The Typological Paragon: A Methodological Proposal of Mixed Designs

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Résumé

Le *Typological paragon* : une proposition méthodologique pour les dispositifs d'enquête mixtes. Cet article présente une proposition méthodologique quant à l'usage du *typological paragon* dans un dispositif séquentiel et mixte. Le parangon se définit comme un profil moyen ou individuel d'une classification donnée obtenue à partir d'une technique multivariée (analyse des correspondances ou *cluster analysis*). Nous proposons ici quatre applications du *typological paragon* : le premier en tant qu'élément descriptif pour expliquer le contenu de la classe ; le deuxième comme critère d'échantillonnage ; le troisième comme une clé d'appariement entre deux bases de données avec l'ambition de faciliter leur fusion ; enfin le dernier pour aider à la convergence entre les résultats obtenus. Les fondements empiriques de notre proposition innovante proviennent de deux recherches à partir desquelles nous montrons les quatre mises en œuvre possibles du parangon. La première recherche porte sur une analyse de la stratification sociale des ménages en Argentine (Fachelli, 2009) ; la seconde sur l'identification et l'étude des trajectoires d'emploi et leurs liens avec le capital social en Espagne et Catalogne (Alcaide, 2013). Les

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quatre utilisations du parangon qui s'appuient sur ces recherches nous invitent à réfléchir aux potentialités et limites du modèle proposé : le *typological paragon*.

Abstract

This article presents a reflection and a methodological proposal on the use of the typological paragon in mixed sequential designs. The paragon is defined as the average or individual profile of a particular cluster that is obtained through multivariate techniques (correspondences analysis and cluster analysis). Here we propose four applications of the typological paragon: first, as a descriptive element, which aims to account for the content; second, as an element of sampling; third, as a link or connecting element between databases with the aim of facilitating matching; and finally, as an element that allows the convergence of results. Two studies provide the empirical basis of this innovative procedure and show the practical implementation of the four uses of paragon. The first deals with the analysis of the social stratification of households in Argentina (Fachelli, 2009). The second focuses on the study and identification of employment trajectories and their mutual influence with social capital in Spain and Catalonia (Alcaide, 2013). The four uses of the paragon that derive from both investigations allow us to reflect on the potentialities and limitations of the proposed model, the typological paragon.

Introduction

This article is the result of a methodological reflection arising from work in several studies (López-Roldán, 1994, 1996; Fachelli, 2009; López-Roldán et al., 1998; Alcaide, 2013, to mention a few) in which sequential mixed designs are applied using comparison to connect the quantitative and qualitative phases of the design. The element that serves to connect the different phases in a mixed sequential design and on which we have focused in our work, is the paragon.

The paragon is understood as the standard profile or average individual of a determined group or cluster that is obtained by applying multivariate techniques (factorial analysis, specifically correspondence analysis, and cluster analysis). When the attributes of the individuals or units of analysis are structured into groups that claim to be internally homogeneous and externally heterogeneous, we observe that some of these units or individuals are in the centre of gravity of the group or cluster, while others are at a certain distance from it. It is from this situation that we can identify different types of paragon presented in this article.

The objective of this article is to show the uses of the paragon as an innovative procedure in the context of a sequential mixed design based on two phases. The first one is quantitative and the second one is qualitative. The paragon serves as a connector between both phases. It is also intended to reflect on its uses, its potential, limitations and its identification procedure.

We make a methodological proposal regarding the use of the paragon starting from a theoretical and empirical exposition based on two studies, in which emerge the four identified uses of the paragon in the context of mixed designs: (1) as a descriptor; (2) as an element of sampling; (3) as a connecting element for 'matching interbase'; and (4) as a structuring element for the convergence of results.

Mixed Analysis Designs

Today the quantitative and qualitative methods are used as complementary methods and both are considered equally valid alternatives for meeting different research objectives and to better understand a research question (Tashakkori and Teddlie, 2003; Burke Johnson et al., 2007; Teddli and Tashakkori, 2009; Creswell et al., 2011; Creswell and Plano Clark, 2011; Gobo and Mauceri, 2014; Bidart and Dupray, 2014; Plano Clark and Ivankova, 2016; Collins and Evans, 2017).

We place ourselves in the perspective of understanding, like Bryman, that it is necessary to overcome rigid epistemological premises by understanding that the choice and construction of quantitative or qualitative data can coexist perfectly in a study based on both theoretical 'explanatory' and 'comprehensive' positions. According to Collins and Evans 'As researchers who are engaged in both qualitative and quantitative research, we are not interested in the rivalry between the two.' (2017: 331). Research methods and techniques are more 'neutral' and less dependent on the epistemological level than is usually apparent in the quantitative/qualitative debate (Bryman, 1984).

Currently, there are several studies that propose the integration of both methods. Studies as Grossetti et al. (2011), Kinestra and Van der Heijden (2015) or Di Giammaria and Faggiano (2017) represent some examples of the 'neutral' use of techniques and methods and, more specifically, of how to transform the original data for the application of both qualitative and quantitative procedures. Other researchers, for example, focus on the analysis of spatial autocorrelation to identify sampling frames for collecting data to test perceptions of the population (Brown et al., 2017).

