4. Educational research: planning and methods

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Research is an instrument of knowledge: for those who prepare it and those who benefit from it.

In this contribution, although in a summary, we want to describe the process of planning and the methodological organization of research in the educational field. In the first place, one must ask what research in general means, then reflect it on the reference paradigms that shape the research, make a reference plan (in the form of dimensions and/or phases that each researcher considers in the planning and development of research) and finally outline the styles and types of tools for the detection and construction of research "data".

4.1. General characteristics of a research

The research serves to discover and understand what was previously unknown or to throw a new light on problems or issues. In its various forms, the research leads to deepen themes, verify hypotheses, discover new solutions, characteristics or dimensions, more analytically understand aspects or phenomena, experiment interventions, test points of view and positions, measure and evaluate specific realities. Doing research helps to enrich different fields of knowledge of empirical evidence, contributing in general to the scientific debate.

But what are the general characteristics of a search? A search must be systematic and deliberate, in the sense of having a clear,

structured and intentional organization to gather new information or shed new light on problematic situations; a research must try to give answers or at least aim to deepen the understanding of issues of interest, through the use of valid techniques and reliable, objective or intersubjective tools; a research must, in any case, be able to justify the choice of the methods used, the methods for collecting data and analysis carried out.

We emphasize again the different characteristics in doing research, at least in the sense that we will resume and explain in this text. A research therefore becomes or can be considered a cognitive tool provided that it is a systematic, explicit, intentional, logical investigation.

Research is systematic, because each is organized and follows precise methodological paths and defined data collection strategies to improve the understanding of the issues investigated; it is explicit, because it must make its structure, the choices in theories − which guide the questions or hypotheses − the strategies that regulate the methods of investigation, and the tools that allow to collect data on the research themes,manifest and communicable; it is intentional or deliberate because every research arises from real and authentic problems and aims precisely at understanding these problems, experimenting with practices, justifying innovations or transformations, developing investigations to better intervene in different fields of knowledge; it is logic, because in all its possible forms a research always adopts an argumentative form that can justify the choices made and the methods of analysis and interpretation adopted.

The strength of doing research within any professional and scientific community lies in sharing the theoretical and operational choices and in the dissemination of the achieved results. Making research, in short, is a process of knowledge and enrichment of knowledge as it leads to comparison. It pushes to the choice and the comparison precisely through those principles, strategies and instruments to arrive at better understanding certain fields of knowledge, a better intervention in certain contexts and professional sectors, the reflection on professionalism and allows to contribute within the scientific community, indicating the procedures and methods used in our research.

What differentiates the various researches in the different fields of knowledge are obviously the different realities and phenomena to be investigated and the specificity of the methods that can be employed.

This text aims to introduce a discussion on the method related to the different research methods widely used in the educational field, cutting out the specific sector of empirical research in education. The exemplification of research will serve to analyze the specificities and differences in research styles, methods and tools, highlighting the methodological level, that is the reflection on the many choices and the different strategies that conducting research implies.

Based on the specific knowledge needs of educational facts, several educational research families can be developed:

a) pure (basic) or even theoretical/speculative research, which seeks new knowledge, and develops theories; investigates the general purpose and dimensions of knowledge; it has a strong exploratory and prospective characterization as it is proposed to discuss the existing reference systems to conceive new ones; this research is typical of the philosophy of education and general pedagogy;
b) historical and comparative research, which investigates the genesis and development of ideas and educational actions in the dual perspective of time, typical of the history of education, and of the differences between cultures and geographical, political, social contexts, to embrace the intercultural pedagogy and comparative education;
c) applied or empirical research, which aims to give answers to the problems encountered in the educational professions, to prepare interventions aimed at change; it aims to verify the most effective methods, to face the modalities and the instruments of the educational action, collecting different types of "data" on the field through different methodologies (narrative, descriptive, experimental). The character of empiricism is given by acting directly on the field. In the pedagogical field, researches are developed with approaches that aim at describing educational contexts and environments (descriptive research) or involving intervention (research-action), or forms of experimentation (experimental or technological research) or level/standard surveys (evaluative or operational research); for these types of research,

refer to the disciplinary sectors of teaching and experimental pedagogy.

