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POSSIBILITIES AND RELEVANCE OF SYSTEMATIC OBSERVATION BY THE PSYCHOLOGY PROFESSIONAL*

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Observational methods applied to natural or habitual contexts are scientific procedures that reveal the occurrence of perceptible behaviours, allowing them to be formally recorded and quantified. They also permit the analysis of the relations between these behaviours, such as sequentiality, association, and covariation. In many situations observational methods are the best strategy, or even the only strategy possible: examples are the assessment of low-level intervention programs, interactions between peers, between children and adults, social interactions at different ages, disputes between couples or in the workplace, the behavioural repertoire of the baby, body posture for specific tasks, kinetic non-verbal communication (of teachers, sportsmen and women, actors, etc.), analysis of movement in multiple activities, occupation of a particular space, or the analysis of norms of socialization and desocialization.
As we stress, observation in natural contexts involves developing a procedure that highlights the occurrence of everyday behaviours, and permits an analysis of the relations between them. These relations can be identified objectively through the analysis of data linked to the corresponding observational design, combining the qualitative and quantitative perspectives.
Key words: *Observational designs, Recording, Coding, Field formats, Systems of categories.*

La metodología observacional en contextos naturales o habituales es un procedimiento científico que permite estudiar la ocurrencia de comportamientos perceptibles, de forma que se registren y cuantifiquen adecuadamente, lo cual implicará poder analizar relaciones de secuencialidad, asociación y covariación. En numerosas situaciones la metodología observacional es la mejor estrategia, o incluso la única posible; existen numerosos ejemplos en la evaluación de programas de baja intervención, interacciones entre iguales, entre niños y adultos, estudio de la interacción social en diferentes edades, discusiones en una pareja, o en el lugar de trabajo, repertorio conductual del bebé, posturas corporales en tareas específicas, comunicación kinésica no verbal (de profesores, deportistas, actores, etc.), análisis del movimiento en múltiples actividades, ocupación de espacios, o análisis de pautas de socialización y desocialización. Como se señala en el texto, la observación en contextos naturales supone desarrollar un procedimiento que resalta la ocurrencia de conductas cotidianas, y el análisis de las relaciones entre ellas. Estas relaciones se pueden identificar objetivamente a partir del proceso de análisis de datos idóneo en función del respectivo diseño observacional, combinando las perspectivas cualitativa y cuantitativa.
Palabras clave: *Diseños observacionales, Registro, Codificación, Formatos de campo, Sistemas de categorías.*

WHY DOES THE PSYCHOLOGIST NEED TO KNOW ABOUT AND USE OBSERVATIONAL METHODOLOGY?

There are countless quotations from eminent figures referring to the fact that knowledge begins with observation: "Science is simply common sense at its best – that is, rigidly accurate in observation and merciless to fallacy in logic" (Huxley); "The fortuitous observation of this fact awakened in me an idea" (Bernard); "If you observe, you know; if you know, you love, and if you love, you protect" (Sabater Pi).

Observation has immense potential in the study of human behaviour. It permits us to study actions and perceptible behaviours that occur spontaneously or habitually in their own context, as well as to analyze the diverse processes that take place in human beings and in the groups of which they form part. Psychologists, depending on their specialization, are required in the exercise of their profession to diagnose and intervene in a wide variety of fields, examples of which would be prosocial programmes with pre-schoolers, physical activity programmes with senior citizens, social support programmes in multicultural neighbourhoods or communities, health education programmes in

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kindergartens or homes for the elderly, assistance programmes for families who have abused or neglected their children, AIDS prevention programmes with adolescents, support programmes for the families of young people killed in accidents, relaxation programmes for sportsmen and women, or socialization programmes in prisons and children's homes. In the wide diversity of situations that present themselves, moreover, psychologists must take into account the conjunction of different contexts and external factors (personal, social, political, etc.) resulting from the period in which the situations occur and from circumstantial issues that may arise.

In an experiment we manipulate behaviour, through the application of diverse techniques (providing instructions, forming groups by means of randomization, etc.), but in observation we do not; we merely study behaviour just as it occurs, with concern for nothing more than fulfilling the ethical requirements to make the observation possible (we shall refer to this later) and following the procedure for the objectivization of the portion of reality in which we are interested. And in a study that follows selective methodology there is always an elicitation of the response, understood as the request for information from our object of study, diagnosis or treatment, be it orally via interview, by means of questionnaires, or through the use of the wide range of psychological tests available.