Following Bryman (1984) we consider that we must overcome the rigid epistemological premises between qualitative and quantitative understanding, that the choice and construction of quantitative or qualitative data can coexist perfectly in a research that starts from both 'explanatory' and 'comprehensive' theoretical positions. Research techniques are more 'neutral' and depend less on the epistemological level of what is usually manifested in the quantitative/qualitative duality. Each method and technique have its own characteristics and their use is valid to the extent that it covers relevant research objectives made explicit in the model of analysis. Each instrument may be useful and suitable according to its nature, and it could be useless for achieving objectives for which it was not designed. Bericat (1998), in his analysis of the integration between quantitative and qualitative methods, and Reichardt and Cook (1986) questioned the relationship

between paradigm and methods from the experience of evaluative research, and Halfpenny (1997) criticised the division between quantitative and qualitative research.

These positions and trends suggest that one needs to orient research towards the articulation of perspectives and the articulated or mixed use of methods. Smaling (1994: 239) proposes broad and flexible notions of paradigm can be combined within a research project:

> paradigms can be seen as different perspectives which may assume, correct or complement each other, but also as alternative total-perspectives (in the sense of total-constructions) which show the relativity of each other, enrich our pluralistic insights and preserve us from theoretical monism, epistemological absolutism and paradigmatic ethnocentrism.

Ibáñez (1986, 1988) affirms that a specific research process almost always requires integrating techniques from each paradigm, due to the richness of the procedure and the complexity of the social reality.

We start from the idea that the possible integration must be considered from the methodological point of view. The methodological orientation is concretised in each study, choosing the most appropriate strategy to obtain the best results according to the research problem. If the strategy is mixed, it is possible to conceive a diversity of mixed designs of quantitative/qualitative articulation (Bericat, 1998; Tashakkori and Teddlie, 1998, 2003; Borràs, López-Roldán and Lozares, 1999; Brewer and Hunter, 2006; Callejo and Viedma, 2006; Verd and López-Roldán, 2008; Creswell, 2009; Creswell and Plano Clark, 2011). This overview of the literature is necessary limited because the mixed method topic is a very active and wide field of study.

Mixed designs are considered to be more enriching than single-method designs because of their potential for applying information of various types, facilitating the testing, reliability and validity, and providing a procedure that is more efficient both theoretically and methodologically (Collins and Evans, 2017; Fetters and Molina-Azorin, 2017; Vans Ness et al., 2017). Below we present some general strategies of approaches or designs of multimethod or mixed analysis that combine quantitative and qualitative methodologies as an introduction to the methodological proposal of the comparison that we make here.

In order to explain what is meant by mixed designs, we can distinguish three strategies of methodological organisation (Table I).

Table I. Strategies of methodological organization

Strategy	Mixed design
Complementation	**QUAN + QUAL**
Combination	**QUAN → QUAL** **QUAL → QUAN**
Triangulation	**QUAN ↔ QUAL**

Source: authors.

In the complementation strategy, the joint use of several techniques is aimed only at addressing different aspects or dimensions of the object studied without analytic integration. The combination strategy corresponds to designs in which the methods are organised in successive stages or sequential (Creswell, 2009; Creswell and Plano Clark, 2011), so that the quantitative or qualitative data collected and analysed initially can serve to improve the collection and analysis of the quantitative or qualitative data of the second wave. In these designs, the main technique can be both quantitative and qualitative, without implying an especially different logic. Finally, triangulation designs are those whose main purpose is to confirm the findings offered by two or more different techniques, in which the convergence of results is sought in particular from a triangulation of methods implemented independently in a single phase. The data obtained are subsequently integrated at the time of interpretation, mainly seeking to increase their validity.

In this article we propose a combination of quantitative and qualitative research based on a sequential design, in which we first process the survey information (quantitative) and then combine it with the intensive data collection through interviews (qualitative). The quantitative information is used initially as a procedure that establishes certain more structural and general results that frame and explain a given social order. In this phase two multivariate techniques are applied, multiple correspondence analysis (MCA) and cluster analysis that allow selecting profiles and identifying the paragon. To this end, we use the paragon as a link between the quantitative and qualitative phases that constitute the sequential design.

Methodological Proposal: the Typological Paragon

In the proposed mixed sequential design (Quantitative → Qualitative) we apply a process of production and analysis of data in a survey through which a typology is constructed. We propose to use the concept of 'structural and articulated typology' (López-Roldán, 1994, 1996), whose main characteristics are related to defining the content and the form through which it is constituted. The *content* reflects the substantive nature of the phenomenon studied, while the *form* refers to the principles or dimensions that give rise to a typological classification. In general, the structural and articulated typology model presupposes a structured approach to social reality and it involves a dynamic research and articulation between theory and empirics. It is structural because it is the configuration of the space of the attributes by means of the factorial dimensions. In this structure, the units are located forming clusters that occupy the same social space, and thus, typifying the social reality. In this sense we can speak of 'structural explanation' of social reality (López-Roldán, 1994; Fachelli et al., 2012).

In turn, the theoretical-methodological approach that is used to apply the paragon is the *Structural Attribution* (Alcaide, 2013). This approach refers to the very concept of social processes and to the methodological approach related to the empirical processing and measurement of these processes.

Structural Attribution is the habitual approach in the processing of the facts and social agents. These are conceived as resources or groups catalogued in differential attributes that give rise to social variables. Thus, social is conceived through the identification of categories of analysis or attributive characteristics that are characteristic of the units of analysis (such as individuals) and in turn serve to classify them (Lozares and

López-Roldán, 2012). These attributes are expressed in variables such as socio-professional categories, age and origin, which are in turn quantifiable from the positions occupied by the individuals in them. According to Lazarsfeld (1937) and Barton (1955), these different variables can be understood as a coordinate system in which they combine to form a space similar to the physical one, but here of characteristics or social profiles called *attribute space* or *property-space*.

