

SCIENCE, SOCIETY AND NEW TECHNOLOGIES SERIES

EDUCATION SET



Volume 12

Research Methodology in Education and Training

Postures, Practices and Forms

**Carole Daverne-Bailly
Richard Wittorski**

ISTE

WILEY

Table of Contents

[Cover](#)

[Title Page](#)

[Copyright](#)

[Introduction: Research Methodology in the Education and Training Sciences: Positions, Practices and Forms](#)

[1 Positions: Some Specificities of a Research Approach Compared to a Professional Approach](#)

[1.1. A difference in position between that of the social or professional actor and that of the researcher](#)

[1.2. The challenge of research is to move from a social/professional question to a research question](#)

[1.3. The challenge of research is also to focus on common-sense concepts](#)

[1.4. The issue of the epistemological choices made by the researcher and the implications](#)

[2 Practices: Conducting a Research Project and Data Security Issues](#)

[2.1. Introduction: the research context](#)

[2.2. Scientific approach and methods in the social sciences](#)

[2.3. From research topic to problem statement](#)

[2.4. Design of the survey protocol](#)

[2.5. The construction of data collection instruments](#)

[2.6. Data collection](#)

[2.7. Data processing](#)

[2.8. Data analysis](#)

[2.9. Dissemination and publication of results](#)

[3 Forms: Research Cultures, Diversity of Forms and Interdisciplinary Issues](#)

[3.1. Recognizing different research “cultures”](#)

[3.2. External research, engaged research, collaborative research, action research and related issues](#)

[3.3. Mono-, pluri-, inter- and transdisciplinary research and related issues](#)

[3.4. Communication and valorization of research \(its outcomes and methodological steps\)](#)

[3.5. Pursuing a doctorate](#)

[3.6. Careers in research and higher education](#)

[Conclusion](#)

[APPENDICES](#)

[Appendix 1: Questionnaire](#)

[Appendix 2: Interview Guide](#)

[Appendix 3: Quiz](#)

[References](#)

[Index](#)

[Wiley End User License Agreement](#)

List of Tables

Chapter 1

[Table 1.1. Day-to-day activities, professional activities and research activitie...](#)

Chapter 2

[Table 2.1. Data collected in each teaching establishment](#)

[Table 2.2. Ordinal qualitative questions](#)

[Table 2.3. Statistical table of counts, frequencies and percentages](#)

[Table 2.4. Statistical table of counts and cumulative counts](#)

[Table 2.5. Representation of the quartiles](#)

[Table 2.6. Statistical table used to calculate the mean, variance and standard d...](#)

[Table 2.7. Statistical table used to construct a histogram](#)

[Table 2.8. Statistical table used to calculate the mean, variance and standard d...](#)

[Table 2.9. Table of counts observed](#)

[Table 2.10. Table of percentages according to the independent variable](#)

[Table 2.11. Table of theatrical counts](#)

[Table 2.12. Table of differences between the observed counts and the theoretical...](#)

[Table 2.13. Score distribution](#)

[Table 2.14. Table used to calculate the linear correlation coefficient](#)

[Table 2.15. Margins of error](#)

[Table 2.16. Excerpt from an analysis grid](#)

List of Illustrations

Chapter 2

[Figure 2.1. Bar chart of high school influence on course choices. For a color ve...](#)

[Figure 2.2. Pie chart of high school influence on course choices. For a color ve...](#)

[Figure 2.3. Bar chart of high school students' ages. For a color version of this...](#)

[Figure 2.4. Histogram. For a color version of this figure, see \[www.iste.co.uk/da...\]\(http://www.iste.co.uk/da...\)](#)

[Figure 2.5. Scatter plot \(nonlinear correlation\). For a color version of this fi...](#)

[Figure 2.6. Scatter plot \(linear correlation\). For a color version of this figur...](#)

[Figure 2.7. Scatter plot \(positive relationship\). For a color version of this fi...](#)

[Figure 2.8. Scatter plot \(negative relationship\). For a color version of this fi...](#)

Education Set

coordinated by

Angela Barthes and Anne-Laure Le Guern

Volume 12

Research Methodology in Education and Training

Postures, Practices and Forms

Carole Daverne-Bailly

Richard Wittorski

ISTE

WILEY

First published 2022 in Great Britain and the United States by ISTE Ltd and John Wiley & Sons, Inc.

Apart from any fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the publishers, or in the case of reprographic reproduction in accordance with the terms and licenses issued by the CLA. Enquiries concerning reproduction outside these terms should be sent to the publishers at the undermentioned address:

ISTE Ltd

27-37 St George's Road

London SW19 4EU

UK

www.iste.co.uk

John Wiley & Sons, Inc.

