Input and concepts for building social research projects: Reflections through epistemology and methodology

Subsídios para a construção de projetos em pesquisa social: reflexões epistemológicas e metodológicas

Fernando Manuel Bessa Fernandes[1], Marcelo Rasga Moreira[2], Pablo Dias Fortes[3]

ABSTRACT This paper is written to students, university teachers, and researchers. It aims to contribute to the debate on construction and development of research projects, based on the authors' professional experience in teaching the discipline of Methodology in Social Research, in the Postgraduate Public Health Program of the Social Sciences Department of the Sergio Arouca National School of Public Health, of the Oswaldo Cruz Foundation (DCS/Ensp/Fiocruz). The aim is to reflect on common issues, such as: What are 'research projects', 'methodology', 'method', 'object', 'objectives', 'techniques'? How to overcome the recurring confusion that takes place between these words, which creates problems in construction of projects? How to think of the relationships between such concepts in the process of construction of a research project and during its execution?

KEYWORDS Knowledge. Methodology. Research design.

RESUMO *O artigo dirige-se a alunos, docentes e pesquisadores. Visa a contribuir para o debate sobre construção e desenvolvimento de projetos de pesquisa, a partir da experiência profissional dos autores na docência da disciplina Metodologia em Pesquisa Social, do Programa de Pós-Graduação em Saúde Pública do DCS/Ensp/Fiocruz (Departamento de Ciências Sociais da Escola Nacional de Saúde Pública Sergio Arouca, da Fundação Oswaldo Cruz). Busca-se refletir sobre questões comuns, como: O que são 'projeto de pesquisa', 'metodologia', 'método', 'objeto', 'objetivos', 'técnicas'? Como superar a recorrente confusão que se faz entre essas palavras, que gera problemas na construção de projetos? Como pensar as relações entre tais conceitos no processo de construção de um projeto de pesquisa e durante a sua execução?*

PALAVRAS-CHAVE *Conhecimento. Metodologia. Projetos de pesquisa.*

[1] Fundação Oswaldo Cruz (Fiocruz), Escola Nacional de Saúde Pública Sergio Arouca (Ensp), Departamento de Ciências Sociais (DCS) – Rio de Janeiro (RJ), Brasil. *fernando.bessa@ensp.fiocruz.br*

[2] Fundação Oswaldo Cruz (Fiocruz), Escola Nacional de Saúde Pública Sergio Arouca (Ensp), Departamento de Ciências Sociais (DCS) – Rio de Janeiro (RJ), Brasil. *rasga@ensp.fiocruz.br*

[3] Fundação Oswaldo Cruz (Fiocruz), Escola Nacional de Saúde Pública Sergio Arouca (Ensp), Departamento de Ciências Sociais (DCS) – Rio de Janeiro (RJ), Brasil. *pdiasfortes@gmail.com*

DOI: 10.1590/0103-1104201711204

Introduction

What is real is never 'what one might be able to find':
It is always what one 'should have thought'...
Faced with the real, that which we believe that we clearly know
obfuscates what we ought to know.
Gaston Bachelard

The article is directed to students, university teachers and researchers in the Social and Human Sciences, especially in the area of collective health. It aims to contribute, with both theoretical-methodological and practical-instrumental inputs, to the qualification of the debate on construction and development of projects in social research, such as graduation monographs and/or course conclusion essays, and also dissertations, theses and projects of research in general.

The article arises from epistemological reflections by the authors, arising from their orientation and teaching work in the discipline of Methodology in Social Research at the National School of Public Health of the Oswaldo Cruz Foundation (DCS/Ensp/Fiocruz), in both the *stricto* and *lato sensu* modalities.

We see that doubts and difficulties of comprehension regularly arise for students on questions such as: How should one articulate the outline of a research project? What are 'methodology', 'method', 'object', 'objectives', 'techniques'? How to overcome the recurring confusion that takes place between these words, which leads to problems in the construction of projects? How to think the relationships between these concepts in the process of construction of a research project and during its execution? Many have addressed the more direct aspects of these questions, over time – for example: BACHELARD, 2002; CONTANDRIOPOULOS *ET AL.*, 1994; DEMO, 1987; ECO, 1986; QUIVY; COMPENHOUDT, 1992; FERNANDES; MOREIRA, 2013; GALERA, 2007; GOLDENBERG, 2007; KUHN, 1995; LIMA; MIOTO, 2007; MANN, 1970; MINAYO, 1998; OLIVEIRA; EPSTEIN, 2009; RICHARDSON, 1999; SALOMON, 2006; SANTOS, 2003. These are without a doubt pertinent and valid questions, which merit continuing discussion – and this is the motivation for this article.

Research as a process: theoretical considerations on the construction of projects in social research

Among the postgraduate students in public health that we have worked with, one usually sees an insecurity in relation to the questions of a theoretical and practical nature, when they are constructing projects. The fear of 'making a mistake', 'failure', or 'getting it wrong' can generate, and at the same time be generated by, a feeling of inferiority and incapacity to conceive their projects and make them operational, if they do not follow an 'outline', 'recipe', 'guide', or 'manual' that might describe standardized actions on how to carry out research, in such a way as to give it some kind of scientific *imprimatur*.