But the reality is very different when the psychology professional needs to learn about and explore behaviour as it occurs naturally or spontaneously, in any context (family, school, office, leisure context, etc.), be it at a given moment or within the framework of a specific process.

As a methodology for research and professional practice, the development of observation has been unstoppable in the last three decades, not only in the Spanish context but also at the European level and worldwide – from a frankly sloppy initial situation, lacking the necessary systematization and objectivity that characterize the scientific method, up to the present, in which its scientific status is perfectly consolidated, its rigour is guaranteed, and the results obtained in a broad range of applications support its credibility.

As some authors have pointed out, we are truly on the brink of an 'observational revolution' (Dawkins, 2007, pp. 148), through an alliance of the methodological strength of the study of behaviour in natural contexts and the ceaseless refinement of the new technological resources.

OBSERVATIONAL METHODOLOGY AND THE EVERYDAY

Observational methodology is highly flexible and adaptable to behaviours and contexts. Even so, like all methods, it involves following a process with discipline and rigour. These are the two sides of the coin.

On the one hand, it will always be necessary to go through the four principal stages of demarcation of the problem, collection of data, analysis of data and interpretation of results, which can of course be broken down considerably; but on the other, the richness of information obtained is of great value insofar as it directly captures the relevant portion of everyday reality as it happens, without having to ask for information or specific data (as would be the case, for example, with interviews, questionnaire, psychological tests, etc.) and without having to subject individuals and/or groups (patients, clients, users, etc.) to an experimental or quasi-experimental situation in which they are given special instructions and the variables involved are controlled.

The everyday, which is always the frame of reference in the observational study of human behaviour, constitutes the 'seam' of information that is psychologists' raw material, and from which they will have to extract in the appropriate way the data they require, processing them according to their objectives and analyzing them to obtain their results.

Everyday activity, advancing inexorably through time, is made up of a series of behaviours, homogeneous or disparate. To study it is to follow as the person's life unfolds in a dynamic process so enormously complex that researchers are often unaware of just how much is to be found within it (Anguera, 1999). The analysis of the everyday involves the contemplation of diverse behaviours from different levels with a pyramidal structure. From the apex of the pyramid, through the analysis of the everyday the psychologist gains knowledge of the journey through life of any individual. Coming down through the pyramid, everyday life can be broken down into different categories (family, profession, social relationships, leisure, etc.) and can be considered from different perspectives which intersect with them (health, affect, tension, satisfaction, conflicts, and so on).

HOW DOES THE APPLICATION OF OBSERVATIONAL METHODOLOGY BEGIN?

We mentioned above the four broad stages of the scientific method, and which therefore also constitute those of observational methodology: demarcation of the

problem, collection of data, analysis of data and interpretation of results.

The first decision to be made, of a substantive nature, refers to the thematic demarcation of the everyday activity (perceptible behaviour in daily life) that we wish to study, and which should be considered in interaction with the environment. That is, the potential objective of the observation will be subject to just three restrictions: its perceptibility, the spontaneity of the behaviour, and the naturalness or customariness of the context.

With these restrictions met, we can move on to defining the thematic domain to be observed. Consequently, the question we ask ourselves is: What behaviours can we study using observational methodology? We are interested in all those of a perceptible nature, and therefore which we pick up via our sensory organs (essentially, sight and hearing); obviously, these do not cover the semantic content of all everyday life, but they do cover the everyday life that we perceive. This is made up of innumerable behaviours of widely diverse content and equally varied range, reflecting the relative nature of molarity and molecularity (for example, in the performance of physical activity, this path from the most molar to the most molecular could be broken down in terms of performing a course of circuit training, to doing the vaults, runs, press-ups, turns, and so on, and finally to a detailed analysis of the movement in each one of these vaults, press-ups, etc.), as well as their position at some point on the rich spectrum that provides for infinite combinations among them.

The second stipulation to consider is methodological, and involves, to enable the observation process, the always difficult task of segmentation into units of behaviour, linked inextricably to a further decision about the predominant aspect in the complementarity between the qualitative and the quantitative. Such difficulties lead us to pose some serious questions to which we are not sure if there are any answers – even though we shall keep asking – and to review traditionally heterodox positions that make it possible, methodologically speaking, to establish a harmonious combination of the generous flexibility that characterizes everyday life analysis and the rigour of scientific method.

