Knowledge-based development from the citizen’s perspective: a study from Southern Brazil

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Abstract: The objective of this study is to analyse the relation between the personality of cities and the knowledge citizenship in the region of the Associação dos Municípios da Encosta Superior do Nordeste – a Southern Brazil association of municipalities. Personal knowledge-based development identifies and explores the competence of citizens in the development of their ability, as knowledge citizens, to better use community assets aiming local development. This perspective may be directly related to the personality of the cities. A survey was carried-out with a sample population of 504 young citizens. Statistical techniques such as descriptive statistical analyses, confirmatory factor analyses and correlation were used for data analysis. The results indicate the positive correlation between the personality of the cities and the knowledge citizenship among the following dimensions: performance based on political and civil values and attitude of the citizens.

Keywords: knowledge citizenship; personality of the cities; personal knowledge-based development; Brazil.


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1 Introduction

The dominant idea about the economy and the knowledge society is that education, science, technology and eco-systems of innovation are created with the aim of providing economic growth. From that perspective, the capital of knowledge is instrumental and subordinate to the increase of the monetary mass (Fachinelli et al., 2015; Carrillo, 2014). According to Carrillo (2014), the strategic perspective of knowledge-based development involves the recognition that the concepts and tools used to explain, quantify and administer the basic material processes that sustain an industrial economy are not enough to manage those processes “from the symbolic bases that underlie the knowledge society” (Fachinelli et al., 2015). In fact, the formal explicative models of knowledge-based development transit between the instrumental and the strategic perspectives (Fachinelli et al., 2015). On the other hand, recent social movements that brought about profound
changes in countries like Brazil and England indicate that we are going through experiences of transformation from the basic material processes that sustain an industrial economy to symbolic-based processes that underlie the knowledge society. Thus, the citizen as a protagonist of social change has become increasingly considered in the assessments of knowledge-based development as shown by the studies about personal knowledge-based development, which identify and explore people’s competences with regard to the development of knowledge citizens (k-citizens) (Garcia and Martinez, 2013).

On the other hand, the concept of knowledge cities according to Goldberg et al. (2006) points out that knowledge may be transferred to citizens through different manners of knowledge distribution in a city. Thus, in the relationship between citizens and the city, knowledge acquires a recursive nature dynamic since it simultaneously modifies the symbolic bases that underlie the city and it is also modified by them. Once this occurs, the city acquires unique traits which characterise its personality (Petroski et al., 2013). The origin of the studies on personality of cities can be found in the field of tourism with the various researches that have applied the brand personality scale developed by Aaker (1997). Studies have also identified that when applying the brand personality scale in the field of cultural studies, the perceptions of personality are culture-specific.

These finding reveal the still unexplored potential of the scale as means to identify specific and unique characteristics of the personality of a given region. Having considered this question that arises is that whether the characterisation of the personality of a city can help explain the characteristics of the knowledge citizenship and vice versa (Lee and Suh, 2011). With this in mind our study aims at analysing the relationship between personality of cities and k-citizens in the Southern Brazilian geographical area of the Associação dos Municípios da Encosta Superior do Nordeste (AMESNE) and it is a follow-up on the earlier studies carried out by Garcia and Martinez (2013) and Petroski et al. (2013).

2 Theoretical foundations

2.1 Knowledge-based development

The differentiation process of knowledge management both as a business practice and as a discipline is in a reflective one: a major transformation of established criteria for the social recognition of a field of knowledge is happening. Along those lines, according to Carrillo (1998), stakeholders’ awareness of this fact in systematic and sustainable development of knowledge management may lead to a conscious management of their current and future identity.

Many cities have claimed themselves as knowledge cities, while others have developed strategic plans to achieve this title since the concept of knowledge cities is particularly advantageous for any contemporary city. Thus, Ergazakis et al. (2006) presented the basic elements of a methodological approach to the integrated development of a knowledge city through examination and analysis approaches from other cities – in previous studies – to identify an emerging pattern of key traits and functionality to the success of knowledge cities. The development of KnowCis approach – with pilot
application in a Greek city – resulted in a useful tool for any city that intends to develop as a knowledge city and can be adapted to the characteristics of each city.