This feeling often crystalizes from a vision that they have about organization, preparation, formatting and dissemination of research work that postulates and mythicizes the methods and techniques, and the activity itself, of science as objectively mechanical, impersonal and aseptic – that is to say, automatically standardized and, *a priori*, 'neutral'.

This way of thinking tends to remove the political and symbolic-cultural nature that is inherent to the protagonists, and procedures, of science, and also their implications. The trend is for these characteristics to be seen as naturally separated by some kind of watertight barrier, and related to passion, irrationality and subjectivity – which are seen as undesirable in that they supposedly lack the precision, reliability, and objective concreteness that are commonly associated with scientific practice.

This vision, taken to its extreme, implies an approach that is structured with the limited and limiting effect of measuring the polysemy and plasticity of the problems that populate the realities to be studied and the actors who live them, and translating them into numbers, equations and statistical relationships, in a specific interval of space-time, in an attempted to mathematize what is real. But any such approach tends to cloud one fact: social research deals, in the first and last instance, with human beings, with flesh and blood, emotions and feelings – all of which are, in essence, appearance and value, of a more plastic than precise nature (ALVES, 2005; CRUZ NETO, 1998; FERNANDES; MOREIRA, 2013; MINAYO, 1998; MINAYO; SANCHES, 1993)

At the same time, it is also a fact that in the area of health, the importance and the use of the theoretical-practical resources of the social sciences have stood out vigorously – these include the resources of anthropology, political science, history, law, philosophy, administration, economics, etc. Hence there is increasingly a need to provide support to planners of research studies, to help them deepen and articulate their reflections on the preparation and structuring of their research projects, combining knowledge, collections of knowledge, and practices (ALVES, 2005; COSTA, 2002; DESLANDES, 1997; FERNANDES; MOREIRA, 2013; LIMA; MIOTO, 2007; MINAYO; SANCHES, 1993; RICHARDSON, 1999; SERAPIONI, 200; TEIXEIRA, 2004).

In this movement of deepening, it can be important to take a step backwards, so that it is possible to take two steps forward. This phrase (by Lenin), which illustrates so well the non-linear flow of our thinking, is appropriate to the purposes and the spirit of this article and translates into a need to outline a few brief considerations on the various forms of understanding of the world produced by human beings and, specifically, about science – which is so much present in daily life today.

Over the course of history, various forms of human thought have been developed to get to know, interpret, understand, comprehend, assimilate, explain and define both the world and also the questions, universal and private/intimate, that afflict us all – in other words, to get to know life itself – on an individual and collective basis. One may cite: art, science, philosophy, religion, magical thought, and basic commonsense (which is of course basic to all the other forms). They all share the fact of being possible readings of what we understand as reality which, constantly and at the same time, create, destroy, re-create, modify and transform realities.

Without entering into the merit and the minutiae of each of these forms, it can be stated that all have some systemic structure and a speculative and reflexive essence, which gives them the competence to attribute meaning and significance to what is called reality. And, further, they all coexist with each other in a way that is not at all isolated or indifferent (ALVES, 2005; CRUZ NETO, 1998; MINAYO, 1998; MINAYO; SANCHES, 1993).

Over the length of this historic process, one sees that the most committed and aggressive adepts of one or other of these approaches have sought to achieve distinction, in the attempt to affirm and consolidate, for their own vision of the world, the status of best, or only and correct, way of dealing with reality. This interaction constitutes a continuous dispute for hegemony, with separations, alliances, and again approaches. It is known that, although this interaction can cause confrontations that may be rhetorical or, even, more direct, the dispute for hegemony does not necessarily involve the total annihilation of one way of seeing the world by another.

A way of understanding the world (and thus, of exercising power over it, and in the ultimate analysis, controlling it) becomes hegemonic when it succeeds in putting in place a situation of tacit acceptance of its values, making them universal and not obligatorily demanding the use of physical coercion or brute force.

However, it is also observed that, repeatedly, over the course of history, there have been, and still are, even in today's world and in societies regarded as progressive, recurring episodes such as persecutions, standoffs and misunderstandings, and acts of intolerance of the most varied range of types, generated by the most varied range of causes.

On the other hand, a single individual carries, in his cognitive framework, a latent potential for taking a protagonist position in each one of these ways of seeing the world, depending on his training; the fact of someone being a scientist does not imply one-dimensionality: this person might also express herself, for example, through art. The frontiers between the forms are arbitrary, fluid, permeable.

Having said this, in the intention of providing grounds for the reflections and to enable us to think about the construction of research projects, it is appropriate to focus on certain aspects of the discussion involving what it has been agreed to call science, without less respecting the other forms of comprehending the world.

Science – the etymological root derives from the Latin *scire*, meaning knowledge, knowing, wisdom – is not the only, nor the best way of understanding the world. It is characterized by its aim to confront palpable and day-to-day problems, and project their solutions, putting out theories, methods and techniques that have been systematized for the purpose. In contrast to other ways of comprehending the world, science retrofeeds itself by producing dynamic and replicable knowledge, generating concreteness in its results which have to do with the interests of societies, forming them, informing them and re-forming them, with its intrinsic capacity to carry out veritable 'self-realizable prophecies' (ALVES, 2005; COLLET; ROZENDO, 2001; KUHN, 1995; OLIVA, 2003; SALOMON, 2006; SANTOS, 2003).