Empirical research in education therefore aims to collect data and information on the field, in situations, in factual contexts and in everyday reality. On those occasions when we find ourselves wanting to better understand, think about certain problematic situations, reflect on how to change or clarify some aspects of intervention and act on educational aspects, we arrange ourselves with the researcher's attitude to better organize that understanding, that research reasoning, that reflection, that analysis of intervention. If the areas concern education in general, there are different themes of empirical research, which focus on field survey and intervention in professional contexts: the different forms and levels of learning (degree and differences in learning), individual (individual performance), of groups (group performance); of the structure as a whole, as in the case of school (school performance); the educational relationship (educational and interpersonal relationships); the dimensions and contexts in which these processes are developed, as in the case of school organization; the professional resources involved in these processes and their training (teacher competences, strategies, training); the general development of the person and of the personality in different educational environments (attitude, behavior, personal traits).

This text on the research methodology in the field of education arises from the reflections made with many students during some university courses. Presenting the forms and methods of research in the various areas of pedagogical intervention has served both students to orient themselves in the variety of research in the educational field, and the author, to organize the courses and to better discuss the functions, purposes and methods of pedagogical research and reflection. Conducting educational research means dealing with the issues and problems that educational facts place at the center of some professions. And with the verb "to deal with" here, we intend to understand, analyze, intervene, reflect on professional actions. In order to develop a deeper understanding of educational facts, to analyze specific contexts and dynamics, to conduct targeted actions and interventions, to profitably reflect on

behaviors, innovations and experiences on the field, attitudes and approaches typical of cognitive inquiry and research are needed. Research is therefore a way of approaching the profession itself, a professional action.

The educational research is based on the centrality of the educational sciences as pedagogical means, on that knowledge and those cognitive tools that can be obtained, as Dewey pointed out, from what we can define the different "sources" of pedagogy: sociology, psychology, anthropology, philosophy, history, to be limited to the social sciences. This means, to be used for the study of "educational facts", is pedagogical knowledge, necessary to deal with the dimensions and characteristics of the individual and the environment in which he lives and finds himself acting. The cognitive and methodological expertise of those who do research in the field of education, allows them to work well in the various professions and fields of intervention, to understand and be able to intervene in more targeted and controlled forms and modalities through cognitive research, experimentation, monitoring and field surveys.

If methods that will be illustrated under an operational profile are to be considered as tools for professional action and used in real contexts, in contingent situations, it will be necessary to think about how the chosen methods are used and how to monitor their use. The methodology is precisely the reflective discourse on how to choose and handle the methods, on how to increase and cultivate a research attitude, on how to operate with awareness and reasoning. While the method plan refers to the knowledge of the main investigative tools, the methodology plan concerns the appropriate reflection on their use and awareness in the action that develops.

It is good to clarify from the outset, that doing research in a specific area, in a scientific area, in a context of practices, is affected by the degree of structure and knowledge in that field, studies and research developed in different historical periods and different cultures, and is conditioned by the scientific paradigm and by cultural hegemonies (strength and social consensus) present at a given historical moment. That is why taking care of doing research in the educational field implies the reference to the epistemological status that pedagogy and the educational sciences have reached, to

the debates on their theoretical purpose, practices and fields of interest.

However, it is good to limit the areas and the aim of the volume, to their objectives and organization. As Dewey (1929) had well seen, pedagogy cannot and will never connote itself with "scientific" dimensions in the same way as other fields of knowledge, such as for mathematics or physics. The insurmountable difference between these fields of knowledge consists in the necessary and explicit practical nature that education involves. Many attentions and educational questions concern the ways and potentialities that human beings have in learning, and how to adapt environments, didactic approaches, relationships to the potential of individuals.

Educational facts basically concern human beings and their development, evolution, and formation. At most, taking up the reflections of Dewey, one could speak of practical science and, therefore, talk about pedagogical science that leans, for its cognitive and operational action, on other sciences that can help support the analysis and study of educational facts. According to Dewey, these are the sciences of education, such as psychology, sociology, anthropology, linguistics, cognitive science, neuroscience and many others can make theoretical and research instruments to understand and intervene in educational facts.

The complexity of educational knowledge has to do with evolutionary theories and empirical practices. This does not mean that we cannot do research in the educational field, far from it, but we must not forget the complexity of educational facts. While isolating specific aspects to be investigated, it becomes essential to acquire tools and methods, respecting the specificity of contexts and areas and trying to explore, analyse and understand them without interrupting or modifying their natural evolution. This substantial difference means that the methods of investigation and research in the educational field assume different degrees of "intrusiveness" and "manipulation" depending on the type of goal and specificity.