This attribute space is configured from what other authors also call as social space. The classic work performed by Pierre Bourdieu and his colleagues gave a lot of visibility to the analysis of social space (Rouanet, Ackermann and Le Roux, 2001; Lebaron and Le Roux, 2015), particularly through the work *La Distinction* (Bourdieu, 1979), the study of lifestyles in France. In theoretical terms, Bourdieu uses classic concepts that nevertheless have a very close link with the methodology used, such as social space, habitus, lifestyle and taste. The concept of social space is used to refer to class differences (and fractions). It is the space that distributes or differentiates those who are better provided with economic and cultural capital from those who are less well provided. Social space is an abstract representation, a map, for understanding social reality (Rouanet et al., 2000). In this research, Bourdieu relies on quantitative data, using multiple correspondence analysis (Blasius and Schmitz, 2017).

Figure 1 shows the role of a typological paragon in the context of a sequential mixed design.
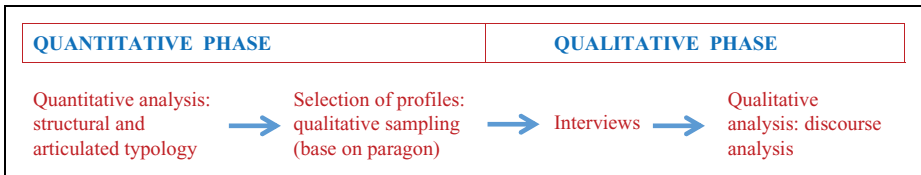
Figure 1. Sequential design based on the typological paragon.
Source: authors.

Sequential chaining is relevant to understand that there is, as Conde (1987) points out, an 'isomorphic analogy of topological spaces', to the extent that the cited quantitative techniques (correspondence analysis and cluster analysis) allow treating the information through a typological reading and with spatial representations. These measurements and representations are not based on quantitative absolute magnitudes but refer to qualitative forms of information provision in space as a way of expressing the structure or typification of a phenomenon. If we take the construction of the groups, we can formalise and construct a group map ordered according to their position in the social structure.

Following this reasoning, we conduct in-depth interviews choosing the interviewed people according to the characteristic profile that is obtained from a previous topological analysis of the whole population under study. Starting from the use of statistically representative databases (Collins and Evans, 2017), the previous procedure transfers this representativeness to qualitative sampling (Van Ness et al., 2017) (selection of profiles for interviews) generating greater efficiency in the saturation of qualitative information.

A set of individuals is chosen and sought in each of the groups that 'represent' them by taking the identity attributes of their peers, their equivalence. These individuals are

chosen as bearers of a type of discourse (representations, interpretations, ideology, project, etc.) extracted from (and based on) social reality. With this type of approach and process, we do not try to use the two types of information collection and analysis techniques independently, but rather chained sequentially to later perform a type of topological and projective coupling isomorphism: first, we assemble the two moments and techniques (QUAN and QUAL) in order to drive the results from the first moment to the second, and then we link both moments in order to triangulate the results of the analysis obtained in a synergy or efficient dynamic. In this sense, a mixed design like typological paragon brings efficiency when the theoretical and methodological benefits obtained go beyond the sum of previously existing elements examined separately in each of the techniques adopted (Verd and López-Roldán, 2008: 14).

The concept of the paragon is defined by two different situations (see Figure 2):

Average paragon (P_m). As an ideal average type of a group that is determined as the arithmetic mean or barycentre of all the individuals that make it up from a factorial space, that is, the social space that we defined previously:

$$P_m = (\bar{F}_1, \bar{F}_2, \ldots, \bar{F}_m).$$

Specific paragon (P_i). As a specific case of a group that is determined by selecting those individuals closest to the centre of the group or average paragon, considering Euclidian distance:

$$d(P_i, P_m) = \sqrt{\sum_{j=1}^{m} (x_{ij} - x_{mj})^2}.$$
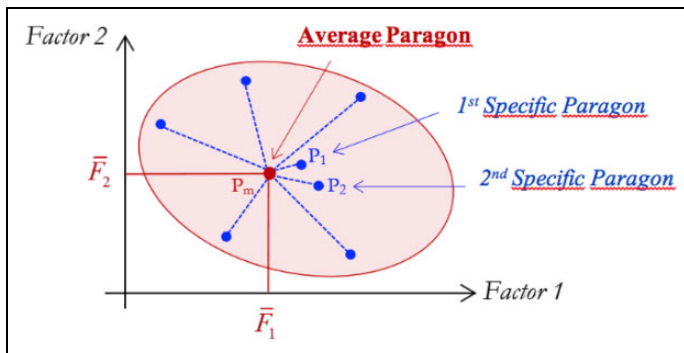
Figure 2. Representation of the paragons in the factorial space.
Source: authors.

The closest individuals are sorted as first, second, third, etc. specific paragon. Each one refers to specific individuals in the data matrix characterized by greater sharing of the mean attributes of the average paragon from the variables that define the factorial space. In addition, they are carriers of other specific social traits derived from the individual's particularity and contained in the original data matrix, which can be understood to be largely associated with the typological profile of the group that defines it.

The paragons thus defined can be used for different purposes and therefore provide different uses.

1. **Typological descriptor**: for typological descriptive purposes to account for the substantive content of each group or type. If we use the middle paragon, the ideal average type is configured as a summary and centred reference of the different internal profiles of the group. It allows us to synthesize and reduce the defining content of the different units through a representative profile, given the relative homogeneity of the cluster. If we use the specific paragon, we can, first, also reflect what we have just stated, since it is the individual or the individuals that are closest to the centre and have almost the same average features. However, in addition, as if it were an exercise of a discursive narration in qualitative terms, this paragon can be used to relate all the information shared by the group and in particular that of the individual in question, through all the information collected in the questionnaire that is considered relevant. It thus illustrates the substantive description with specific details that contribute to the understanding of the nature of the type.