It's interesting to note that, even between scientists – as in each one of the other ways of seeing the world – the process of dispute for hegemony is also present. This dispute appears, for example, in the classic division between natural scientists – or scientists of 'nature' (referred to as the 'hard sciences'), and the human sciences (the 'soft sciences') – a division which reflects the distinction between objects of study, and the nature/nurture dichotomy: in the natural sciences, concrete and measurable objects, belonging to nature; in the human sciences, objects that are abstract, therefore imponderable and subjective, related to human beings and human relations. It is interesting to note that this distinction appears to propose that whatever is human is in some way separated from nature, as if they were ... 'naturally' ... non-communicating opposites.

As in the so-called natural sciences, in the human sciences and more specifically in the social sciences, there is also a dispute for hegemony, which is visible in the standoff between the various currents or schools of thought – examples could include Marxism or historical/dialectical materialism, positivism, phenomenology, etc., and the procedural artifices developed by them for dealing with reality.

In this discussion, we do not propose that 'reality' should be understood as a synonym of the 'real'. This has of course been the center of a crucial metaphysical and ontological question of philosophy over the centuries, and this article cannot have the pretention of resolving this question. But, for the purpose of definition and having regard to the purposes of our exposition here, 'real' would be everything that comprises the world, whether of concrete or abstract nature, of which total comprehension is not available to human knowledge, since human knowledge is not conceived as able to be omniscient. Thus, for the purposes of this article, reality, or, better, the possible realities, would be seen as approximations or representations that human beings make of the real, built on the basis of the points of view adopted.

This understanding helps in the de-consecration and de-mystification of the classical

idea of science, because it makes it possible to perceive that it is – like all human output – partial, limited, polysemic; in other words, it is not exempt from historicity, culture, relationships of power, political domination or direction by ideology.

On the contrary, one sees that even those who advocate the axiological objectivity and neutrality of scientific activity do not escape the injunctions that come from human nature, resulting from living in society. This is a reminder frequently neglected by those who live in, from and by science.

However, it is necessary to take care not to adopt manicheistic positions that demonize science, attributing an exaggerated weight to its problems, difficulties, limitations, incapacities to explain, and political-ideological-economic links that are active in its uses and abuses. As with any other vision of the world, science, as a human action, demands to be humanized and humanizing.

It appears to be the case that the humanization of science inexorably involves and requires awareness that its typical activities of teaching and research are expressions of humanity, both by scientists and non-scientists, as Paulo Freire puts it (1996, P. 32):

> There is no teaching without research, nor research without teaching... I teach because I seek... I research to find out; finding out, I intervene; intervening, I educate and educate myself. I research to know what I do not yet know and communicate or announce the new information.

In this context one produces science, with the addendum that the researcher, by researching, also puts what he already knows in check: in the words of Karl Popper, "The solution is to perceive that all of us can make mistakes, individually or collectively, and that we frequently do..." (1994, P. 51).

Science constructs its path, constructs itself, grows and affirms itself as a vision and, also, as an explanation of the world, by entering into and participating in the debate between the various views and about its own procedures. Neither better, nor worse, than religious thought, for example. But different; and it is in this difference that the scientist-researcher should work, conscious that doing science does not mean compliance with a pre-formatted course of action or path which should be rigidly and mechanically followed: "Science needs people who are adaptable and flexible, not rigid imitators of 'established behavioral patterns'" (FEYERABEND, 2007, P. 221).

In reality, in the process of research, the adoption of a stance that is simultaneously cautious and created by the researcher tends to produce significant and innovative narratives and knowledge.

By announcing new information, the researcher generates and provides movement in debate, since others are also researching, with other theoretical and practical groups of instruments, directions and purposes. From the debate, new demands emerge, that oblige them to restart cycles of research, seeking to know other aspects and realities, and announcing them again, maintaining the cycle, indefinitely, in a spiral movement.

Unquietness – the central spark that inflames the desire to know, and a close relative of curiosity, is a state that does not result from adopting a dogmatic idea of the truth in the researcher's work. Additional clues on its role can be seen in one of the possible definitions of research:

> [...] a process in which the researcher has an attitude, and a theoretical practice, of constant quest, which defines a process that is intrinsically unfinished and permanent, because it carries out an activity of successive approximations to reality, while reality presents 'a historic baggage' and reflects positions in relation to reality. (LIMA; MIOTO, 2007, P. 23).

And for the work of the researcher to be satisfactory in the path it takes, there is

a demand for actions, strategies and tools to be imagined, planned, developed, made concrete, reflected, tested and questioned. Research is a need – but it is also imprecise! And to research is to study!

It is not trivial to note that 'study' [*estudo*] is a synonym for both 'investigation' [*investigação*] and 'research' [*pesquisa*] – in English – and in the French, recherche. Both come, respectively from the words 'search', and *cherche*, signifying the idea of quest. And in these words, one identifies the French root *cher* – dear, that is to say, something that one wants. In a research project, therefore, clear structuring of what, why, how and for what one is researching is fundamental.