The degree of "scientificity" of educational research therefore depends on the meaning given to the scientific method. Every researcher and scholar knows well that the motivations that drive the research interest arise from professional action, from the need to understand and intervene on their own and others' experiences, but

to develop cognitive investigations, we are forced to isolate concepts, identify and select certain aspects to be investigated, specify or exclude the elements to be considered, in short, to choose and declare dimensions of analysis or intervention. All this makes the field of action of educational research of a more fragile constitution, but of primary interest for those who deal with educational professions, which will take it into account and remember it.

In this perspective, to illustrate theories, research styles and tools, useful for the development and reflection of empirical research in the field of education, the volume refers to many manuals for research and methods in education offered by international literature. Their aim and breadth are a useful reference for all in-depth analysis and reflection on scientific paradigms.

To present and discuss the different dimensions that lead to empirical research in the field of education, the volume plan provides a structure that accompanies the topic of methods to a methodological reflection. The two sides, the operational one (for the organization of the plan and style of research), and the reflective one (aimed at increasing the degree of awareness and reflection of the professional "educator") will be intertwined in the course of the discussion and will refer to a series of in-depth studies and on-line examples, to carry out independent and group analysis and reflection activities.

4.2. Multiparadigmatic approach in educational research

The multiparadigmatic approach is well connected to the educational field, and therefore to the phenomena that pertain to pedagogical reflection. In the schematization offered by Cohen, Manion & Morrison (2011, see Fig. 4.1) we can identify three large paradigmatic blocks that summarise three different conceptual structures for conducting research in the educational field:

1) the quantitative one is a vision that tends to objectify reality and methods of investigation; it develops through surveys that establish and test hypotheses with an experimental approach and therefore lead to planning experiments aimed at controlling the variables involved and measuring the effects of any interventions (treatments). This conceptual structure refers to an idea of science

and of a normative, deterministic, positivistic scientific approach that wants to "explain" phenomena through quantitative techniques and analysis by means of variables;

2) the qualitative one is a vision that aims at seeing reality from the subjective (internal) point of view of those who experience it, with the eyes of those who live the reality under investigation. Hence the methods of investigation are more oriented to the analysis of relationships and contexts (interactionist, humanistic, phenomenological, existential), intervention (action-research), located on the field (naturalistic, ethnographic), and the tools of analysis are more observational. This conceptual structure refers to an idea of science and of an interpretative scientific approach, which wants to "understand" phenomena by studying the different meanings that people provide (constructivism), analyzing precisely the differences between people and groups (relativism), through qualitative techniques and case analysis;
3) the critical-participatory theory explains an inevitable and necessary interdependence between the researcher and the object studied, between the investigators and the investigated. Both in the choice of the themes, in the will to intervene on the studied realities, and in the participation in the context and reality studied, a natural trans-action between researcher and research object is affirmed.

The need to study and participate in socio-educational issues arises precisely from the need to deal with those contexts that require more forms of socio-educational intervention. Thus, the problems of cultural and social disadvantage are highlighted, the forms of oppression, discomfort, underdevelopment, which can affect individuals or social groups at a local and global level. The participatory research therefore aims to criticize the ideologies, the organizational-institutional forms that determine relationships of power, to improve the individual conditions but also, and perhaps above all, of groups, communities and societies. The optic of intervention and study at action is prevalent, aimed at criticizing the contexts that generate imbalances and at developing participatory forms of intervention and research, in the name of the ideals of equity and the contrast of inequalities.

The scheme with the three research paradigms (and the discourse is particularly valid for the educational field) closes with a precise indication of synthesis: the mixed methods answer perhaps more usefully to the multifactorial nature and complexity of the educational facts. Above all, in the pedagogical area, in social psychology and more generally in the social sciences, more and more frequently mixed research models are adopted. The aim is often to integrate exploratory and descriptive phases of a more naturalistic nature and which refer to an interpretative approach, with phases of possible comparative evaluation, longitudinal (over time) or the search for standards (normative or criteria), experimental and positivist.