Garcia (2007) presented a four-year study on the dynamics of competence development strategies in e-learning environments in the workplace. The research adopted the generic capital system (GCS) (Carrillo, 1998) – an integrative KM3 taxonomy, considered fundamental to identify contextual aspects, directions and entrenched strategies for adapting competencies enablers for learning environments. The development of competencies allows the commitment and connection to learning spaces, as well as to university social systems and existing learning networks, which are integrated into the knowledge city assets. The research contributed to the understanding of knowledge management and development theories of the facilitators of knowledge-based skills in emerging learning spaces of higher education.

By conducting a typological investigation in the search of useful information to better understand the grounds of knowledge, Yigitcanlar et al. (2008) used cases occurred in Australia and other global best practices to promote insights into the production of contemporary knowledge with the increase in knowledge cities. The authors reinforce the contributions of the spatial clustering of knowledge-intensive industries and the formation of new types of knowledge enclosures as space core of knowledge-based urban development. The study promotes an intensive discussion on the change of spatial concepts of knowledge of venues and demonstrates its vital role in the knowledge-based urban development of the cities.

Yigitcanlar (2009) still investigates knowledge-based urban development and engineering of creative urban areas presented that the administrators of cities in recent years realised the importance of the formation of city engineering and knowledge through vision and planning for economic, socio-cultural and physical development. Thus, a new paradigm of ‘knowledge-based urban development’ was created and promptly expanding to several regions around the world. The paper introduced the development of different approaches to creative urban areas and made recommendations for the planning of urban administrations focusing on the development of creative urban areas based on knowledge. Furthermore, Yigitcanlar (2009) launched insights and discussions on the vital role of planning for knowledge-based systems.

In order to reveal the dimensions of knowledge-based dynamic development of regions, Lerro and Schiuma (2009) discussed the categories of knowledge assets by the dynamic creation of regional value to define a conceptual framework covering the categories that affect the dynamics of development of regions and territories. The dimensions of knowledge assets and the dynamics of regional development are identified through a literature review and then a conceptual framework is integrated into the analysis of the case study that enriched the proposed conceptual arguments with empirical evidence. Lerro and Schiuma (2009) also highlight the strategic importance of knowledge assets in maintaining and driving dynamics of regional development. The paper contributes further to develop the point of view of knowledge-based regional development dynamics and provides implications for future research and useful information for policy formulation.

Cantú et al. (2009) expose the impact at the Tecnológico de Monterrey, a leading university and research centre, of a regional knowledge-based development model. They propose the use of knowledge-based development in organisations, such as research
groups, institutions and environments in the higher education, particularly those involved in the generation of scientific and technological knowledge.

The results indicate that the investigation carried out in universities, research centres and institutes can be organised around a knowledge-based model combined with a computerised system that supports the model. The results of the research by Cantú et al. (2009) are useful to organisations in order to help disseminating knowledge assets for the purpose of solving economic and social needs in different regions. Also, the result identifies the value creation for researchers and organisations and can be applied by organisations that generate knowledge not only as a methodology to facilitate the research process itself but also as a benefit to the economic development of the region involved.

The contributions of Evers et al. (2010) indicate that the growth of knowledge societies will increase the relevance of the regions by creating knowledge centres due to the sharing of tacit knowledge and the results of research and development. Thus, it appears that the sharing of tacit knowledge is a key to explain the functioning knowledge-intensive groups and industries and both stimulates the development of information technology, as well as highlights the importance of knowledge management in a development process. The paper argues against the current theory of industrial clusters and proposes a research strategy based on knowledge management. The discussion of the difference between the groups of knowledge and knowledge centres allows the use of a new and consistent evaluation strategy of knowledge in a development process (K4D).