Research as a process – fundamental conceptual consideration for the construction of projects in social research

Marx, both in his analysis on day-to-day life and in his methodological reflection, affirms that individuals are capable of building their own paths, based on the economic, historical, political and social structure in which they find themselves, live and research. Thus, he said, it is necessary to study the structure and know it, so that one is able to intervene in it and transform it.

Therefore, those interested in carrying out a research, when building their path, should seek to avoid what would be a mistake: they should avoid disdaining the existing methodological theories and reflection, or falling into the arrogance of wanting to impose their reasoning as the best or as the correct one. The paths travelled will not be the same, but the experiences lived by others can (and should) be take advantage of: if not indeed replicated, debated. Thus, it is expected that the researcher should be disposed to investigate, analyze and promote debate, making contributions to the development of knowledge with obedience to a stance that is ethical, and directed towards collective wellbeing.

Fundamentally, the way in which the researcher observes, captures, comprehends, feels and explores the world causes explanatory pictures or models to be established and builds interpretations shared with his peers and with society in general through words, that is to say, using language as a means and a tool, even though it is limited by the intersubjective barriers and difficulties of expression and dissemination.

Perhaps a good metaphor would be the figurative idea of a map prepared by the researcher, which can help to understand both particularities and generalities, assisting in directing to a better understanding of one of the multiple aspects of the complexity of the so-called real world.

However, even if all care is taken, it cannot be forgotten that the explanatory model that is prepared must not be confused with what is called real, nor with what is here called reality. Metaphors can be efficient, but are imperfect: the map is not the territory (KORZYBSKI, 1994); rather, it is an imperfect translation of a territory. But, it is a model.

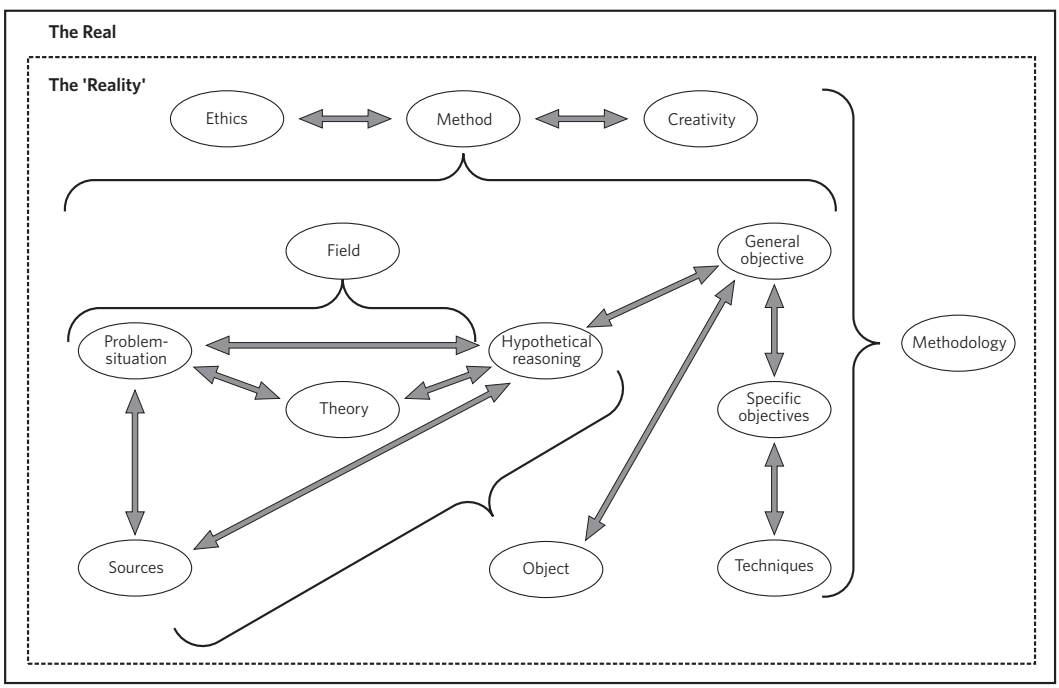
In this sense, 'explanatory model' can be understood as an attempt to represent reality, related to a theoretical *corpus*, that is to say, to a theory. This can be understood as being a group of concepts, definitions, categories and propositions that are systematically interrelated to explain reality. The differentiation takes place to the extent that the theory is marked by the eminently explanatory character, while the model is distinguished, also, by its representative character, being able both to provide input for the elaboration of a theory and also empower the understanding of the concepts of a theory.

In the process of research, method is understood to mean the path laid out, and followed, by the researcher to achieve objectives in its practice, and one arrives at

the understanding that the scientific nature of an investigative activity, among other requirements, cannot do without the questioning directed to the very actions and thoughts that give rise to the method used. Hence, one understands methodology, that is to say, the study of the method, consisting of knowledge of a second order and of an epistemological nature, a knowledge about knowledge, a meta-knowledge born from and consisting of reflection on the path of the researchers in the exercise of a form of vision/explanation of the world (ALVES, 2005; BACHELARD, 2002; MORIN, 2005; OLIVA, 2003; SALOMON, 2006).