The two positions, interpretive and positivist antagonists of the ontological and epistemological point of view, find in the mixed methodology a reason of cohabitation, aimed at understanding and analyzing the different facets and complexities of educational facts. The two positions can be considered two visions and points of view, a double glance: internal to the processes, which takes into consideration the interaction between the researcher and the sought; external or objective/normative processes that can be used in certain phases of pedagogical research; that is, when we can and want to create distance from the object of study, when we want to relate it to some pre-established unit of measure, when we can or we want to abstract from individual variables.

Mixed methods seem to be the optimal reference model for developing researches of a natural complexity such as those involving educational facts in pedagogical contexts. In fact, they can combine phases of possible "positivist" investigation, with observations, actions and interventions aimed at change, which instead require a greater "interpretive" and "critical" approach. When the research aims to intervene on the reality that studies, at the same time, it is the interaction (and the transactions) to be studied and we resort to forms and approaches qualitative increases. When, on the other hand, the research objective can be that of detecting from the outside, assuming a possible non-interference with the object of study, it is precisely the distance between the researcher and the object of study that makes it possible to resort to more objective forms and approaches.

In the mixed method then "the researcher collects and analyzes data, integrates discoveries and draws inferences using both quantitative and qualitative approaches and methods in a single search or in a multi-research program" (Tashakkori, A., Creswell, J.W., 2007, p. 293). The researcher who opts for a mixed method is placed on multiple research plans, tries to solve problems that refer to a contextual complexity (see Tashakkori, A., Teddlie, C., 2009, p. 294) and exploits the potential of two methods, qualitative and quantitative. The former uses techniques for describing situations and/or narrating events, the latter using measuring techniques to collect data. Thus, combining informal and statistical approaches, mixed methods point to a methodological pluralism that distinguishes pedagogical research (Baldacci, 2012, p.99).

Each research is called to develop three levels of choice, as Guba and Lincoln (1994) have brilliantly synthesized: ontological (why researching), epistemological (what to look for), methodological (how to search); on the other hand it discusses the different paradigms in the research, in the light of the updates proposed by Heron and Reason (1997).

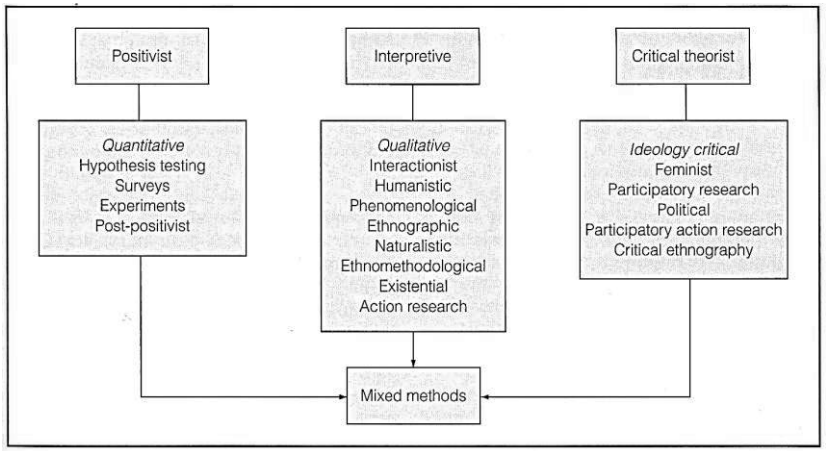

Fig. 4.1. Positivist, interpretative and critical paradigms in educational research (Source: Cohen, Manion & Morrison, 2011, p. 47).

4.3. Research planning: from questions/hypotheses to research style

The various reflective frames outlined so far, help to organically develop the design phase of doing research in the educational field.

The choices that a researcher has to make are listed and presented in the scheme shown in the chapter Appendix. In the composition of the general outline of the various steps to be followed in doing research, we have obviously been forced to generalize with respect to the specificity of the different research styles, which will be detailed in the following chapter, just to provide an overview of the theoretical-operative phases expected, as many industry manuals propose at international level. The scheme (see diagram in the Appendix, translated into three languages: Steps/phases of research in education) is an adaptation of the one presented in Cohen, Manion, Morrison (2011).

The research design scheme follows and develops some simple questions that should accompany the different phases:

a) what is the ideation and the epistemological orientation at the base of the research?
b) how to make research possible and with which methodological style?
c) how to select recipients and analyze data?
d) how to present and communicate the results?

