity in urban centres, these communities include those who will eventually become the qualified labour force, needed by the local companies and institutions in the future.

In a context that is simultaneously one of growing assertiveness of human capital as the primordial factor in the competitiveness of territories and the mobility of people, urban management and planning must develop pro-active strategies to attract and retain students and, at a later stage, to secure the business staff in the regional labour market. The assertiveness of high quality living standards is an unavoidable investment in this type of strategies.

In previous items in this paper, we have attempted to systematize some of the most important results of a survey on the quality of life of higher education students in Porto. As it is today widely acknowledged that this type of information, related to the perception of individuals, is complementary to the objective indicators on social, economic and environmental influences acting on levels of well-being, the work developed aimed to explore methodologies that would allow us to go beyond the simple determination of satisfaction levels. From the standpoint of supporting the design of policies and to concrete interventions, the factors underpinning subjective well-being have to be known, relating it to personal priorities, aspirations, values and life experiences. This was the aim underlying the multivariate analyses of multiple correspondences, based on the data collected in the survey; several profiles of student groups were identified, which we have already presented in the previous item.

One of the more direct practical applications of this type of analysis, which is clear in the empirical application used in the Porto case, is the possibility of identifying, in the city, the risk groups of students with very low levels of well-being. Based on this information, it may be easier to intervene, fighting against fragmentation between well-integrated and fulfilled communities and unsatisfied and unadjusted ones, a situation which, moreover, limits the potential for local creativity and the competitive assertiveness of the city.

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