Martinus (2010) provides conceptual bases to explore the difficulties and infrastructure capacity of facilities to influence the socioeconomic nature of urban spaces. The author argues that some urban developments are more economically efficient in generating innovation and knowledge than others. Conducting a debate between urban density and infrastructure based on empirical evidence and theory of economic production, which explores the spatial links between economic growth, innovation and knowledge productivity, the study indicates that the better the level of infrastructure and facilities, the better the development of regional knowledge and innovations. Martinus (2010) provides evidence of the existence of a wide range of strategic socio-economic implications and practices that contribute to the understanding of how urban form can leverage the social aspects of a city for economic growth. With an interdisciplinary approach the paper provides invaluable insights into the types of infrastructure and importance of urban form for the knowledge development. It argues that the evolution of the well-planned knowledge can be used to ensure the successful implementation and delivery of national innovation priorities and productivity.

Through a literature review, Tomé (2011) reflects on the role of human resource development in the current knowledge-based and service-oriented economy. The study deals with the importance of knowledge as a crucial economic factor and the importance of services as a major area of economic business, addressing the development of human resources with regards to services and knowledge. Furthermore, the paper explains the critical role of human resource development as a success factor in a world dominated by services and knowledge. The paper also sets out the key issues and controversies related to human resource development, which relates to individuals, the education system, organisations and society as a whole.

The central strategy of learning – that perceives an educate education as a critical factor for lifelong employability and competitiveness – plays a crucial role in personal
development, social inclusion and the being of an active citizenship (Heraty, 2004). Nevertheless, the quick learning how to turn conventional wisdom in organisational life and the managing of work relationship remains a complex problem.

Garcia (2004) categorised different forms of knowledge city-region to establish the potential of Manchester to become a knowledge city. Also for the systematic analysis of the primary data in capital systems, the model proposed by Garcia (2004) facilitated inter-relational skills to perceptions of the researchers about the potential of knowledge assets of the city or region. The model facilitated the understanding of interrelationship concerns, social inclusion, access and competencies for sustainable development. Also, the model repositioned the dimensions of how the knowledge-based development model has assisted in the systematic identification of roles that capital actor’s knowledge of the city-region (agents and repositories of knowledge) have and the solutions that are offered to these concerns. Most of all, the model of knowledge-based development allowed insights into how global challenges are finding local solutions and in the case of Manchester and filled a gap in the recent literature of knowledge cities.

The study by Carrillo and Batra (2012) reviews a number of metrics related to KBD treating it as a relevant research problem, with the hope that more research will be generated, not only with quantitative aspects but with methodological components that present Conceptual construction, practical applications, levels of analysis, weighting and aggregation and visualisation. With the generation of type of study, the authors estimate that KBD’s research and practices come to understand and manage the dimensions represented or based on the knowledge of social systems (Garcia, 2012).

Thus, KBD’s challenge and opportunity is to contribute to the creation of a new culture based on knowledge-intensive economics and politics where the central issue is the characterisation of ‘knowledge based’ and what effect this has with regards to the actualisation of human experience and human coexistence (Carrillo, 2014). This author’s contribution to the literature review on social, economic and cultural issues reiterates the contribution of KBD’s nature to the promotion of science and its relevance to society in general is evident.

2.2 Knowledge citizenship

The central strategy of learning – that lifelong may be perceived as a critical factor for achieving employability and competitiveness – plays a crucial role in personal development, social inclusion and active citizenship (Heraty, 2004). Nevertheless, the quickly learning to turn the conventional wisdom in organisational life and the relationship with work remains a complex problem.

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insights into how global challenges are finding local solutions, particularly in the case of Manchester and filled a gap in the recent literature of knowledge cities.

In his research, Garcia (2016) notes that relational capital unleashes multiple possibilities for building knowledge-based development-initiatives in city-regions containing key aspects of knowledge-based networks and systems in cities or regions. These aspects are part of a system of capital known as the GCS, a tool to assess how cities are leveraging their capacity for knowledge-based development (subject discussed in the next chapter). The convergence between learning, economics and opportunities for urban social networks in distinct city-regions is treated by the author as a development strategy. It is evidenced in this research how knowledge-based initiatives are making a difference in the cities of the developing world, building a place and a unique identity in the global arena.

2.3 Personality of the cities

The competition between destinations, the changing of local residents’ behaviour – or those who choose the area or city to live in – the concerns for quality of life and the changes in visitor consumption patterns have increasingly stimulated the need for a strategic management perspective of destinations, emphasising on the idea of the image or brand personality of a destination (city, region, country).