2. **Sample framework**: the use of the paragon as a specific measure to produce qualitative samples. Here again, we can use both the middle paragon and the specific paragon to guide the qualitative fieldwork from the point of view of determining and selecting the units, and in particular, for choosing the profile of the persons interviewed. This use provides an added value to the validity and reliability of qualitative content. Not only does it help in the selection of units but it also facilitates and streamlines the process of saturation of speech, and therefore serves as a 'saturated qualitative sample frame'.

3. **Matching**: use of the paragon to establish the connection between different databases constituted by different individuals and/or data of a different nature. This would be a 'matching interbases' operation, searching in another matrix for the data that correspond to a unit of similar characteristics.

4. **Convergence of results**: the use of the paragon to provide an interpretive structure for the results obtained in the framework of a mixed design. This represents the meeting point between quantitative and qualitative data, serving as the backbone of the interpretative narrative, simplifying the aspects of the analysed units in an attributive and discursive way.

In the following section, we will develop two studies where this innovative approach of the typological paragon is applied. We present the application for the use of objectives 1 and 2 in a first analysis on social stratification, and in a study of labour trajectories and social capital where the four uses of the typological paragon are showed.

Applications of the Typological Paragon

Analysis of Social Stratification

The following is an example of the application of the paragon as a specific measure to describe the 'typological paragon' and it also indicates how to establish or generate

qualitative samples from its application. It begins with an example showing how repre-
sentative specific cases resulting from a typological analysis on social stratification were
studied using the household as the unit of analysis.

In Fachelli (2009) the structural and articulated typology, combining multiple corre-
spondence analysis and cluster analysis with SPAD software (López-Roldán, 1994, 1996;
Fachelli, López, López-Roldán and Sourrouille, 2012), is applied in labour force survey
(Permanent Household Survey -PHS-, INDEC) in order to analyse the social stratification
of the households of Argentina in four historical stages: 1997, 2001, 2002 and 2006.

Applying this methodology, four strata with similar characteristics were obtained in
each of the years analysed. The most relevant features that characterize the households
and make up each social group led us to identify the upper stratum, the active middle
stratum, the inactive middle stratum, and the lower stratum in the Argentine population.
The following graph shows the arrangement in the factor space (very similar in each of
the years) and the factor axes (see Figure 3).

From this typology the paragon of the strata was obtained. In order to show the applica-
tion of the methodology we have proposed, that is, using the comparisons to describe the
'typical households' in qualitative terms, we present a household for each stratum in 2006.
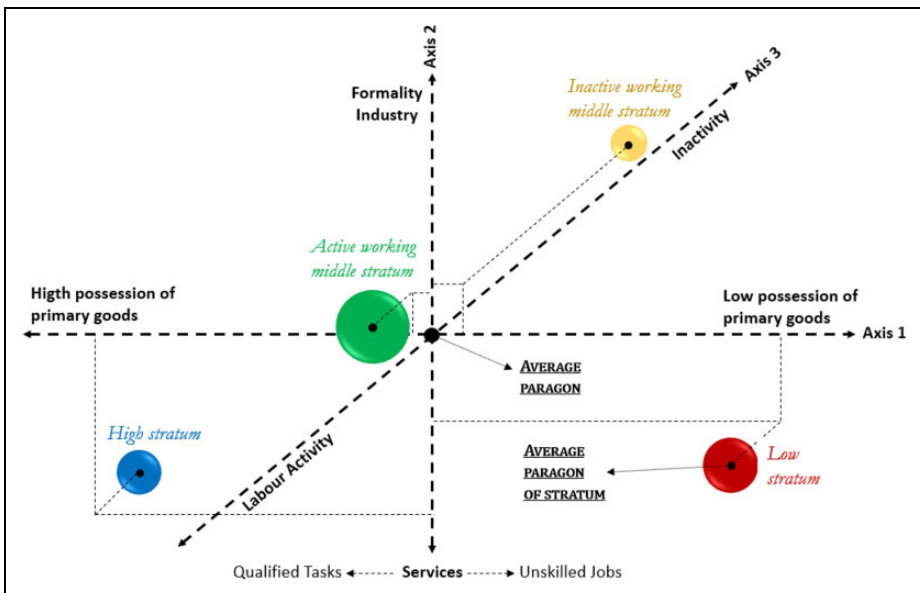
Figure 3. Dimensions of social stratification and position of strata.
Source: Fachelli (2013)

Use of the average Paragon as a 'typological descriptor'. Taking into account those three
factors, a mixed cluster procedure was applied composed of three stages: 1) Initial
partition by the method of the dynamic clouds result of the crossing of several partitions
generated from random centers (2 partitions of 10 classes) with the aim of reducing the

number of units of analysis; 2) the stable classes that are obtained from this first proce-dure are then added by a method of ascending hierarchical cluster according to Ward's criterion; 3) k-means partition method is applied in order to optimize the groups. The average paragons are ideal types positioned in the center of each group. Formally we can identify a specific paragon looking for cases closest to the centre of the group or average paragon, considering Euclidian distance. In that sense the units of analysis (households or individuals) positioned in that space are candidates to be the descriptor in order to show the main characteristics of the groups. We illustrate in next paragraphs one house-hold for each stratum (specific paragon) that represent the average paragon.