COMPLEMENTARITY OF THE QUALITATIVE AND QUANTITATIVE PERSPECTIVES IN THE PROFESSIONAL USE OF OBSERVATIONAL METHODOLOGY

It is over thirty years now since the controversy over the qualitative and quantitative approaches arose, stirred up by the radicalism with which each position was defended, and perfectly summarized by Cook and Reichardt (1979). Observational methodology was by no means exempt from this initial situation of confrontation (Anguera, 1979, 2004; Anguera & Izquierdo, 2006), which has since given way to one of complementarity.

The controversy can be considered polyhedral, with confrontation on several fronts, all of them relevant in this epistemological-paradigmatic-methodological conflict, whose repercussions are significant (Bryman, 1994), though here we shall not be discussing this debate, which is dealt with elsewhere in this special issue (López, Blanco, Scandroglio, & Rasskin, 2010). In the present work we provide a brief overview of the state of the question, which is leaning increasingly toward complementarity, and from a procedural approach characteristic of observational methodology itself.

This conceptual complexity generates numerous questions and doubts for professionals at a methodological level. The discipline imposed by the procedure, however, should not be seen as incompatible with the preservation of spontaneity, or at least, with the natural way in which we contemplate the production of innumerable behaviours, like molecules – each one made up of atoms – that interact with one another in various ways and form groupings of greater or lesser magnitude. Undoubtedly, the conceptual perspective from which we work – always feasible, but always debatable – will constitute the referent that forms the essential backbone of the approach employed.

Prioritization of the qualitative perspective at the data-collection stage

The scientific observation of interactive behaviour, once the specific object of study has been defined (Which behaviours are we interested in observing? In which individual(s)? In which contexts?, etc.), begins with recording. And what do we mean by recording? It consists simply in transferring a portion of reality into some given medium, and using a system of codes. This capturing of reality can only be carried out from a procedural approach of a qualitative nature (Anguera, 2004).

As they are generally understood, "the quantitative methodologies refer to research procedures that give rise to descriptive data (...)" (Bogdan & Taylor, 1975, p. 4). This assertion, however, should be seen against a

background that became established in the 1970s, and is currently undergoing a process of refinement – possibly somewhat over-sophisticated, it must be said – which clearly suggests that qualitative methodology is complementary to quantitative methodology, and may even in some cases exceed it in its degree of formalization.

Until a few years ago, it was a clearly marginal methodological option, and with little power to convince. The situation today appears to be changing, though the prevailing paradigm is still the positive empirical one. Qualitative research is often described as holistic, being concerned with human beings and their environment in all their complexity, and fits perfectly with the recording phase of an observational study, a taxonomic array of recording approaches being possible.

By way of mere illustration, we might consider its great adaptability for the study of diverse behaviours in all contexts provided by everyday life, such as those of the family, of work or profession, of social relations, or of the implementation of intervention programmes (Valles, 1997; Anguera, 1999; Rabadán & Ato, 2003; Sánchez-Algarra & Anguera, in press).

For example, its straightforward application to the observational study of interactive behaviour in a situation of everyday activity could provoke considerable discussion and controversy, in particular with regard to the detection and expression of key incidents in the data record by means of descriptive terms, as well as their placing in relation to the wider social context. How is this achieved by the psychologist without descending into mere unscientific praxis, devoid of rigour? Should qualitative methodology be confined to mere exploratory study? Is it a label with connotations of exclusive truth for some and pejorative associations for others? How should the professional resolve this question?

At bottom the problem is one of operationalization – the capacity to select the information considered relevant, and in consequence collect the data in one form or another. Currently gaining more and more ground is the option of recording an episode, digitizing it, and as referred to earlier, effecting a computerized coding. This is the core of the problem, and the essential issue around which are formed attitudes in favour or against, leading to the structuring of a qualitative or quantitative methodology. In the first phase of the observational methodology process it is qualitative methodology that prevails, given its extensive potential for obtaining data.

The strategy inspired by qualitative methodology involves a dynamic interchange between theory, concepts and data, with constant feedback and effects of the data collected. On many occasions, moreover, the theoretical framework, where it exists, is considerably weakened (due to the lack of empirical verification of its postulates, which we add at the risk of being accused of reductionism), so that it acts purely as a reference, in the manner of a meta-theory.

Problem situations do not necessarily involve requirements, unless their formulation specifically implies an operationalization involving a research process that uses quantitative methodology. In a study on reaction times to a given stimulus, as in traffic psychology, it is clearly inappropriate to use qualitative methodology; however, such methodology would be essential in research on interactive behaviour in the process of applying norms for the upbringing of children or for the intrusion of strangers in communicative behaviour, or in the analysis of social support networks among senior citizens.