111 River Street

Hoboken, NJ 07030

USA

www.wiley.com

© ISTE Ltd 2022

The rights of Carole Daverne-Bailly and Richard Wittorski to be identified as the authors of this work have been asserted by them in accordance with the Copyright, Designs and Patents Act 1988.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s), contributor(s) or editor(s) and do not necessarily reflect the views of ISTE Group.

Library of Congress Control Number: 2022936895

British Library Cataloguing-in-Publication Data

A CIP record for this book is available from the British Library

ISBN 978-1-78630-747-7

Introduction

Research Methodology in the Education and Training Sciences: Positions, Practices and Forms

This book adopts a distinctly methodological approach and is aimed at people (students who have completed initial training as well as professionals returning to studies) who are seeking to better understand how to engage in a research project in the education and training sciences. A concrete example of a research project illustrates each of the steps to be taken, thus leading to a firm understanding of each.

This book consists of three main chapters.

Chapter 1 focuses on ***positions***, inviting students to take a different view of the world around them, in other words, not to view their experiences, observations and investigations as reality – this is *their* reality and is inevitably limited. This chapter focuses on the idea that becoming engaged in a research process presupposes the adoption of a position other than that of a social or professional actor engaged in an activity that transforms the reality around them. This change in position translates into a number of measures that concern the way in which a professional or social question is converted into a research question, as well as the use of social vocabulary in research.

Chapter 2 concerns ***practices***, that is, the way in which a research project is carried out. This includes the definition of a research question based on observations, theoretical

exploration and problematization, production and analysis of empirical information, and reporting findings. Particular attention is paid to safeguarding data and anonymity in relation to the General Data Protection Regulation (GDPR).

Chapter 3 focuses on the diversity of research ***forms***: both research cultures specific to disciplinary fields and approaches such as action research, collaborative research, training research, as well as options to create pluri-, multi-, inter- or transdisciplinarity. This chapter also deals with forms of research valorization and communication, pursuing a doctoral thesis and embarking on a career in research or higher education.

1

Positions: Some Specificities of a Research Approach Compared to a Professional Approach

Before getting to the heart of a research approach by working through a complete example of a research process in [Chapter 2](#), this first chapter addresses several specific aspects of research processes, especially in terms of demonstrating the extent to which being involved in a research project implies putting aside the usual way of thinking, and thus assuming a certain position. The following particularities are commonly noted: the difference between the position of a social or professional actor and the position of a researcher; the process of converting a social or professional question into a research question; the stepping aside in the act of research from the intrinsic social categories; the question of the researcher's epistemological choices, that is, the way in which they conceive the reality which surrounds them and the way in which they create knowledge about that topic.

1.1. A difference in position between that of the social or professional actor and that of the researcher

For students termed “returnees”, in other words, those who can be defined as taking a break from their professional activities (voluntarily or not) to return to university, one of the important issues that arises relates to the act of successfully making the distinction between the professional approach or position – to which they have become accustomed in their work – and the research approach or position that is required for them to be able to write their master's dissertation, for instance.

The research approach or position is not “natural”; it follows specific rules whose end purpose is not the “transformation of reality” (the usual purpose of a professional act) but the understanding of reality. The challenge, therefore, is to make the professional position secondary, for a time, to the researcher position that is to be acquired through the writing of the dissertation.

The major difference between the social actor/professional position and the research position is the fact that a social or professional actor is

often called upon to conduct (in the sense of carry out) actions to transform the reality that surrounds them, whereas the researcher conducts comprehensive analysis of situations or actions. Let us take an example:

- An emergency physician treats patients who come to the emergency department. Their professional life involves making swift diagnoses in order to decide as quickly as possible on treatments and/or surgical procedures so as to restore patient health. This is an interesting example because we note that the activity of an emergency physician requires a comprehension phase, the diagnosis, but this comprehension is a step that feeds into the more important step that comes next: administering the correct treatment or performing the correct surgical procedure. In other words, the comprehension step is finalized by the treatment step, which is the most important step in restoring a balanced biological state. This second step involves implementing a procedure/transforming the patient's biological/physiological condition. We could say that, for the physician, this is where the main professional challenge lies, even though we know the ability to make a correct diagnosis is critical.

- If the same emergency physician wanted to take a career break to work towards a master's degree, they could, for example, write a dissertation on the acquisition of professional knowledge by emergency physicians, starting from the premise that they have the intuition to learn through the professional situations they experience, without really being aware of this or understanding it. The following questions come to mind: How do doctors learn in the course of their practice and what do they learn? In other words, how is what we often call professional experience built up? To put it another way, is exercising a professional activity nothing but the perpetual reproduction throughout one's professional life of knowledge acquired from initial training, or does the activity change over time, testifying to the acquisition of new knowledge? The purpose of these questions here is to understand the situation being studied, not to transform it. For the emergency physician who has temporarily become a student, it is not about treating a patient to restore their biological state, but understanding how a physician treating a patient learns new things and thus enriches their experience.