a/ High Stratum -The household is composed of three people who live in Paraná, capital of the province of Entre Ríos, in the Pampean region. The head of household is 54 years old, is married and has a tertiary education. He works as a director of a state agency dedicated to public administration, defence and social security, is formally hired, has access to all labour rights (holidays, sick days, bonus, retirement discount, health cov-erage through social work, which covers all his family, etc.). He does not state the income he receives monthly. The family lives in its own apartment with six rooms, not including bathroom and kitchen, and have all the public services and good quality of housing. Member number two is the wife of the head of household, who is 53 years old, is a housewife and has completed secondary education. The third member is the son who is 18 years old, single and studying at the university.

b/ Active Working Middle Stratum - The household is composed of five members, the head of a household, 50 years, his wife, 47, and three unmarried children, 25 years old (male) and 16 years old (one female and one male). The family lives in the town of Tafí Viejo in the province of Tucumán, in the northwest region. They own their home, which has good-quality floors and roof, running water (from the public mains system) through pipes inside the house and bathrooms for exclusive use; they do not live cramped. The father works 45 hours a week in his small, legally constituted private family business dedicated to the manufacture of elaborate metal products; the machinery and the premises are their own. He declares an income of $700 a month and has been performing the same work for more than five years. He completed secondary education and, although the family group has mutual or prepaid (private) health coverage, it does not make pension contributions or receive its remuneration through a formal mechanism. His wife is a housewife and did not complete secondary education. The couple's eldest son works in the father's family business 45 hours a week as an employee, earns $600 a month, completed secondary school, and is not currently in education. The younger children do not work and attend a private secondary school.

c/ Inactive Labour Stratum – This is a household composed of a 92-year-old widower who lives in the city of San Juan, the capital of the Province of San Juan, belonging to the Cuyo region. He is retired, completed primary education, and earns $850 per month. He has health coverage (PAMI, health care for pensioners), lives in a six-room house that is inherited and has good conditions in terms of housing quality.

d/ Low Stratum – This is a household composed of two members residing in the city of La Rioja (capital of the Province of La Rioja in the region of Cuyo). They occupy the dwelling in exchange for payment of taxes or community fees; the house has an inter-mediate quality because the floors are of cement or fixed brick and the ceiling is of exposed masonry. The water comes from the public mains system and the bathroom is

shared with another home. The head of household is 22 years old, single, has completed primary education and is employed 20 hours a week as an agricultural worker. This has been his regular job for five years and he has no formal employment relationship because, although he has annual vacations, he has no access to social benefits or pension entitlement and he does not receive a formal pay slip on receiving his monthly wage of $200. The second member is a relative of 38 years, also single, who has completed primary education and is employed in a hotel of the private sector. He works 48 hours a week, has been in the job for more than five years and earns $800 a month. He has holidays and a Christmas bonus, but he does not have retirement entitle mentor access to social benefits (health). He receives a document that is not a formal payslip.

Use of the specific paragon as a 'sample framework'. From the information presented above, it can be obtained a framework of future qualitative sample through the average paragon of it strata in at least two ways:

From the household profile, by identifying representative households of each stratum and/or substratum and conducting the qualitative research in any of its different modalities, according to the research design (in-depth interview, life history, group discussion, etc.).

If the exact identification of households is available and there are no ethical conflicts with statistical confidentiality, the qualitative stage may be directly conducted by visiting the household.

Analysis of Labour Trajectories and Social Capital

In this example, the specific paragon is applied to perform a typological analysis to determine how the relationships understood as resources of social capital intervene as mechanisms for seeking and obtaining employment in the transition to work and the labour trajectory. The unit of analysis is individuals between 25 and 64 years old, salaried and with current residence in Catalonia.[1] A contextualization and exploratory analysis is also carried out with individuals of the same characteristics who reside in Spain.

In Alcaide (2013), three databases of different natures (attributive and reticular) are drawn up in an articulated way: the Continuous Labour Life Sample for 2007 (MCVL), and the Work Quality of Life Survey for 2008 (ECVT), both attributive; and the Personal Network Survey for 2010 (ERP), which comes from an ego-centred survey (Lozares et al., 2010; Alcaide, 2013). These databases in turn provide complementary information on labour trajectories and social capital, but are not composed of the same individuals. These databases are going to be referred to by their initials in Spanish (MCVL, ECVT and ERP, respectively).

The methodological context of application of the specific paragon is an articulated and convergent mixed design (Figure 1) composed of two phases (Alcaide, 2013). The first, and the predominant one, is the quantitative phase, and the second is the qualitative phase (QUAN→QUAL). The design is sequential explanatory, and the quantitative phase incorporates a concurrent design based on the triangulation of methods (Creswell, 2009).