The qualification we have just made will later become hugely significant. The initial decision about the selection of particular information extracted from the context that constitutes the problem will shape a first approach based on qualitative methodology, though subsequently, and in view of the complementarity we endorse, it may break down to give way to the alternative position.

It may be that in later phases the quantitative character of the operations to be carried out predominates, but in our view this is secondary, even if it does have its importance. We shall consider the nature of the initial information as what indicates qualitative methodology, though not all authors hold the same view.

Recording and coding as a second stage of the process

In the previous section we referred to the existence of a series of recording modalities. The long list of such recording modalities culminates today in the use of computer programs, of which there are many. The remarkable technological progress of recent years has meant leaving behind a long tradition of 'paper-and-pencil' recording, but the new techniques bring with them some important advantages. First of all, they eliminate the errors deriving from analogue approaches, which involved a whole series of manual operations that led, at the very least, to a high risk of inaccuracies; secondly,

they increase the agility of the process, as well as providing the opportunity to consider ever-shorter units of time, such as frames (1/25 of a second); thirdly, they permit the transformation of recording files, with all that implies as regards interchangeability, practicality and versatility, in accordance with the syntactic structure of the relevant computer programs; and finally, the information, in the form of databases, becomes available, in the third stage of the process, for quality control and quantitative analysis, so that there is a certain degree of technological automation in the process, influenced only by the decisions made by the researcher in line with the specific conditioning factors of each study.

The observational study of interactive behaviour, to consider one example, rests on the prior assumption of the action of possible response levels (interactive channels), such as the exchange of glances, interpersonal distance, vocalizations, the exchange of verbal messages, and so on. Moreover, it is necessary to consider, on the one hand, the co-occurrences or temporal synchronies produced by specific actions of each one of the interactive channels (be it frame-by-frame, or at pre-established time intervals), and on the other, the succession of these co-occurrences over a given time period or session. Consequently, there will be a need for computer programs that permit us to obtain large matrices of codes, such that each row consists in the list of codes corresponding to the behaviours or actions that co-occur at a given moment, whilst the succession of rows of the matrix corresponds to the diachronic development of the session considered.

There are many computer programs that meet these requirements. By way of illustration, and in addition to programs of a general nature, such as EXCEL and ACCESS, we might mention some which have demonstrated the necessary qualities, notably THE OBSERVER (1993), SDIS-GSEQ (Bakeman & Quera, 1996), THÈMECODER (Pattern Vision, 2001) and MATCH VISION STUDIO (Perea, Alday, & Castellano, 2004).

As a particular case, limited in this instance to the verbal interactive channel, we might also refer to those situations of interactive behaviour which is transcribed, and therefore set out in documentary form. Material of a textual nature has some peculiarities to be taken into account in this second stage of the process, which usually culminates in a content analysis (Krippendorf, 1980; Muskens, 1985; Roberts, 2000; Hogenraad, McKenzie, & Péladeau, 2003) – an aspect we shall not deal with specifically in the present article. There are also, of course, specific computer programs, such as AQUAD6, ATLAS.ti, MAXqda2, NUDIST or NVivo, and we should stress that the use of these programs has indeed been beneficial for the development of an exclusively qualitative treatment, obtaining relational structures (families, networks, etc.) that enjoy a certain degree of stability (apparent, at least), and always on the basis of the researcher's decision-making.

The level on which the recording of behaviour is situated is poor and insufficient if our intention is to subsequently process – and also quantify – the expression of spontaneous behaviour in interactive episodes by means of systematic observation. Hence the need, through coding, to construct and utilize a system of symbols – which may be of quite diverse types – that permit us to obtain the measures required in each case.

The complete systematization of behaviour is achieved by means of a system of codes (iconic, literal, numerical, mixed, chromatic, etc.) that can adopt different kinds of structure – chain, modular, cascade, and so on. Naturally, simple binary coding (presence/absence, which could be coded, respectively, as 1/0) can be carried out, or of a single type of element – such as verbal interactive behaviour –, but it is usually beneficial, as indicated previously, to code several concurrent aspects simultaneously, making it possible to draw up a complete syntax of any observation situation, which attains a maximum degree of systematization, without the need for any descriptive term. In this case it is useful to draw up a coding manual. Undoubtedly, this transformation should be validated insofar as it is viable to carry out a decoding process, through which one would obtain the corresponding descriptive register in the initial, unsystematized form; precisely in those cases in which this operation does not work (through having obtained a distorted or mutilated descriptive register as a consequence of the decoding) we can diagnose the nature of the errors made during the coding.