In this sense, the concept of ‘place brand’ or ‘personality of a destination’ applied in creating a unique and attractive image, is a crucial tool to identify a destination and to differentiate it from others, offering an experience that distinguishes one area from the competing destinations (Ashworth and Voogd, 1994). This investigation specifically examines the relationship between the personality of cities and citizenship knowledge of the region.

The concept of personality is attributable to human beings. However, the concept can also define characteristics of a non-human (Guthrie, 1997; Aggarwal and McGill, 2012). In social sciences frequently discourses about anthropomorphism, since academics and professionals suggest humanise products or brands, as is commonly the consumer’s easily sighted human characteristics in non-human objects (Guthrie, 1997; Aggarwal and McGill, 2012). In addition to literature, the subject contains examples of the use of the concept of brand personality, which is usually applied in measuring the image of different categories of places, tourist destinations, such as cities, regions or countries (Muniz and Marchetti, 2005; Hosany et al., 2006; Murphy et al., 2007; Kaplan et al., 2010; Lee and Suh, 2011; Ahmad et al., 2013).

The brand personality is widely discussed in the scientific literature being described as human characteristics which consumers associate with a brand (Aaker, 1997). According to Gorbaniuk (2011), under the concept of interest in the brand spatial personality underlies the need for a universal tool to measure the city or region image. For Baloglu and McCleary (1999), the formation of the image of a destination relates to key factors that influence the formation of the place’s image and two of its most significant aspects are:

1. stimulating factors (such as external or physical factors and previous experience)
2. personal factors (such as social and psychological characteristics of the observer).
Countries, regions or cities, even when not consciously managing their brands, incorporate local elements and characteristics that help generate the notion of an identity and that are perceived by people. According to Kotler and Gertner (2004), this noticing of local characteristics by people is due to a similar mechanism in people’s perceptive abilities that makes them identify brands and such mechanisms have the ability to influence decisions regarding purchases, investments, change of residence and travel (Carrillo and González, 2012). It should be noted that feelings of trust and sensations with a strong personality can result in a credible brand if combinations are favourable, strong and unique (Garcia et al., 2012). Thus, the mere mention of the name of a city can bring up a picture in the mind of an individual. Therefore shaping the brand of a place refers to the implementation of appropriate strategies which allow the cities to be identified and appreciated apart from the competition through proper placement of resources/skills, cultural distinctiveness, social, or economic nature (Kaplan et al., 2010; Tomé and Neumann, 2010).

The strong personality of a destination or city can generate substantial benefits (Kaplan et al., 2010). According to Anholt (2009), destinations should express its personality through the value of the different and complementary brands so that it can reflect the essence of the destination brand. It involves perceptions of both residents and visitors of the place. The ‘sense of place’ is a different region or city of competitors makes it memorable and refers to products, celebrations of the place, culture and heritage, nurturing their natural and built environment. So, the public sphere reflects the true local spirit of management, of buildings and public art events and other elements that characterise the destination.

Thus, if a given city reveals the value of its singularities through the expression of its personality, the citizen as a protagonist of social life expresses those values in the knowledge citizenship. Thus, the hypothesis of our study is:

- The dimensions of personality of a city are positively related to the dimensions of knowledge citizenship.

3 Method

This study was carried out in the 33 member cities in of the Associação dos Municipios da Encosta Superior do Nordeste (AMESNE) – (association of municipalities in the upper hillside of Rio Grande do Sul) located in Southern Brazil. The sample was composed of 504 citizens who at the moment of data collection (from March to May 2016) were attending or had already concluded higher education.

Considering that the aim of this study was to analyse the relation between the personality of cities and the knowledge citizenship in the scope region of the AMESNE area a research instrument was applied. The data collection involved the application of two scales – 10 points Likert – applied to measure both themes discussed in this paper. For knowledge citizenship, the scale developed by Garcia and Martínez (2013) was applied. For the measurement of personality of the cities, the scale of Petroski et al. (2013) – adapted from the brand personality scale of Aaker (1997) and Muniz and Marchetti (2005) – which presented 75 personality traits (for the city context).