Central is the phase of operationalization (point 6 of the scheme in the Appendix), which requires to clarify the questions to which the research wants to respond or the hypothesis that it intends to verify. The different formulation explicitly refers to the type of general approach, to the operative style that the research chooses to follow (point 8 of the scheme). Often the questions refer to more exploratory and descriptive approaches, while the hypotheses to more experimental research models and to study relationships between variables.

Operationalization is therefore a very important step, as it forces the researcher to move from theory to research design. It leads to the translation of theories into operational propositions of empirical controllability, that is, from theoretical propositions to specific

hypotheses. Corbetta (1999, p. 86) well defines the hypothesis as a "proposition that implies a relation between two or more concepts, which is placed on a lower level of abstraction and generality with respect to the theory and which allows a translation of the theory into empirically controllable terms". The difference between hypotheses and research questions is evident. In the case of research hypotheses, possible relationships between variables or phenomena are envisaged; in the case of research questions, questions often are general or open to direct research.

As regards the style of research, six approaches or research styles can be identified: ethnographic, case analysis, action research, survey, experiment, and measurement. By research style we mean the organizational model, the overall system that characterizes a research. Obviously, the complexity of a research or the different phases that compose it can integrate the different styles and propose mixed research plans based on the complexity and intention of research. We present below the different approaches separately, alongside a possible continuum of qualitative/quantitative research paradigm as distinct in the epistemological and methodological coordinates followed, and, consequently, in the use of different tools for data collection, or with specific forms and modalities. For an accurate presentation and in-depth analysis of the different research styles in the educational field, see Benvenuto (2015).

- Ethnographic study: (reconstruction of paths, conditions, personal stories, to understand the motivations and the formation of certain positions or meanings, description and analysis in depth of specific situations with specific attention to the perception and points of view of the involved subjects).
- Case study: when we want to analyze and interpret a specific situation, individual, group, roles, organizations, communities. To know in an analytical and more detailed way a situation, a professional reality, a specific context such as a school or a class.
- Research-action: when one wants to follow and understand a certain educational process, to know how to intervene. The purpose is to identify and describe the processes and lines of action to solve or intervene didactically, operationally and practically in specific contexts.

- Survey research: survey of an observational/descriptive or social sample, to investigate the existence and intensity of the relationships between variables, there is no manipulation (treatment) of the independent variables, rather the empirical survey of actions or certain dimensions reached at social level (from groups or individuals) in terms of opinions, scores, results, conditions, rankings, often in relation to certain background variables.
- Experiment: when we can identify cause-effect relationships, and check context variables and threats to external/internal validity. Research by experiment aims to test hypotheses and aims to explain, to provide causal explanations, to understand determinants.
- Measurement research: studying factor relationships, performing tests and measurements, defining standards and establishing standards. The purpose here is to record in reliable forms certain cognitive, affective, process, performance, and service variables to calculate the variability and establish average levels.

4.4. Techniques and tools for data collection

The choice and use of tools for detection often arises as one of the first steps in the design and implementation of research. But following the operative scheme, previously presented in detail, we considered the "definition of the research tools" as the next step for the choices of an epistemological and methodological nature, necessary to identify the style of research and to make the overall design work. This underlines that the identification of the type of instruments to be used in research is the natural consequence of the choices made in terms of aims and styles of research.

When selecting a specific technique and detection tool, the specific phase in which it is used should also be considered. Within a research, it is then possible to articulate several phases and then integrate different styles and methodologies, as in the case of mixed approaches. The styles most aimed at the understanding and interpretation of facts and educational contexts can provide tools for observation and narration of experiences, and among the different forms of observation one can choose the most appropriate one for the

reference sample or analysis group, then taking into consideration the functionality in relation to the available resources. Choosing a type of participant observation, which is part of the interpretative paradigm, the choice will probably derive from the need to develop research, which helps to read from the inside on the field some dimensions and reality, foreseeing a prolonged and intentional involvement of the researcher (teacher). Think of ethnographic surveys or some case studies, and especially research-action, that are research styles that make involvement and participation a qualifying and determining point of knowledge and above all carry out research in specific areas and socio-educational contexts.