The coding manual is made up of two quite distinct parts. The first includes all the terms (behaviours) utilized in the systematized register with the code that represents them, and with no limitations as to the type of code. The second part of the coding manual should include the syntactic rules that regulate the use of the codes, designating specifically the syntax of the concurrence of codes and the sequence of those concurrences (Anguera & Izquierdo, 2006).

Obviously, given the broad range of behaviours generated in an episode of behaviour, it is perfectly justified to construct an observation instrument *ad hoc*. In the study of most behaviours, given the practical impossibility of categorizing the perceptible behaviours corresponding to each one of the channels (since it would involve meeting the requirements of exhaustiveness and mutual exclusivity), the only observation instrument possible is *field format*, characterized by the absence of need for a theoretical framework, and the fact that it is open (and hence deliberately non-exhaustive), multidimensional, multi-code and self-adjustable (Izquierdo & Anguera, 2001; Anguera, 2003; Anguera & Izquierdo, 2006).

Figure 1 shows in schematic form the role of a field format (with six criteria or dimensions) and an example of a register by means of a series of configurations (recording matrix rows made up of the codes corresponding to the co-occurring behaviours) which, on the one hand, display synchrony between the codes recorded (maximum one for each dimension), and on the other, are ranked sequentially over time.

This second stage plays a vital role, acting as a link between the facet with qualitative predominance and that with quantitative predominance. Its great virtue lies in the way it aids the integration – more than the complementarity – between the qualitative and quantitative perspectives, and this is achieved without forcing any epistemological or methodological perspective

Prioritization of the quantitative perspective in the third stage of the process

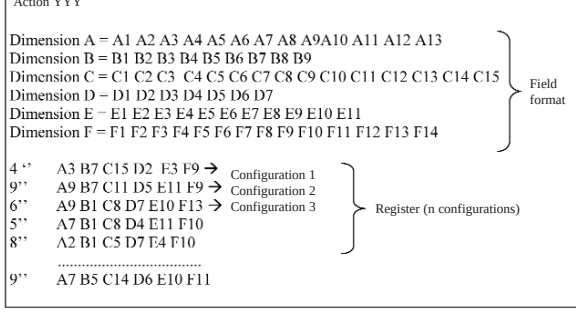
The process followed by observational methodology, which in the first phase required special care to account for the way the qualitative methodology fitted, and in which the great difficulty lay in obtaining the data, moves on, once the data has been obtained thanks to the coding process in the second stage, to a third phase. This third phase involves a quality control for the detection of possible errors and their rectification, followed by the appropriate analysis in line with a suitable observational design.

The role of observational design is highly relevant, since it acts as methodological framework and medium for any study that follows observational methodology. Our proposal, set out in previous works (Anguera, Blanco, & Losada, 2001; Blanco, Losada, & Anguera, 2003), starts out from the intersection of three dimensions that generate such designs, and which, in the graphic representation, are: vertical diameter, relating to the idiographic or nomothetical character of the study; horizontal diameter, relating to its punctual or follow-up (over time) character; and concentric circumferences, relating to the unidimensionality or multidimensionality of the study. In Figure 2 this is shown schematically, indicating the resulting eight observational designs:

Punctual/Idiographic/Unidimensional
Punctual/Nomothetical/Unidimensional
Follow-up/Idiographic/Unidimensional
Follow-up/Nomothetical/Unidimensional
Punctual/Idiographic/Multidimensional
Punctual/Nomothetical/Multidimensional
Follow-up/Idiographic/Multidimensional
Follow-up/Nomothetical/Multidimensional

Traditionally, it has been asserted that adherents of quantitative methodology tend to translate their observations into figures, and these numerical values proceed from counting, measurement, or identification of the sequence or order, permitting the discovery, verification or identification of symmetrical or asymmetrical relations between concepts that derive from a theoretical outline drawn up according to the criteria that govern the everyday situations under study. From the quantitative methodology perspective, to test the hypothesis it will be necessary to meet the requirement of representativeness and randomization, which will bring with it suitable sampling techniques, while sophisticated analysis techniques can also be proposed (Anguera, 2004).