The research instrument composed of 27 variables used in the original study of Garcia and Martínez (2013) – first practical applications of the model of capitals from
Carrillo (2014), which used a 10 point Likert scale for evaluation of the variables that compose the dimensions of knowledge citizenship. Table 1 presents seven dimensions of knowledge citizenship resulted from the study of Garcia and Martinez (2013).

Table 2 presents the four dimensions used to measure personality of the cities – categorised in 10 facets, later separated in 75 traits described by Petroski et al. (2013) and adapted from the brand personality scale of Aaker (1997) and from the study of Muniz and Marchetti (2005) for the cities context. The research instrument was delineated by using a 10 point Likert scale for the evaluation of personality traits of cities.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Knowledge citizenship dimensions</th>
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</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td><strong>Variables</strong></td>
</tr>
<tr>
<td>Voluntary community work</td>
<td>CIT01 to CIT03</td>
</tr>
<tr>
<td>Associativity</td>
<td>CIT04 to CIT06</td>
</tr>
<tr>
<td>Political participation</td>
<td>CIT07 to CIT11</td>
</tr>
<tr>
<td>Collaboration</td>
<td>CIT12 to CIT15</td>
</tr>
<tr>
<td>Attitude</td>
<td>CIT16 to CIT19</td>
</tr>
<tr>
<td>Performance based on political and civil values</td>
<td>CIT20 to CIT23</td>
</tr>
<tr>
<td>Proactivity/resilience</td>
<td>CIT24 to CIT27</td>
</tr>
</tbody>
</table>

*Source: Garcia and Martinez (2013)*

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Personality of cities dimensions</th>
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</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td><strong>Facets</strong></td>
</tr>
<tr>
<td>Empathy</td>
<td>Fun</td>
</tr>
<tr>
<td>Diplomatic</td>
<td></td>
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<tr>
<td>Full of energy</td>
<td></td>
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<tr>
<td>Mystique</td>
<td></td>
</tr>
<tr>
<td>Equilibrium</td>
<td>Prudent</td>
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<tr>
<td>Calm</td>
<td></td>
</tr>
<tr>
<td>Functionality</td>
<td>Determinate</td>
</tr>
<tr>
<td>Pragmatic</td>
<td></td>
</tr>
<tr>
<td>Charm</td>
<td>Enchanting</td>
</tr>
<tr>
<td>Elegant</td>
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</tbody>
</table>

*Source: Petroski et al. (2013), adapted from Aaker (1997) and Muniz and Marchetti (2005)*

4 Results and analysis

The results and analysis begin with the characterisation of the sample, where the information on the profile of the 504 respondents is provided. Regarding the gender of respondents, it has been verified that 60.7% of the sample is composed of female (306 women) and 39.3% from the interviewed are male (198 men).

The ages of the 504 research respondents was evaluated per age groups. More than half of the sample (59.3% or 299 respondents) is placed in the age group between 20 and
Knowledge-based development from the citizen’s perspective

29 years old. The most frequent age groups were from 30 to 39 years old, representing 24.2% of the sample (122 respondents), followed by the age group from 40 to 49 years old (9.3% or 47 respondents). The age group up to 19 years old corresponded to 6.2% of the sample (31 respondents) and lastly, those above the age of 50 corresponded to 1.0% of the sample (five respondents).

Regarding the income of the respondents, it has been verified that most of the respondents (47.0% or 237 respondents) had income of in or below the R$1,903.98 monthly. In the sequence, 24.6% (124 respondents) of the respondents affirmed having an income between the R$1,903.99 and the R$2,826.65. Only 11.5% (58 respondents) had incomes of between the R$2,826.66 and the R$3,751.05, followed by 10.3% (52 respondents) that had incomes above the R$4,664.68. Finally, 6.5% (33 respondents) have incomes of between the R$3,751.06 and the R$4,664.68.