It can be said that the path of the researcher, that is to say, the method, has dimensions: the concepts and categories are the grounds for the theory with which the work is done and which provide the input for the hypothetical reasoning, the definition of the object, the techniques that provide the operation of compliance with the objectives of the research, the use of creativity, and obedience to the instituted ethical principles. *Figure 1* below aims to offer a panoramic illustration of the process of research, contextualizing its component elements within the frameworks that we conceive of as the 'real', and 'reality':

Figure 1: Schematic diagram of the components of the research process



Source: Authors.

Note: The explanatory model is made up of the problem-situation, the theory and the hypothetical reasoning.

If every journey starts with a first step, is there then a point of departure for this journey of the researcher? Where would his work start? Would it be 'as from the reality experienced in his day-to-day existence'? Would it be 'based on reflections, perceptions, observations, feelings, ideas and pre-concepts of the researcher himself'? Or would it be in the relation between the two?

In reality, it is exactly this relationship that causes the researcher to confront some aspect of reality as a 'problem-situation',

something that affects him, demands and provides opportunity for carrying out a study. The problems that interest the researcher are not given by nature, served up ready and finished, to be collected, systematized, interpreted, described, analyzed, explained. They derive from the correlation between the conception of the world and the reality as lived by the researcher through research and, also, cannot be exempt from pleasure:

> Research has to give rise to pleasure, it has to be a pleasure. One cannot believe that a person studies and investigates something that she does not like or does not please her, although some such cases are seen. (ROZO, 2007, P. 98).

To have to deal with the problem-situation means, also, that what is considered to be a problem, for some, may not be for others, because there are no guarantees that the same situation is regarded as a problem by two or more different people. Only that the way of thinking and of proposing to try to find possible solutions for this problem are fundamental in conferring upon it a scientific character – the quality of 'being scientific'.

The problem-situation is inscribed in a subject, within the professional and sociocultural context of the researcher, by the empathy and the emphasis that he has in relation to a given subject, and one that is usually already explored by other authors. The movement of choice of the theme that the researcher puts forward is equivalent to laying out the overall area of the knowledge of interest to be researched:

> To put forward a thesis thus means to learn to put order into one's own ideas, and to order the data: it is an experience of methodical work; that is to say, to construct one 'object' which, as principle, can also serve the others. Thus, neither the subject of the thesis nor the experience of the work that it involves is important [...], although it is better to produce a thesis on a subject that pleases us, it is secondary in relation to the method of work and the experience arising therefrom. Also: when one is working well, there is no subject which is truly stupid. Useful conclusions can be extracted from an apparently remote or peripheral theme. (ECO, 1986, P. 5).

Every research demands a plan, and, in it, when the researcher carries out the research of the theoretical-conceptual basis, he is dealing with the ideas of authors who have also worked on the theme. Thus, it is appropriate for the researcher to seek to promote dialog between the authors and between them and himself, to form and enrich his own conceptions.

Going further in the search for the elements that will be fundamental for dealing with the objectives and situating what will be studied, it becomes necessary to seek, identify and access sources of information, divided into two types, in the case of social research. These are: (1) primary sources, comprising people who transmit the information to the researcher at first hand, that is to say, whose information has not yet been transmitted and/or systematized, remaining in a raw state in the reasoning and the emotion of those individuals who produce it; and (2) secondary sources, comprising databases, books, minutes, reports of events, censuses, statistics, medical records, audiovisual records, digital texts or documents in general, in which the information is already recorded and systematized. One speaks of secondary sources in no pejorative sense, in that they provide inferior information, but rather, because they provide information which has already been transmitted and/or submitted to a process of systematization, even if a simple one.

The researcher thus cannot abstain from seeking out the sources where they are: in the 'field' – the 'field of research', a concept which is taken to mean an intellectual construction of the researcher who, based on the reality, situates the object, the objectives,

the techniques and the subjects to be investigated, belonging to the process of research. In relation to social research:

> We conceive the field of research as a cutout that the researcher executes in terms of space, representing an empirical reality to be studied based on the theoretical conceptions that are the basis of the object of the investigation [...] As well as the spatial 'cutout', the case of social research, the primary places occupied by the people and groups living together in a dynamic of social interaction. These people and these groups are the subjects of a given story to be investigated, and a theoretical construction is necessary to transform them into objects of study. (CRUZ NETO, 1998, P. 53-54).

The 'field' is not 'the reality': it is a mental construction of reading of a reality prepared by the researcher in which he, necessarily, makes a reductive 'cutout' from it, instructed by theory and colored by his research objectives:

> The comprehension of the space of the research is not resolved only through a technical domain. We need to have a theoretical base for us to be able to look at the data within a framework of references that allow us to go beyond simply what is being shown to us. (CRUZ NETO, 1998, P. 61).

In this process, the researcher inserts herself, and deals with three dimensions: 1) the concrete space where the subjects that comprise the reality of the research interact in the relationships that are of interest to the objectives of the research; 2) the historical time in which the subjects live together within this space; and 3) the social relationships themselves which arise between the subjects in this time and in this space.