On the other hand, in the case of research styles that aim at describing, reconstructing and analyzing specific contexts or social groups, it might be essential to combine techniques and tools for more comparative surveying, with others offering a perspective of dialogic and introspective detection. Here, the choice could be oriented to tools such as the questionnaire with structured questions, to be associated with individual interview forms with pre-arranged or freer schedules, or group as in the case of focus groups, or towards more narrative forms (diaries, life stories).

Conversely, when the styles are oriented towards more measurable and experimental purposes, the researcher is more conditioned in the choice of instruments with a high degree of structuring, such as objective tests (closed answer), questionnaires with closed questions and scaling techniques, fully structured observation, through pre-defined formats such as check-lists, or completely structured interview types.

The researcher while designing and setting up a research, an investigation or a cognitive study, decides the tools for data collection depending on his problem and need of knowledge, and not vice versa. It would be preferable to articulate the discourse following the prevailing purposes in the use of tools, rather than individually presenting the types of instruments. Besides, the prevailing goals in data collection are relatively few: observing, asking, telling and measuring (see. Fig. 4.2; cfr. Benvenuto, 2015; Trinchero, 2002).

The first and most direct forms to understand social and educational phenomena are observing and asking questions.

Observing and questioning are by far, the most immediate instruments, though they require a lot of attention in the collection and coding phase as the result of an action conducted by subjects and are therefore subject to possible distortions and interpretations. Hence, we are in some cases talking about detection phases of a more qualitative nature, as in participant observation, in others of forms of observation that try to build uniform criteria to allow comparative surveys, such as for check-lists or rating-scales.

In the case of asking questions, you can have more dialogic and open forms of interviews, which aim at a low degree of structuring, to be used both in the individual form (face to face) and collective, as in the case of focus groups, and more objective forms, as in self-filled questionnaires in which there are more structured and formulated written questions. The forms of qualitative interview are presented in the paragraph "to interview", those more structured instead in the paragraph "to measure", precisely to underline their different form and function.

This substantial difference between qualitative interviews and more structured interviews still has a common problem: take into account that the same question can be formulated in various ways and above all, be subject to different interpretations by respondents. Lazarsfeld (1935) in his famous article "The Art of Asking Why", was one of the first to question about the different principles to be considered in the formulation of the questions. By addressing a social research field interested in surveys and market analysis, which aim to detect the point of view of individuals and groups, his purpose was to improve questionnaires used for surveys and interview techniques. His reflection starts from the observation that "a question is never the same if formulated to different people", as they can interpret it.

> "We take a simple question such as why a person bought a certain brand of coffee. A respondent can answer because he likes the taste, and another because a neighbor told him about that brand. The two respondents interpret our question of 'why' in two different ways. One thinks that we are mainly interested in the characteristics of coffee, the other that we are interested in the possible external

influences on their choice. The answers, therefore, are not comparable".[1]

Alongside the analysis of the main techniques and tools for direct observation and the interview, we wanted to investigate the growing and functional use in surveys and research in the field of technologies and tools for audio/video-recording and multimedia. In addition to the use of video-recordings and audio-recordings for the analysis of contexts, interactions, communications and all those central process dimensions for the understanding and interpretation of psycho-educational realities, more and more researchers in the educational field, in research ethnographic and anthropological, are using films, photographs, figures, drawings, artistic objects, moving images, television broadcasts, maps, illustrations, graphic representations, artifacts and so on. The use of audio-visual and data-visual techniques helps to integrate and triangulate the data collected with other techniques.

Besides observing and asking, the typical instruments of the most narrative approaches are presented, offering the possibility of producing texts of a discursive and reconstructive nature, subjectively relevant to describe one's point of view (autobiographies), to narrate experiences or episodes (stories of life), annotate elements along a chronological axis (on board diaries), reflect on situations, determinant aspects or problems of different order (description of observational relationships, narrative analyzes, ethnographic notes, reflective reflections of focus groups), but also document the educational action by integrating paper forms and multimedia texts (blog and digital storytelling).