Regarding the cities’ distribution, the respondents affirmed to live in: Caxias do Sul (27.2% – 137 respondents), Bento Gonçalves (14.5% – 73 respondents), Marau (14.1% – 71 respondents), Nova Prata (10.9% – 55 respondents), Carlos Barbosa (7.1% – 36 respondents), Guaporé (6.7% – 34 respondents), Garibaldi (6.5% – 33 respondents), Veranópolis (6.2% – 31 respondents), Vila Flores (1.2% – six respondents), Nova Bassano (1% – five respondents), Flores da Cunha (0.8% – four respondents), Cotiporã (0.4% – two respondents), Vista Alegre do Prata (0.4% – two respondents), Coronel Pilar (0.2% – one respondent), Fagundes Varela (0.2% – one respondent), Paraí (0.2% – one respondent) and São Marcos (0.2% – one respondent).

The data analyses of knowledge citizenship have shown that in the current study all dimensions defined by the study of Garcia and Martinez (2013) presented significant satisfactory statistical results in the current study, as shown in Table 3. The individual test of each dimension shows better results in the dimension proactivity/resilience, that generated a 0.894 score of Cronbach’s alpha and 0.835 scores on Kaiser-Meyer-Olkin test, represents a 76.125% of explained variance.

<table>
<thead>
<tr>
<th>Dimensions*</th>
<th>Cronbach’s alpha</th>
<th>KMO</th>
<th>Explained variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Voluntary community work (3 items)</td>
<td>0.837</td>
<td>0.722</td>
<td>75.388%</td>
</tr>
<tr>
<td>2 Associativity (3 items)</td>
<td>0.832</td>
<td>0.690</td>
<td>75.124%</td>
</tr>
<tr>
<td>3 Political participation (5 items)</td>
<td>0.745</td>
<td>0.743</td>
<td>51.347%</td>
</tr>
<tr>
<td>4 Collaboration (4 items)</td>
<td>0.792</td>
<td>0.751</td>
<td>62.674%</td>
</tr>
<tr>
<td>5 Attitude (4 items)</td>
<td>0.844</td>
<td>0.818</td>
<td>68.337%</td>
</tr>
<tr>
<td>6 Performance based on political and civil values (4 items)</td>
<td>0.833</td>
<td>0.766</td>
<td>66.853%</td>
</tr>
<tr>
<td>7 Proactivity/resilience (4 items)</td>
<td>0.894</td>
<td>0.835</td>
<td>76.125%</td>
</tr>
</tbody>
</table>

Note: *Bartlett sphericity test < 0.001.

Source: Research data

The confirmatory factor analyses have been performed with aggregated items of the knowledge citizenship scale in order to enable the confirmation of the instrument applied in the studied sample. It has been verified a Kaiser-Meyer-Olkin measure of 0.947 was found with the explained variance of 67.44% of 27 variables. These results have been obtained with the exclusion of the variable CIT08, due to the upgrade in the results.
The four dimensions that characterise knowledge citizenship variables have been successfully evaluated thus resulting in the identification of four factors. The first factor was formed by the variables that compose the performance based on the political and civil values dimension. The second factor unified the variables of the voluntary community work dimension and the associativity dimension. The third factor gathered the variables of the attitude dimension, one variable from the performance based on political and civil values dimension and one variable from the collaboration dimension. Political participation and the other variables from the dimension political participation were grouped in the fourth factor.

The data analyses of personality of cities showed significant satisfactory statistical results supporting the four dimensions from the study of Petroski et al. (2013) – Table 4. In the individual testing of each of the dimensions proposed by the original study, the equilibrium dimension is the one that presented better results, with a Cronbach’s alpha score of 0.913, with Kaiser-Meyer-Olkin score of 0.915, which represents 64.77% of the explained variance. These results were obtained with the exclusion of the variable Popular, which belonged to the dimension empathy, due to the improvement of the results.

The result of statistical analyses has indicated that the equilibrium dimension has been divided into two facets, exactly as stated by the literature. The first facet, Prudent – named as equilibrium 1 – is composed by personality traits such as polite, moderate, stable, organised, balanced and logical. The second facet, quiet, named as equilibrium 2 – is composed by personality traits peaceful, Serena, quiet, calm and healthy.