Ethical imperatives that are established in relation to the study relating to human beings must be followed, and certain types of care need to be taken, which include: comprehensive involvement by all those involved, including, principally, the investigator; presentation of the study proposal to the groups involved; and guarantee that they are not obliged to collaborate under any pressure (CRUZ NETO, 1998, P. 55). The ethical research principles involving human beings can be accessed on the website of the National Research Ethics Committee of the Brazilian National Health Council (BRAZIL, 2017).

From the start, the problem detected in a given situation is usually an extensive one, with multiple facets and ample possibilities of approach. It is thus necessary to adapt the problem-situation to the demands of the investigation, through a methodological exercise. This is a process referred to as the 'cutout' of the object, understood as a *construct* or an analytical construction, and thus something which is not confused with reality itself, but which is essential for one to be able to understand it.

Since the problem-situation is not free-floating, or disconnected from any reality, it is part of the field, which corresponds, in empirical terms, to the theoretical 'cutout' defined by the researcher. Thus, the mental model of reading of the reality constructed is necessarily a 'cutout', a reduction, made by the researcher, colored by her research objective and one which materializes in a limited geographical and temporal space, but which also represents an abstract plane in relation to its specified theoretical outline.

The researcher prepares and lays out the limits of the problem, that is to say, the relationships inherent to the situation of that given reality that awoke her attention. And, to start the search for a form of explanation and analysis of the problem, she formulates a question, which some authors also call the 'orienting question', in such a way as not to have simple responses such as 'yes' or 'no'. This is justified because, if a question is formulated to which the response is automatically categorical, the relevance of a study is compromised because this type of response

immediately answers the question, but does not explain the problem.

At this point, in parallel to the configuration of the problem-situation, one can ask: What is the significant thing to be demonstrated in the research? What, in the thematic and professional area, is it important to present? What does one need to know about that theme and that specific object? And finally, why should one study what is proposed? The answer to this 'why' is the justification for the investigation.

The process of setting out or 'cutting out' the object, thus, is facilitated and is realized pragmatically, through employment of the phrases 'why?', 'what?', and 'for what purpose?'. This extraction demands theory investment, that is to say, study and full understanding of the theory on the subject of which the problem-situation is a part. Both pragmatism and this theory investment are in a dialectical relationship – that is to say, in constant interaction, counterposition and composition of ideas. With the 'cutout', the object of the study – what one is seeking to study – begins to acquire a sharp outline, and the mental model of reading of one aspect of the reality of the researcher is slowly instituted as a descriptive, explanatory and analytical model.

One has to pay attention to the fact that the 'object' is a companion expression of the terminology of the natural sciences. In situations that directly involve human beings, the researcher has to pay attention to the risk of reification of the subjects, and of the relations arising between them, which tends to remove their intrinsic humanity.

In its first version, the object is stated as if it was made up of two parts: one of them relates directly to the subjects (which may be collectives or individuals or even processes or procedures); the other concerns the relationships and actions that they perform and/or suffer. Remembering the pragmatic manner of the cutout referred to, the object of the study would be equivalent to the 'what' in 'what to study'.

To admit that subjects, and relationships entered into by them, can be the subject of a study is to understand that the study must, in its path, take into consideration the aspects of historicity and ideology that are inherent to the occurrence or interaction and, consequently, the impossibility of neutrality.

In this process of approach, preparing questions in dialog with the literature, the researcher produces, *pari passu,* responses in what can be called 'hypothetical reasoning'. Initially, they are short, generalist and incomplete responses, but they indicate the first steps and directions of the path.

They hypothetical reasoning contains, as from the orienting question, the initial categorical affirmation of the researcher, also referred to as hypothesis, that is to say, a presolution of the problem-situation, which may come to be confirmed or not, after being submitted to test by the medium of the research.

This group of reflections (on problem-situations, object, hypothetical reasoning/hypothesis) becomes the first draft of the explanatory model, and the thing that compels the researcher to confront it with the reality. It is not convenient that such a process should be presided over by an attitude that aims to corroborate its model and its hypothetical reasonings at any cost. Clearly, it is a mistake if the researcher seeks to force the facts to respond to the desired answers to his questions. Francis Bacon's phrase, 'To torture nature to reveal her secrets', reveals an ambitious human desire, but one which is impossible to achieve, of intended absolute control.

The attitude of the researcher, which seems more in line with the awareness that his cognitive capacity is not absolute, should be an attitude of testing and experimentation, of constant construction, deconstruction and reconstruction of his thinking. In this process, he perceives to what extent and in what way his model describes, explains and analyzes reality, how it explains and

in what way it does not explain, and with this, identifies in what aspects his model is fragile, for the purpose of seeking to enhance it and, later, again, put it to the test.

In harmony with the hypothetical reasoning, the procedures of the researcher are carried out in obedience to a purpose consisting of the objectives of the research (also called the targets), which are what the researcher aims to attain, that is to say, 'for what purpose' the research will be carried out. Usually, a general objective is established relating to the hypothesis that informs what is the researcher's intention and some specific objectives related to the means, tasks, procedures, processes or strategies without which the general objective cannot be achieved.