The following are four uses of the specific paragon, which are comparable to the use of the average paragon

Use of the specific paragon as a 'typological descriptor'. In the quantitative phase, the Typology of Labour Trajectories for Spain is constructed with the MCVL through the procedure of structured and articulated typology (López-Roldán, 1994, 1996; Miguélez et al., 2011). This procedure, in addition to its theoretical configuration, implies the execution of a multiple correspondence analysis followed by a cluster analysis, with SPAD software, to identify the types that configure the labour typology of Spain. The specific paragon is obtained from each cluster and give substantive contents from different types or profiles.[2]

The typology for Spain is constructed, and the same profiles are searched for in a second sample (ECVT), using the SPSS software, to complement them with the information on social capital following the model proposed by Requena (2004). This procedure allows new descriptive information to be added to the typology of labour trajectories at two levels: (1) at the theoretical or substantive level, since the information on labour life is complemented with that of social capital; and (2) at the methodological level, since two complementary databases do not contain the same individuals. Figure 4 shows the procedure followed, as well as the summary of the results.
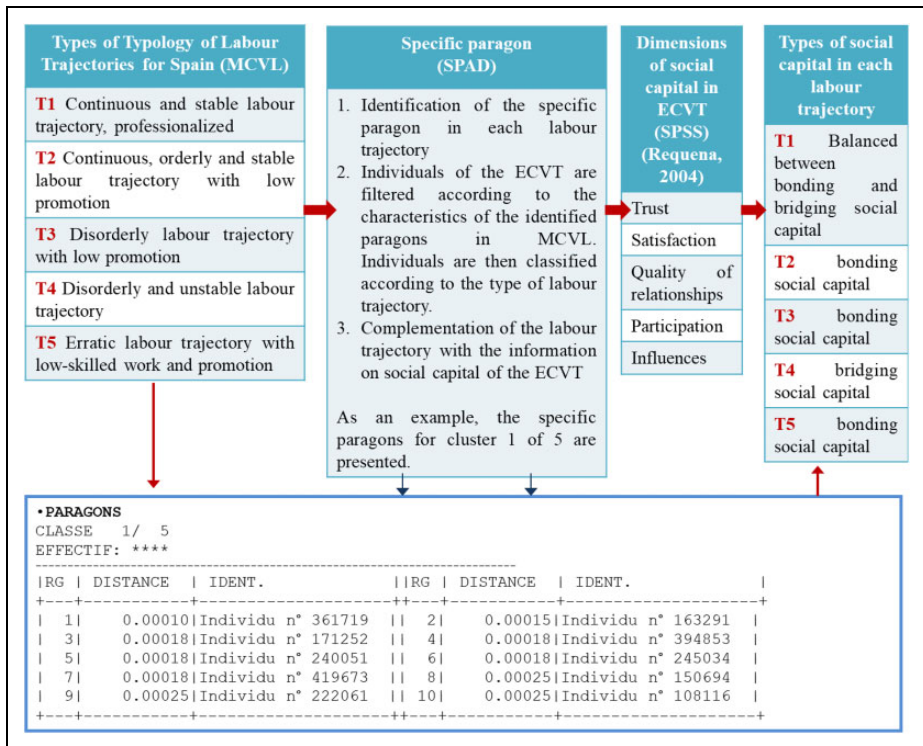

Figure 4. Use of the specific paragon as a typological descriptor.
Source: Alcaide (2013).

Use of a specific paragon as 'matching interbases'. Unlike the previous case, this second use consists of a simultaneous feedback process between the two databases where the specific paragon is used as an anchor point or connector. The purpose is to establish a balance between the identification of the study groups in both databases, because the two samples are not composed of the same individuals.

The databases have different natures (attributive and reticular) and different types of representations (statistical and typological). The procedure is performed in the quantitative phase of the design and gives rise to the concurrent stage based on the triangulation of methods. Through this use of the paragon, it is possible to complement the Typology of Labour Trajectories for Catalonia with the reticular information on social capital.[3]

Two moments can be differentiated in this procedure, depending on the status given to each database. First, the reticular database (ERP) incorporates the original characterization of the study groups. The objective is to identify these groups in the second database of attributive nature (MCVL). For this, several filters are made and the same variables available in both databases are identified.

In a second moment, the groups identified in the attributive database are re-adjusted in the reticular database. The objective is, first, to respect the information contained in each database as far as the study groups are concerned (variations), and to exactly identify the same groups in both databases (profiles). To achieve this, among other procedures, the variable on '*the origin of the parents*' that appears in the reticular database but does not appear in the attributive database (see Table 2). Subsequently, another adjustment is made regarding the minimum and maximum age used in the research for the active and salaried population. The reticular database collects

Table 2. Characterization of the five study groups in both databases

Six original groups of the reticular database (ERP)	Moment 1 → Moment 2 ←	Five groups identified in the attributive database (MCVL) adjusting by "origin of the parents" and age.
G1: BC* + 55 years pBC**		**G1:** BC* 55-64 years
G2: BC25-55 years pBC		**G2:** BC25-54 years
G3: BC25-55 years pRS***		
G4: RS****+55 years		**G3:** RS 55-64 years
G5: Ecuador (EC)		**G4:** EC 25-64 years
G6: Morocco (MO)		**G5:** MO 25-64 years

*BC = born in Catalonia
**pBC = parents born in Catalonia
***pRS = parents born in the rest of Spain
****RS = born in the rest of Spain
Source: Alcaide (2013).

individuals of 25 years or more, without establishing an upper limit. Since the study of trajectories is carried out with a population considered to be of active age, the groups are balanced in both databases by selecting the individuals that are in the age range of 25 to 64 years.

Characterizing the study groups in both databases, the specific paragons of the types of labour trajectories for Catalonia are sought in the reticular database. In this way, each profile of the trajectory can be completed with reticular information of social capital respecting the representativeness of the types. This process is possible because the same groups have been created in both databases. This procedure allows us to transfer the typology of labour trajectories for Catalonia to the reticular database that provides information on social capital. An example of the treatment of information and some results can be seen in Table 3. This table presents five types of labour trajectories identified and the variables about social support (one of the dimensions used for the study of social capital).

The variables of social support collect information on various areas of daily life (employment, housing, health, education and social relations) in which an individual has requested support for contacts mentioned in their personal networks. To illustrate, the results are presented for the areas of employment and housing.