When the cognitive purpose is instead aimed at quantification, surveying on large or representative groups of subjects, comparing reality or confirming hypotheses, we are directed towards the instrumentation that allows us to collect quantitative data. These are techniques and tools to measure that point to a more structured data

[1] LAZARSFELD, P. (1935). The Art of Asking WHY in Marketing Research: Three Principles Underlying the Formulation of Questionnaires. *National Marketing Review,* 1 (1935): 26-38, republished in Lazarsfeld, P. (1972). *Qualitative Analysis*, p. 27. Boston: Allyn & Bacon.

collection such as self-compiled questionnaires, which propose the same questions in writing to avoid distortions that even the most trained interviewer could not avoid, but above all the technique of testing and evaluation scales are used. The construction of reliable stimuli that allow a valid measurement of psychological constructs (see aptitude tests, personalities, projectives, sociometrics etc. with the related psychometric problems), constructs related to school learning (see test of profit, and structured/semi-tests) structured for skill with the related assessment problems), tend to more controlled, if not objective, forms of detection. Much bibliography now exists on the techniques for the construction of questionnaires and testing, in the various areas of interest and related to psychological, sociological and pedagogical variables. Consider that for the evaluation of scholastic learning in the international field, the first assessment publications date back to the beginning of the last century, and, in Italy, in the early 50s with the pioneering study of Visalberghi (1955).

Observing	• *Systematic Observation* • *Observation grids, - Check-lists* • *Evaluation scales (rating-scales)* • *Category systems* • *Observation not systematic or experiential* • *Diaries (logbook)* • *Audio-video recordings* • *Technique of critical anecdotal episodes (anectodal records)*
Asking (query)	• *Self-compiled questionnaire* • *Telephone questionnaire or through other media* • *Face to face interview*
Telling	• *Autobiographies* • *Life stories* • *Board logs* • *Description of observational relationships* • *Narrative analysis* • *Ethnographic notes* • *Reflective accounts of focus groups* • *Blog and digital storytelling*
Measuring	• *Testing* • *The self-completed questionnaire* • *The scaling technique*

Fig. 4.2. Techniques and tools according to the purpose of data collection.

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Appendix: Steps/phases of research in education

STEP 1

L'orientamento epistemologico della ricerca
Epistemological research's paradigms
Эпистемологическая направленность исследований

	SCHEMA DELLE FASI DELLA RICERCA IN EDUCAZIONE	STEPS/PHASES OF RESEARCH IN EDUCATION	ЭТАПЫ ПРОВЕДЕНИЯ НАУЧНО-ИССЛЕДОВАТЕЛЬСКОЙ РАБОТЫ В ОБЛАСТИ ОБРАЗОВАНИЯ
1.	*Definire in modo chiaro il problema (il bisogno) da cui nasce la ricerca.*	*Statement of the problem/ what gave rise to the research*	*Определение проблемы (что послужило поводом для начала исследования)*
2.	*Riflettere sulla natura del fenomeno da investigare per chiarirne le dimensioni ontologiche ed epistemologiche*	*Nature of the phenomena to be investigated*	*Природа исследуемого феномена для выяснения его онто – и - эпистемологического характера*
3.	*Possedere una buona letteratura sul tema per garantire la validità di costrutto e di contenuto*	*Grounding in literature*	*Поиск информации по данному вопросу в литературе чтобы была гарантия о надёжности содержания и конструкта*
4.	*Dichiarare i limiti (condizioni) della ricerca (ad esempio di disponibilità, tempo, persone, politiche)*	*Constraints on the research (e.g. access, time, people, politics)*	*Определение рамок исследования (доступность, время, люди, политика)*
5.	*Specificare le finalità e gli scopi della ricerca*	*Aims and purposes*	*Цели и задачи*
6.	*Operazionalizzare le finalità e scopi della ricerca: generare le domande o ipotesi di ricerca*	*Operationalizing research aims and purposes: research questions*	*Практическая реализация целей и задач для получения основной гипотезы исследования*
7.	*Identificare i risultati attesi dalla ricerca*	*Identify the results expected from the research*	*Определение ожидаемых результатов исследования*

STEP 2

Progettazione della ricerca e metodologia
Research design and methodology
Планирование исследования и методология