FIGURE 1
SCHEMA OF THE CONSTRUCTION AND FUNCTIONING OF THE FIELD FORMAT (ANGUERA & IZQUIERDO, 2006)

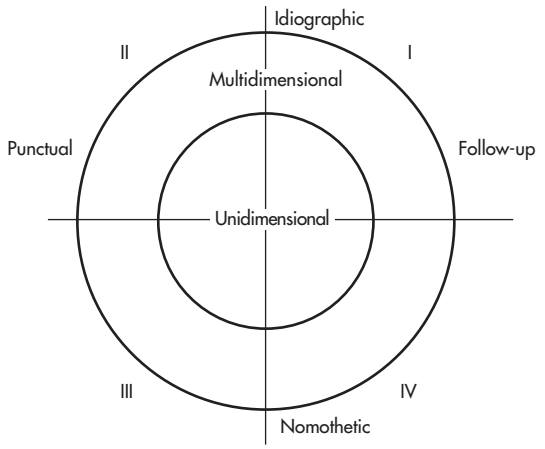


Criticism has been justly levelled in scientific psychology journals at the endemic methodological weakness, in many countries, of observational studies of behaviours in natural contexts carried out by institutions both public and private. Nevertheless, in those countries in which there is a great tradition of this kind of study, we are increasingly witnessing substantial progress consisting in the use of sophisticated methodological resources that permit much greater rigour, and which, though not all come from studies carried out in natural contexts, would indeed be appropriate for analysis in many of them, as long as adequate data were available.

By way of illustration we should mention, in this regard, and given its special relevance, the application of sequential analysis, be it in its classic form of lag sequential analysis (Bakeman & Gottman, 1987, 1997) or in that of T-Pattern detection (Magnusson, 1996, 2000; Anguera, 2005), as well as polar coordinates analysis (Sackett, 1980), also based on sequential analysis, and many others. Sequential analysis, in either of its two approaches, will permit the detection of behaviour patterns not directly perceptible, and which will be so useful for the psychology professional in processes of diagnosis and intervention. Likewise, polar coordinates analysis provides a complete map of relations between behaviours, making it possible to determine the extent to which each one has repercussions on others, and whether such repercussions are activatory or inhibitory.

The basic issue to be considered, in accordance with the design proposed and the nature of the data, is which type of analytical technique is appropriate. Thus, depending on the quadrant (in figure 2) and design in which a given study is situated, one type of quantitative data-analysis technique or another will be suitable (Anguera, Blanco, & Losada, 2001; Blanco, Losada, & Anguera, 2003). In any case, if qualitative methodology helped us to obtain the information, quantitative methodology will provide us with the analytical resources for its most appropriate treatment.

FIGURE 2
OBSERVATIONAL DESIGNS (ANGUERA, BLANCO, & LOSADA, 2001; BLANCO, LOSADA, & ANGUERA, 2003)



INTEGRATION OF QUALITATIVE AND QUANTITATIVE ASPECTS IN OBSERVATIONAL METHODOLOGY

It can safely be said that a tradition is forming in the development of observational methodology consisting in the combination of qualitative and quantitative methodological perspectives, without entering into the debate over whether the quantitative paradigm is based on positivism and the qualitative paradigm is based on interpretivism and constructivism. The two sides have developed independently, and often showing more preoccupation with criticizing the other approach than with improving their own. Both of them have been much written about in scientific journals as regards their respective positions, and terms and expressions have even been coined with conflicting readings depending on the approach from which they are used.

Our proposal in this article is in line with a position of clear complementarity between the qualitative and quantitative methodologies, and with the psychology professional in mind. The logic of the process in observational methodology permits a sequencing of the perspectives, initiating the study with a predominance of qualitative methodology, before moving on to the use of a certain type of recording, with the substantial support of the field format, and to a coding process – preferably computerized – which generates a matrix of formally interchangeable data, to eventually invert the criterion and continue with a predominance of the quantitative perspective (Anguera, 2004; Anguera & Izquierdo, 2006).

The efficacy of this process has been demonstrated in numerous studies (Arias & Anguera, 2004, 2005; Jonsson, Anguera, Blanco-Villaseñor, Losada, Hernández-Mendo, Ardá, Camerino, & Castellano, 2006), and we would stress that the methodological framework which optimally permits it is that of observational methodology, due precisely to its peculiar characteristics.

COMPETENCE OF THE OBSERVER

Observational competence has a long life but a short history. In the course of the last fifty years or so it has been studied sporadically, and psychologists have traditionally referred to it in a somewhat confused manner, probably due to the fact that observational abilities have been associated with admirable qualities, with effective learning strategies and with the performance of the observers themselves based on training, and because observational competence has been equated with success (Anguera, Blanco, Losada, & Sánchez-Algarra, 1999).