The average (and standard deviation) of number of contacts in personal networks that have provided support in each area has been calculated. It is observed that trajectories 2 and 5 (characterized by labor instability, low levels of qualification and low labor mobility) are those that present, in their personal networks, higher averages regarding contacts that have provided support in employment and housing areas.

Use of the specific paragon as a 'saturated qualitative sample frame'. Starting from the use of 'matching interbase' and with the same study groups in both databases, the next step is to classify the individuals in the reticular database respecting the attributes that characterize each type of labour trajectory from Catalonia obtained in the attributive database.

The interesting thing is that this procedure allows us to select individuals to interview (qualitative sampling) who form part of the reticular sample to which we have access. In this way, we obtain the typological profiles of labour trajectories that are statistically representative, since they come from the attributive sample. Then, these profiles are transferred to the reticular sample, thus transferring their representativeness and complementing the profiles with social capital information. Finally, the interview is done with an individual of the reticular sample and the narrative of the labour trajectory is obtained. The individuals selected to conduct the interviews correspond to the identified paragon in each type of identified labour trajectory. Figure 5 shows the procedure followed.

In the procedure, five labour trajectory profiles are identified. The profiles correspond to the individuals that best represents the type of trajectory, therefore it is the starting point for the selection of the interviews. The interviews are narrative or biographical and the paragon serves as a case selection, in which the discourse is more likely to saturate.

**Table 3.** Typology of Labour Trajectories and the variables of social capital

	Types of Typology of Labour Trajectories for Catalonia									
	T1		T2		T3		T4		T5	
SOCIAL SUPPORT	*A*	*SD*	*A*	*SD*	*A*	*SD*	*A*	*SD*	*A*	*SD*
Employment: Yes	11,50	7,74	**13,21**	7,44	12,68	7,51	12,08	7,21	**16,50**	8,41
Employment: No	18,50	7,74	16,75	7,47	17,30	7,50	17,90	7,25	13,50	8,41
Housing: Yes	7,57	6,21	9,82	6,64	8,51	6,89	7,10	6,36	13,17	8,06
Housing: No	22,43	6,21	20,18	6,64	21,49	6,89	22,90	6,36	16,83	8,06

A : Average – SD : Standard Deviation.
Source: Alcaide (2013).
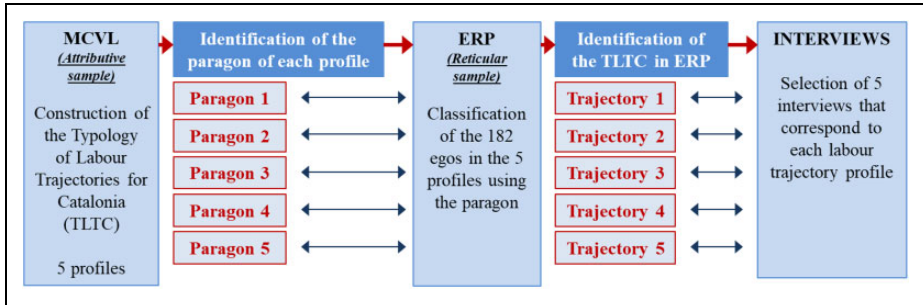
Figure 5. Process for selecting interviews and profiles of interviewees.
Source: Alcaide, 2013.
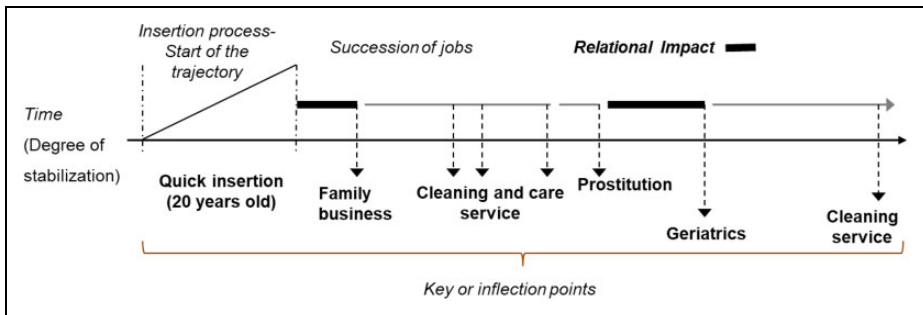
Figure 6. Analysis of the biographical interview corresponding to the type of labour trajectory 2 (instability, low levels of qualification and low labour mobility).
Source: Alcaide (2013).

This has allowed us to analyze each interview as a specific case and go in-depth into its job and relational particularities. Figure 6 shows how the analysis was carried out.

The analysis allows us to identify what types of employment the case studied had during his career and in which jobs the individual has received support from contacts mentioned in his personal network.

Specific use as a structuring element in the 'convergence of results'. Finally, the fourth use of the specific paragon presented here is as element that facilitates the combination of analyses in the structuring and presentation of the results. In the research presented as example, the convergence of results gains meaning through the use of the paragon in a context of mixed design. The interpretation is constructed simultaneously from the results obtained in both the quantitative and the qualitative phases. The quantitative phase provides, among other results, the construction of the typologies of labour trajectories and their relationship with social capital. The qualitative phase provides the narrative interviews that contain the discourses of individuals who are specific paragon of the typology drawn up for the sample of Catalonia. Therefore, it is possible first, to

identify a specific paragon that comes from a cluster that forms a type of the typology of labour trajectories for Catalonia; second, to characterize this type with the available data on social capital; and finally, to articulate these results with the narrative obtained in the interviews. The interviews collect the individual's labour history as well as their relational history, that is, the people, relationships and contacts that they point to as keys in the configuration of their trajectory.