SCHEMA DELLE FASI DELLA RICERCA IN EDUCAZIONE		STEPS/PHASES OF RESEARCH IN EDUCATION	ЭТАПЫ ПРОВЕДЕНИЯ НАУЧНО-ИССЛЕДОВАТЕЛЬСКОЙ РАБОТЫ В ОБЛАСТИ ОБРАЗОВАНИЯ
8.	*Definire la metodologia/tipo di ricerca (approcci e stili di ricerca: etnografica, analisi di caso, ricerca-azione, survey, esperimento, misurativa etc.)*	*Methodology of research (approaches and styles)*	*Методология научно-исследовательской работы (подходы и стили, этнографический, анализ случая,анализ деятельности, измерения)*
9.	*Articolare e ordinare le priorità della ricerca, descrivendo il disegno di ricerca (in generale)*	*Priorities for the research and approaching the research design*	*Приоритеты исследования и выбор подхода для его проектирования*
10.	*Esplicitare le problematiche etiche e le questioni proprietarie dei risultati e dei dati (ad esempio: il consenso informato; ricerche dichiarate o sotto tutela; anonimato e segretezza; non-tracciabilità; non-dannosità; diritti preservati/lesi; validità degli intervistati; soggetti della ricerca; responsabilità sociale; onestà e inganno)*	*Ethical issues and ownership of the research*	*Вопросы этики и авторского права в рамках исследовательской работы, кем владетель результатов и данных, (соглащение, анонимность, отсутствие повреждения, надёжность интервю, участников в исследовании, социальная ответственность, доверие и обманъ)*
11.	*Dichiarare i principi e le posizioni politiche della ricerca (chi è/sono i ricercatori; appartenenza istituzionale; vantaggi di potere e di interessi; ricerca interna/esterna)*	*Politics of the research*	*Политическая важность исследования (кем исследователь, из какого источника, доходы и преимущества)*

12.	*Identificare il pubblico di destinazione della ricerca*	*Audiences of the research*	*Целевая аудитория и цель исследования*
13.	*Definire gli strumenti della ricerca (ad esempio questionari; interviste; osservazione; tests; note sul campo; resoconti; documenti; costrutti personali; gioco di ruolo)*	*Instrumentation*	*Инструментарий (опросники, интервью, наблюдение, тесты, отчеты, документы, ролевая игра, личностные конструкты)*
14.	*Disegnare/scegliere il piano di campionamento (ampiezza/disponibilità/ rappresentatività; tipo; probabilistico: casuale, sistematico, stratificato, a grappolo, a stadi, multi-fase; non probabilistico: di convenienza/accidentale, per quote, di scopo; dimensionale, a catena)*	*Sampling*	*Выборочный контроль: отбор выборочного плана (множество, состав, доступность, репрезентативность;типология: вероятностная, случайная, поэтапная, невероятная, целевая, цепная и.т.д.)*
15.	*Effettuare una prova sul campo/un pilotaggio*	*Piloting*	*Проведение пилотажного полевого эксперимента*
16.	*Articolare il disegno di ricerca (in dettaglio) Pianificare i tempi e le sequenze/fasi (cosa succederà, quando e con chi)*	*Time frames and sequence*	*Детализация плана научно-исследовательской работы. Определение временных границ и последовательности действий*
17.	*Prevedere il piano delle risorse richieste*	*Resources requests*	*Определение требующихся ресурсов*
18.	*Controllare l'attendibilità e validità*	*Reliability and validity*	*Контроль надёжности и валидности*

STEP 3

Analisi dati e diffusione dei risultati della ricerca Data analysis and dissemination of research results Анализ данных и расспространение полученных результатов			
SCHEMA DELLE FASI DELLA RICERCA IN EDUCAZIONE		STEPS/PHASES OF RESEARCH IN EDUCATION	ЭТАПЫ ПРОВЕДЕНИЯ НАУЧНО-ИССЛЕДОВАТЕЛЬСКОЙ РАБОТЫ В ОБЛАСТИ ОБРАЗОВАНИЯ
19.	*Predisporre un piano di analisi dei dati (quantitativi e qualitativi)*	*Data analysis,*	*Подготовка плана для количественного и качественного анализа данных*
20.	*Verifica, validazione e interpretazione dei dati*	*Verifying/ validating data and their interpretation*	*Проверка достоверности и интерпретация данных*
21.	*Preparare la documentazione e rapporti di ricerca per la diffusione dei risultati*	*Reporting/writing up the research*	*Подготовка документации и написание отчета по научно-исследовательской работе и для их распространения*

Fig. 4.3. Techniques and tools according to the purpose of data collection. Fonte: Traduzione e adattamento da L. Cohen, L. Manion, & K. Morrison, *Research Methods in Education*, London & New York: Routledge, 2011 (7th ed., p. 118).