In spite of the scarcity of research carried out on observational competence, it has been sufficient to reach the conclusion that 'observers are not born, but made', and that their training process should be supported with the utmost attention and care.

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REFERENCES

Anguera, M.T. (1979). Observational Typology. *Quality & Quantity. European-American Journal of Methodology, 13* (6), 449-484.

Anguera, M.T. (1999). *Hacia una evaluación de la actividad cotidiana y su contexto: ¿Presente o futuro para la metodología?* [*Towards an assessment of everyday activity and its context: Present or future for methodology?*] Lecture delivered on induction into the *Real Acadèmia de Doctors*, Barcelona. [Reprinted in A. Bazán Ramírez & A. Arce Ferrer (Eds.) (2001), Métodos de evaluación y medición del comportamiento en Psicología [Methods for the assessment and measurement of behaviour in Psychology] (pp. 11-86). Mexico: Instituto Tecnológico de Sonora y Universidad Autónoma de Yucatán].

Anguera, M.T. (2003). Observational Methods (General). In R. Fernández-Ballesteros (Ed.), *Encyclopedia of Psychological Assessment*, Vol. 2 (pp. 632-637). London: Sage.

Anguera, M.T. (2004). Posición de la metodología observacional en el debate entre las opciones metodológicas cualitativa y cuantitativa. ¿Enfrentamiento, complementariedad, integración? [The position of observational methodology in the debate between the qualitative and quantitative methodological options. Confrontation, complementarity, integration?]*Psicologia em Revista* (Belo Horizonte, Brasil), *10* (15), 13-27.

Anguera, M.T. (2005). Microanalysis of T-patterns. Analysis of symmetry/asymmetry in social interaction. In L. Anolli, S. Duncan, M. Magnusson, & G. Riva (Eds.), *The hidden structure of social interaction. From Genomics to Culture Patterns* (pp. 51-70). Amsterdam: IOS Press.

Anguera, M.T., Blanco, A., & Losada, J.L. (2001). Diseños observacionales, cuestión clave en el proceso de la metodología observacional [Observational designs, a key question in the process of observational methodology]. *Metodología de las Ciencias del Comportamiento, 3* (2), 135-160.

Anguera, M.T., Blanco, A., Losada, J.L., & Sánchez-Algarra, P. (1999). Análisis de la competencia en la selección de observadores [Analysis of competence in the selection of observers]. *Metodología de las Ciencias del Comportamiento, 1* (1), 95-114.

Anguera, M.T. & Izquierdo, C. (2006). Methodological approaches in human communication. From complexity of situation to data analysis. In G. Riva, M.T. Anguera, B.K. Wiederhold, & F. Mantovani (Coord.), *From Communication to Presence. Cognition, Emotions and Culture towards the Ultimate Communicative Experience* (pp. 203-222). Amsterdam: IOS Press.

Arias, E. & Anguera, M.T. (2004). Detección de patrones de conducta comunicativa en un grupo terapéutico de adolescentes [Detection of communicative behaviour patterns in an adolescent therapeutic group]. *Acción Psicológica, 3* (3), 199-206.

Arias, E. & Anguera, M.T. (2005). Análisis de la comunicación en un grupo terapéutico de adolescentes: estudio diacrónico [Analysis of communication in an adolescent therapeutic group]. *Revista de Psicopatología y Salud Mental del Niño y del Adolescente, M1*, 25-36.

Bakeman, R. & Gottman, J.M. (1986). *Observing interaction. Introduction to sequential analysis*. Cambridge: Cambridge University Press.

Bakeman, R. & Gottman, J.M. (1987). Applying observational methods: A systematic view. In J.D. Osofsky (Ed.) *Handbook of infant development* (pp. 818-853). New York: Wiley.

Bakeman, R. & Quera, V. (1996). *Análisis de la interacción. Análisis secuencial con SDIS-GSEQ*. Madrid, Ra-Ma [http://www.ub.es/comporta/sg/sg_e_programs.htm].

Blanco, A., Losada, J.L., & Anguera, M.T. (2003). Analytic techniques in observational designs in environment-behavior relation. *Medio Ambiente y Comportamiento Humano, 4* (2), 111-126.

Bogdan, R. & Taylor, S.J. (1975). *Introduction to qualitative research methods*. New York: Wiley & Sons.