<table>
<thead>
<tr>
<th>Dimensions*</th>
<th>Cronbach’s alpha</th>
<th>KMO</th>
<th>Explained variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Empathy (16 items)</td>
<td>0.942</td>
<td>0.955</td>
<td>54.094%</td>
</tr>
<tr>
<td>2 Equilibrium** (11 items)</td>
<td>0.913</td>
<td>0.915</td>
<td>64.775%</td>
</tr>
<tr>
<td>3 Functionality (9 items)</td>
<td>0.894</td>
<td>0.914</td>
<td>54.373%</td>
</tr>
<tr>
<td>4 Charm (5 items)</td>
<td>0.872</td>
<td>0.789</td>
<td>66.381%</td>
</tr>
</tbody>
</table>

Notes: * Bartlett sphericity test < 0.001. ** 2 subjacent factors.

Source: Research data

Furthermore, the confirmatory factor analyses were carried out contemplating 41 items – among the 75 – confirmed by the study of Petroski et al. (2013) about the personality of cities. For the adequacy of the sample, the score from the Kaiser-Meyer-Olkin measure was 0.963 and the explained variance of 60.230% – evaluating the 41 variables.

Moreover, the four dimensions in which the personality of cities variables are characterised have been evaluated and have resulted in four factors. The first factor is formed by the variables that compose the empathy dimension and one variable from the functionality dimension. The second factor consisted of variables of the equilibrium dimension and one variable of the empathy dimension. The third factor gathered variables of the charm dimension and one variable each from empathy, equilibrium and functionality dimensions. Last, the fourth factor grouped the variables of the functionality dimension and some variables of the equilibrium dimension.
Table 5

Correlations

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
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Note: **The correlation is significant at 0.01.

Source: Research data
In the study, it has been verified that there has not been any confirmation of the facets: fun and prudent – that belong to empathy and equilibrium dimension respectively, due to the non-group of the variables, or personality traits, belonging to these facets.

In the conclusion of the descriptive statistical analyses, the simple correlation among knowledge citizenship dimensions and the personality of the cities dimensions has been verified thus resulting in correlations with significance levels of 0.05 and 0.01. A choice has been made in the present study to analyse only significant correlations (at the level of 0.01).

The research results provide evidence that the correlations performed between the knowledge citizenship dimensions and the personality of cities dimensions are classified as weak positive, moderate positive or strong positive according to the characterisation proposed by Santos (2007). In this research, it has been opted to perform the analyses and interpretations of the five correlations with the lowest results and the five correlations with the highest results.

Therefore, the five lowest correlations of the study – as presented in Table 5 – have related the dimension equilibrium 2, from the personality of cities, with dimensions of the knowledge citizenship. The results have shown that the lowest correlations of the study (0.123) have been in the political participation dimension, the second (0.124) the associativity dimension, the third (0.125) to attitude dimension, the fourth (0.127) to collaboration dimension and the fifth to performance based on political and civil values dimension.

Furthermore the analyses of the five correlations that presented the highest results were carried out – as shown in Table 5. Twelve variables from the knowledge citizenship construct were statistically correlated:

1 voluntary community work
2 associativity
3 political participation
4 collaboration
5 attitude
6 performance based on political and civil values
7 proactivity resilience – and the personality of the cities construct
8 empathy
9 equilibrium 1
10 equilibrium 2
11 functionality
12 charm.

Firstly, it has been evidenced that the highest correlation result (0.818) is between the functionality dimension and the equilibrium 1 dimension, both from the personality of cities approach. The second highest result (0.817) has been identified in the correlation between the functionality dimension and empathy dimension, once again in the perspective of personality of cities. The third highest result (0.800) of the correlations
performed has been shown between the proactivity and resilience dimension and performance based on political and civil values dimension. The fourth highest result of simple correlation (0.783) has resulted from the correlation between the performance based on political and civil values dimension and attitude dimension – belonging to the knowledge citizenship. Finally, the fifth highest result (0.770) has been the result of the correlation of the charm dimension with the functionality dimension, once again inside the personality of cities.