To conclude the presentation of this example, it is important to highlight the potential of the use of the paragon in a mixed design. It serves as descriptor, nexus, sampling system and structuring element (it allows to organize and synthesize the results for a better writing and provide a more complete vision of the social reality studied). But perhaps the most important feature is that it makes it possible to work jointly with databases of different compositions and natures and reduces qualitative fieldwork in terms of the number of interviews to be carried out, facilitating the saturation of information.

Conclusions

The methodological proposal on the uses of the typological paragon derives from the work done in both investigations presented. First, the paragon is used as a descriptor element, where the aim is to allow the descriptive typology to determine the substantive content of each cluster or type previously identified by the construction of the structural and articulated typology. Second, the paragon is used as a qualitative sampling frame thanks to its level of specificity and representativeness, which derives from the treatment in the quantitative phase in which it is identified. In the context of a sequential mixed design, the paragon quantitatively determined facilitates connection with the qualitative phase, serving as a guide to the selection of units of study, and thus facilitating the development of qualitative samples. Third, the paragon is used as a link between databases with the aim of facilitating merger or matching, allowing databases composed of different individuals and data of different natures to be used jointly. Finally, the paragon is used to structure and synthesize the writing and presentation of the results in order to facilitate interpretation in the mixed designs.

As a procedure, it is easily extendable to other objects of research that arise in the quantitative $\rightarrow$ qualitative sequential logic, and to mixed designs in general, where we first seek to typify social reality on the basis of the social space that structures it, and then we want to use these macro-social results (with substantive and empirical implications) to study qualitatively the types that emerge in greater depth, in terms of successive articulated logics, which can also be triangulated.

The use of various methods and techniques of production and analysis of the data through mixed designs provides synergistic and efficient benefits in both theoretical and empirical terms. In turn, this procedure allows us to reflect on the quantitative representativeness applied to the qualitative treatment of information. The identification of the paragon with multivariate techniques that configure and structure a social space (an Euclidean space generated by combination of correspondence analysis and cluster analysis) allows to transfer the quantitative representation to other data. It is a theoretical, typological and statistical representativeness that, in addition, facilitates and qualifies the

selection process for qualitative sampling. The paragon, in this sense, guides the types to be interviewed, allows to capture the discursive variability and facilitates the saturation of the discourses, either through the average paragon or the specific paragon.

This way of proceeding takes us to the methodological strategy of the case studies.

The uses of the paragon present potentialities and also, limitations. One potentiality is the transferability of the statistical representation of the quantitative phase to the qualitative phase. However, this can only occur if the data, with which the paragons are identified, have been prepared with sufficient validity, internally and externally, that is, insofar as the analysis models are sufficiently well-based theoretically and our data is of sufficient quality, with appropriate measurements of the concepts involved.

When working, in particular, with databases of different nature and with different individuals, there is inevitably also a loss of accuracy and correspondence between the information contained in the supposedly common variables through the different sources. The joint analysis with these different databases can only be done from equivalent variables that are present in all the sources of information considered, and this situation is not always possible. When it is, transferring the paragon that is derived from the typological analysis from one database to another requires assessing the specificity of each content and the possible loss of precision in the end, establishing the validity of theoretical-methodological relationships.

Another aspect that should be highlighted is that the mixture of the typological comparison is conceived with the use of data of different nature, that is, with quantitative data (that come from surveys, with information that mainly reflects facts and behaviors of an 'objective' and standardised nature) and with qualitative data (that come from interviews, discussion groups, etc. that mainly reflect the subjectivities of the people). The different nature of the data also has implications in terms of the level of social reality that is captured. Following the concept of multi-strategic research by Layder (1993) is to capture and analyse the social fact investigated as a whole from the different dimensions that contain it: from the action and the situation in its most individual aspects and interaction in the broader structural and institutional social contexts to account for the complexity of micro and macrosocial processes and realities.

Of course, it is a proposal that could also be used independently of a mixed design, limiting its use to the quantitative phase, for example, by performing a 'matching-inter-base' analysis. It remains to explore the potentiality of the uses of the paragon in qualitative to quantitative secondary designs or in concurrent designs.

The identification procedure and the uses of the typological paragon presented here, have the pretension to serve as a methodological instrument and also as an element for theoretical reflection, following dynamics of theoretical-empirical articulation of retroductive nature, that is, where theoretical-deductive with other empirical-inductive moments are combined. It is therefore a sequential mixed design strategy, with a first quantitative phase and a second qualitative phase, applicable in the research processes of different disciplines of the social, human and behavioral sciences. In this article, it is worth highlighting the heuristic element of knowledge construction in an articulated theoretical-methodological dynamic, as it has been applied in the two research works presented, and we consider that it constitutes a proposal and reflection with innovative elements.

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Notes

1. The selection criteria of the sample comes from the project Comparative study of cases on the mutual influence between the capital and social integration and the insertion, stability, promotion and qualification in employment (I+D+I, CSO200801470, financed by the Spanish Ministry of Science and Innovation), within the framework of which the research presented in this example (Alcaide, 2013) and the ERP were carried out. For more information see: http://quit.uab.es/
2. This procedure is applied in the same way and with the same database in the construction of the Typology of Labour Trajectories for Catalonia in the concurrent stage of the quantitative phase.
3. With the MCVL the Typology of Labour Trajectories for Catalonia is constructed, this database has an attributive nature and statistical representation. The information on social capital comes from the ERP, of reticular nature and typological representation.

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