Bryman, A. (1994). The debate about quantitative and qualitative research: A question of method or epistemology? *British Journal of Sociology, 35*, 75-92.

Cook, T.D. & Reichardt (Eds.) (1979). *Métodos cualitativos y cuantitativos en investigación evaluativa* [*Qualitative and quantitative methods in assessment research*]. Madrid: Morata.

Dawkins, M.S. (2007). *Observing animal behaviour. Design and analysis of quantitative data*. Oxford: Oxford University Press.

Hogenraad, R., McKenzie, D.P., & Péladeau, N. (2003). Force and influence in content analysis: The production of new social knowledge. *Quality & Quantity. International Journal of Methodology, 37*, 221-238.

Izquierdo, C. & Anguera, M.T. (2001). The role of the morphokinetic notational system in the observation of movement. In Ch. Cavé, I. Guaïtella, et S. Santi (Eds.), *Oralité et Gestualité. Interactions et comportements multimodaux dans la communication* (pp. 385-389). Paris: L'Harmattan.

Jonsson, G.K., Anguera, M.T., Blanco-Villaseñor, A., Losada, J.L., Hernández-Mendo, A., Ardá, T., Camerino, O., & Castellano, J. (2006). Hidden patterns of play interaction in soccer using SOF-CODER. *Behavior Research Methods, 38* (3), 372-381.

Krippendorf, K. (1980). *Content analysis: An introduction to its methodology*. Beverly Hills, CA.: Sage.

López, J.S., Blanco, F., Scandroglio, B., & Rasskin, I. (2010). Una aproximación a las prácticas cualitativas en Psicología desde una perspectiva integradora [An approach to qualitative practices in Psychology from an integrative perspective]. *Papeles del Psicólogo, 31* (1), pp. 131-142.

Magnusson, M.S. (1996). Hidden real-time patterns in intra- and inter-individual behavior. *European Journal of Psychological Assessment, 12* (2), 112-123.

Magnusson, M.S. (2000). Discovering hidden time patterns in behavior: T-patterns and their detection. *Behavior Research Methods, Instruments, & Computers, 32*(1), 93-110.

Muskens, G. (1985). Mathematical analysis of content. *Quality & Quantity. International Journal of Methodology, 19*, 99-103.

PatternVision (2001). *ThèmeCoder* [software], Retrieved January 15, 2002 [http://www.patternvision.com].

Perea, A., Alday, L., & Castellano, J. (2004). *Software para la observación deportiva Match Vision Studio* [*Software for sports observation, Match Vision Studio*]. III Congreso Vasco del Deporte. Socialización y Deporte/Kirolaren III Euskal Biltzarra [III Basque Congress on Sport. Socialization and Sport]. Sozializazioa era Virola. Vitoria.

Rabadán, R. & Ato, M. (2003). *Técnicas cualitativas para investigación de mercados* [*Qualitative techniques for market research*]. Madrid: Pirámide.

Roberts, C.W. (2000). A conceptual framework for quantitative text analysis. *Quality & Quantity. International Journal of Methodology, 34*, 259-274.

Sackett, G.P. (1980). Lag sequential analysis as a data reduction technique in social interaction research. In D.B. Sawin, R.C. Hawkins, L.O. Walker, & J.H. Penticuff (Eds.). *Exceptional infant. Psychosocial risks in infant- environment transactions* (pp. 300-340). New York: Brunner/Mazel.

Sánchez-Algarra, P. & Anguera, M.T. (in press). Qualitative/quantitative integration in the inductive observational study of interactive behaviour: Impact of recording and coding predominating perspectives. *Quality & Quantity. International Journal of Methodology, 43*.

The Observer [Software] (1993). Sterling, VA, Noldus Information Technology [www.noldus.nl].

Valles, M.S. (1997). *Técnicas cualitativas de investigación social. Reflexión metodológica y práctica profesional* [*Qualitative techniques for social research. Methodological reflection and professional practice*]. Madrid: Síntesis.

SUGGESTIONS FOR PSYCHOLOGY PROFESSIONALS

1. Anguera, M.T., Blanco, A., & Losada, J.L. (2001). Diseños observacionales, cuestión clave en el proceso de la metodología observacional [Observational designs, a key question in the process of observational methodology]. *Metodología de las Ciencias del Comportamiento, 3* (2), 135-160.
2. Use of the following free-access computer programs: Kinovea [http://www.kinovea.org/en/]; SDIS-GSEQ [http://www.ub.edu/gcai/gseq/].