5 Discussion

The research has also identified that both facets that build the dimension equilibrium have presented non-confirmatory statistical results since the scores lower correlation results, both in the evaluating the dimensions of knowledge citizenship, as in the measurement of relation with personality of cities dimension. On the other hand, the research has shown that the proactivity and resilience dimension and the performance based on political and civil values dimension has presented the best correlation results in the measurement of the relation between the knowledge citizenship dimensions.

In the analysis between the knowledge citizenship dimensions and the personality of cities dimensions, which is the main focus of the study it has indeed verified, that they have the closest correlation. The functionality dimension consists of the facets determinate (realist, strong, worker, independent, leader personality traits) and pragmatic (sophisticate, rational, practical, responsible personality traits).

The best score of the study has resulted from the correlation, for the confirmation of the proposal of this study. All correlations, however weak, have been considered positive; correlations were identified between the dimensions: functionality and attitude dimension (0.398), performance based on political and civil values (0.370), collaboration (0.355), proactivity and resilience (0.322), associativity (0.252) and political participation (0.184).

It is important to notice that the empathy dimension – which belongs to the approach of personality of the cities, has also presented a positive and weak correlation when attached to the dimension voluntary community work, from knowledge citizenship (0.258).

According to the results presented in the study, the confirmation of the personality traits applied to the cities – delineated by Petroski et al. (2013) was confirmed – as well as its relation to the knowledge citizenship dimensions – as stated by Garcia and Martinez (2013). The results of these relations endorse the knowledge-based development, by means of the personal knowledge-based development approach (PKBD).

6 Conclusions

The literature that lays the ground for this study shows that within knowledge management during the process of knowledge creation, knowledge sharing and its relation to intra and inter-organisational context influences the of the application of this through this process acquired knowledge. Moreover, recent studies are focused on the social dimension that emerges from the interaction of the knowledge sharing among individuals.
Having done the statistical analyses, it has been possible to reach the understanding of the knowledge-based development by means of the actions related to knowledge citizenship. The results reinforced the PKBD associated with knowledge citizenship and which the citizens’ peculiar dimensions that may promote the organisational and social development.

Thus, the relevance of studies on knowledge-based development lies in the appreciation and understanding of the social dimension promoted by knowledge, as a result of social interaction in its collective dimension and its useful role for the purpose of developing strategies for society. Nevertheless, it is important to emphasise the significance of this social dimension of knowledge, since the strategies developed and applied in companies are still closely related to achieving financial goals and often only focused on the short and midterm. Corporate managements team whose careers are defined by their ability to achieve short-term results and receive no recognition nor compensation for the establishment of long-term results, often end-up lacking a greater understanding of the competitive advantages that may be achieved in the long-term which do not only include financial results but also other benefits that can also improve the company’s position, aspects such as better sustainability, a higher level of productivity, better trained workers a reduction of sick leave cost, etc. and eventually even a larger market share.

The contribution of this work involves the delineation of development concepts based on knowledge and it engages in themes that have emerged through the literature developed by the most important authors, which allows to identify the evolution of concepts that from an approach of strategic knowledge management can result in a social dimension focused on society.

As for the theoretical implications, the paper contributes to the continuity of the research about knowledge-based development and aims at increasing the general consciousness for the new social dimension achieved by this concept which is oriented to the ‘citizen’ and goes far beyond just a strategic management approach.

It should be noted that an important contribution to this paper has been the association between the authors and all involved parties practicing the concept of knowledge citizenship and personality of cities in the sample population used in this paper.

The conclusion of this study is that even though it is known from the evidence provided in the theoretical foundation of this study that continuing application of technological and management innovations is essential for the development of organisational strategies, when the element of the interaction of knowledge citizenship and personality of city is included as part of the strategic planning of organisations such as commercial enterprises, municipal institutions and schools and universities which are all part of the same city community and they do this through joint collaboration and its managerial implications are absorbed in their management practices, which leads to significant improvements and overall positive result. This success as shown in the results in this paper allows the city, or group of cities where these practices are applied to reach higher levels of competitiveness and to be identified as a geographical area that attracts other investments which in turn fuel support sustainable positive regional growth.
Knowledge-based development from the citizen’s perspective

References