Defining 'why' (justification), 'what' (object), and 'for what purpose' (objectives) of the research, an outline is made of the information that needs to be discovered. For this, one needs research techniques, which can be understood as the systematized procedures that the researcher carries out to obtain the necessary information, organize it, systematize it, work on it and analyze it, so that he can achieve his objectives, that is to say, 'how' the research will be made operational.

The techniques may be managed in insolation or jointly, which confers upon the researcher the expansion of the possibilities of having access to the information that will be necessary to him. From the point of view of method, of the path taken by the researcher, the techniques begin to be defined from the moment in which the object is 'cut out'. However, the moment when their definition becomes more essential is the moment when the objectives of the research are defined.

This means that the techniques have limited methodological autonomy to define the object and/or the objectives of a study. In other words: one does not take a technique as a starting point to construct an objective or an object of research! It is – clearly – the specific 'objectives' of a study that lead to the choice and application of the 'techniques'. Information that is raised, submitted to analysis, leads the researcher to become aware of his object. It may be that, by expanding this knowledge about the object, the researcher restructures his objectives, generating new future needs for information and, thus, the application of new techniques.

In studies involving primary sources, and it is in the spatial dimension that the techniques for raising information are applied – the field work – since it is in the field work that the subjects who can provide the information necessary for the researcher to achieve her objectives live and interact, and it is the place where the inter-relationships take place.

The Internet, with its multiple interactive resources, is a new and ample repository of information to be explored by scientific research. These innovations have, increasingly and increasingly fast, become possibilities for interchange of experiences marked by the nature of being 'virtual', that is to say, having contact between individuals without physical interaction. From these innovations as a starting point, it is possible to talk about a 'virtual field of research' and, consequently, new investigative possibilities, the virtual being understood as a factual reality. This is not the place to go more deeply into this subject, but even so it is necessary to point it out and reaffirm the innumerable potentialities that this incorporation of the virtual into research can bring to the investigative process (FERNANDES; MOREIRA, 2013).

The researcher should be attentive to the fact that his presence in the field – virtual or otherwise – interferes in the routine and the life of the subjects, which makes the survey a practice which should be imbued with care, responsibility and ethics in relation to all those who are participating.

Further, if the presence of the researcher in the field is capable of altering it – by the influences that he has on the subjects and their

relationships, which happens all the time – this should also be understood as part of the data of the survey, because the investigator does not go to the field as to a blank page on which the information will be inscribed or revealed automatically. His very cultural baggage, his pre-concepts and his subjectivities, in the same way as those of the subjects of the reality under investigation, should be considered. And this is also true with issues in the area of health:

> As in any social process, the object 'Health' offers a level that is able to be quantified, but exceeds it when it is a question of understanding deep and significant dimensions that cannot be imprisoned into variables [...] Any human being, any group or social class is a multiplicity of relationships and of relations between relationships. (MINAYO; SANCHES, 1993, P. 251).

Thus, so that the work – both the survey as a whole and the field work – should flow appropriately, good planning is indispensable. And it is in the act of planning, precisely, that lies the kernel of the meaning that a research project contains.

Research as a process: practical considerations in construction of projects in social research

A research project can be understood as a 'letter of intent', the preparation of which calls for considerations of a practical nature. The first of these relates to the elements that have a decisive influence on the methodology, both in the preparation of the project and also in the execution of the research: the questions of temporality, resources and theoretical investment. These are some of the factors which, from the point of view of the researcher, interfere in the choice of a theme for the research work and, consequently, in the structuring of his project (COUTINHO; CUNHA, 2004; GIL, 2002; MINAYO, 2004; POPPER, 2007).

Both internal and extension factors may be listed. Highlights of the first include:

• The dedication of the researcher, translated as the degree of personal affect, empathy and interest. The usual situation is that a researcher explores subjects that she finds pleasant.

• The time that the researcher can dedicate to carrying out the research, in that there is more to her life than professional or academic activities.

• The limit of the researcher's cognitive capacity, since there is a wide variability of the theory investment to be made in relation to the aspects of reality that are able to be understood as a problem-situation.

External factors include:

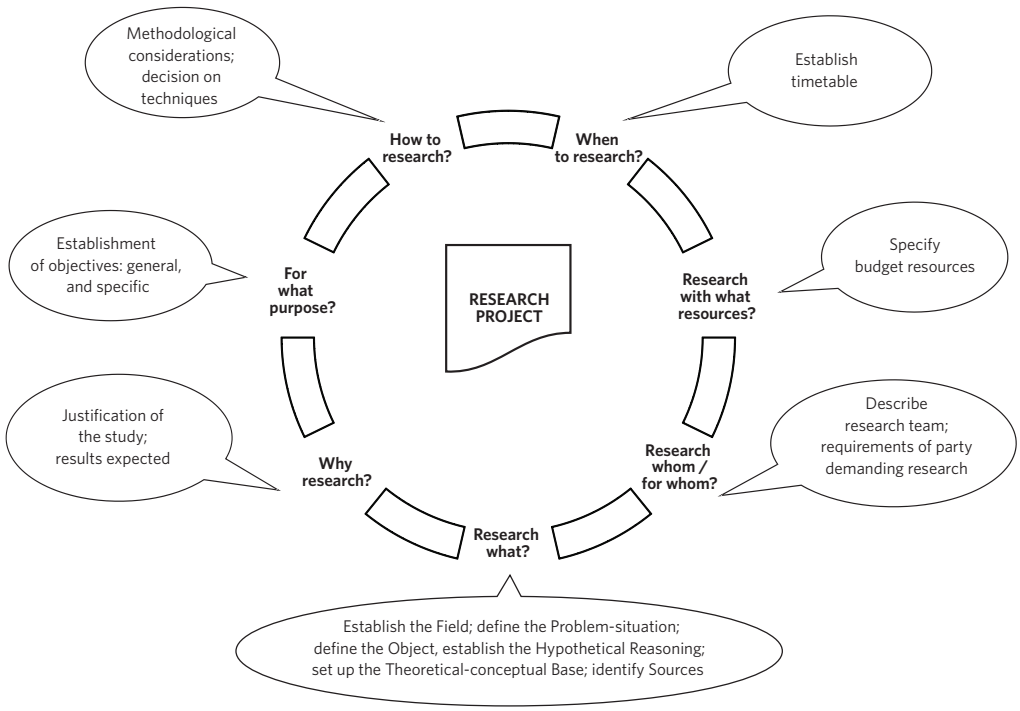
• The significance and importance of the theme chosen, the degree to which it is unprecedented, and the academic and social values inherent to the results of the study.

• The limit of time available, determined by the nature of the institutional demand. For example, surveys ordered by an institution or a group of researchers have a different timeframe from a course conclusion work.

• Availability of material for consultation, data and sources necessarily for carrying out the work.

The second consideration relates to the logical structure that the document should present. The following would be fundamental questions:

Figure 2: Logical structuring of a research project



Source: Authors.

It is worth noting that the structuring of research projects varies from institution to institution, but the fundamental elements are a consensus in Brazil, and follow recommendations given by the institution responsible for creating technical standards (ABNT, 2005.)

Specifically on the question of financial resources, it is seen that this is not an obligatory aspect. Only if the research requires financing, in its project/plan, does the researcher outline the budget necessary for its execution. Hence this is a topic that is optional, and usually not relevant in plans for monographs, course conclusion work, dissertations or theses.

Also of an optional nature is the issue of who will carry out the research and for whom it will be carried out. Depending on the study, a team will be necessary and in this case it becomes convenient to set out the functions. The same is true if the survey was the result of a demand by some financing body or institution.

As a third consideration, reflection is invited on an exercise used in the classroom by the authors of this article, in the form of topics to be taken into account by the students:

1) Speak about a situation observed in a given reality, problematizing it within a theme in the area of health (problem-situation) and indicate why it should be done (justification). Talk about possible benefits to the collective, to the scientific community, or to science, and for the subjects of the survey.

2) Take a 'theoretical *corpus*' as a basis, and based on the correlation between the problem-situation and the justification, talk briefly about the concepts that are considered fundamental for the survey.

3) Formulate a question or a group of questions articulated with each other (the

orienting questions) that summarize the problem identified, in a way that does not admit a simplistic response. Continuing, formulate a provisional response (hypothesis) to the questions.

4) Taking into account the 'hypothetical reasoning' that has been constructed, annunciate what you intend to study in a short and direct phrase – that is to say, provide the 'cutout' of the objective.

5) Establish the general objective of the study in a short and direct phrase, annunciating why the study will be carried out, and, based on all this reflection, establish the specific, inter-related objectives. Differentiate what you would like the study to generate from what it is proposed that the study will in fact produce, so that there is not any confusion with the justification nor with activities and objectives of management – since monographs, course conclusion works, dissertations or theses are academic documents.

6) Indicate the techniques of raising, systematization and analysis of information to be used, taking the specific objectives as a starting point.

With this paper, the intention has been to produce contributions to the debate on the construction of research projects, and to provide theoretical-practical inputs for those who face this demand, in particular the postgraduate students who constitute the target population of the article, and who led to its preparation.

The considerations presented here clearly aim to favor and strengthen debate, in the sense of making it even more prolific and, thus, helping prevent the preparation of research projects being a process of pain and suffering for students. The authors hope also to have stimulated the continuing reflection that the activity of science calls for, in provoking new and creative questions on the paths taken, experiences and their reflections, so that they may cultivate the constant 'unquiet' character of the multifaceted and endless quest for knowledge.

The limits, difficulties, obstacles and problems of, and in the activity of, research should, thus, be understood in the context of the dynamic of production of knowledge in a society that is in constant, and rapid, transformation.

Gaston Bachelard (2002, p. 45) summarizes the scientific process succinctly: "Scientific fact is conquered, constructed and verified".

Conquered – overcoming preconception. Constructed – by reason. Verified, in the facts.

And, let us add: Flavored, by emotion. ■

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Received for publication: August, 2016
Final version: February, 2017
Conflict of interests: non-existent
Financial support: non-existent