This example shows that the same physician – at times in a professional position intervening in the situations they experience, at other times in the position of a researcher observing professional situations with which they are familiar – will not mobilize the same resources to carry out their activities as a physician in the first case (the mobilization of medical knowledge and specific working practices) as to carry out their activities as a researcher in the second case (the mobilization of knowledge

resulting from available research on the connections between professional activity and the production of new knowledge acquisition). Furthermore, we note a different relationship of involvement or exteriority in relation to the situation: the physician is fully involved in the situation, experiencing it first hand in the emergency room; the researcher is experiencing it second hand, analyzing the situation they chose for research.

This is reflected, in particular, by a difference in the “framework” (see [Table 1.1](#)) mobilized to support the action/situation. Day-to-day, as in a professional situation, we sometimes do what we have to do seemingly without thinking about it. However, what we actually do is accompany this action with the process of mentally forming representations or images which have, in fact, been created during the course of our experience to guide our activities. Several authors (Ochanine 1978; Falzon 1993) refer to these as “functional representations” in that they orient our actions. In research activities, the intention is first to study and to better understand a situation. To do this, we mobilize “theoretical representations” (what is often called the theoretical framework, see [Chapter 2](#)), which aim to “read or understand” the part of reality that is analyzed.

Table 1.1. *Day-to-day activities, professional activities and research activities*

	Day-to-day activities	Professional activities	Research activities
Construction of a framework for reading, acting on or thinking about day-to-day or professional activities	Mobilization of a framework (functional representations) enabling action and accompanying action  This has an organizational function for the activities	Mobilization of a framework (functional representations) enabling action and accompanying action  This has an organizational function for the activities	Construction of a theoretical framework before or in the process of collecting/analyzing information  This has a reading/analysis function for the activities
Status and position of the individual in relation to day-to-day or professional activity	Ongoing day-to-day activity The social actor is the author of their ongoing activities	Ongoing professional activity The professional is the author of their professional activity	Situation under observation The researcher strives to be outside the situation under observation

1.2. The challenge of research is to move from a social/professional question to a research question

Whether it is a student pursuing their studies, with no prior professional experience, or an experienced professional taking a career break to resume studies, one of the main challenges of the research process is to successfully convert (without regret) a social or professional question into a research question. This obviously requires a significant amount of reworking which foreshadows the “stepping aside” subsequently achieved through research. Research, particularly when it concerns

social practices, has the recurrent challenge of converting professional/social questions into research questions.

Let us look at an example of this shift: how can we develop knowledge acquisition in a work situation? Here is a question that clearly relates to a social issue because it leads to answers that will highlight “ways to go about it”; in other words, concrete ways of structuring professional situations so that they stimulate new knowledge acquisition. The professional implications are obvious. For this question to become a research question, that is, based on activities of comprehension, it should be reformulated, for example: What are the levers and obstacles to knowledge acquisition in a work situation? This question calls for the study of work situations in order to identify the factors that promote the acquisition of new knowledge or, on the contrary, make it difficult.

In this example, reformulating the social/professional question into a research question does not mean that we completely lose sight of the initial question and its professional implications. We can quite easily take the view that the results of the research (What are the levers and obstacles to knowledge acquisition in a work situation?) will make it possible to envisage concrete solutions to the initial professional question (How can we develop knowledge acquisition in a work situation?). These are what we call concrete “spin-offs” of research, or the “social/professional paths” of research, which constitute the social/professional implications of the research; in a sense, its social/professional utility (we come back to this in the conclusion of this book).

Often, we find that the task of reformulating a social/professional question into a research question is a more difficult process for students resuming their studies, particularly when the initial question posed is closely related to powerful professional issues which led to a return to education.

Indeed, it is more difficult for these students to distance themselves from their professional objectives, it is more difficult for them to interrogate a situation by “stepping aside”, by leaving their professional or vocational convictions “at the door”. This constitutes full and complete knowledge acquisition.

1.3. The challenge of research is also to focus on common-sense concepts

Most of the terms used in the humanities and social sciences – the sciences of education and training are no exception – are primarily social

concepts, distinguished from scientific concepts because the former refer to everyday social or even professional practices and not interpretations of reality as do the latter. They are often part of the vocabulary of action and not the vocabulary of research, for example the words “skill” or “quality”.

Thus, Jean-Marie Barbier (2000, p. 91) speaks of the benefit of differentiating “semantics of action” from “semantics of intelligibility”^{>1}:

[...] the distinction between intellectual categories that are significant for the actors, which may enable them to think about their action (which we can call mobilizing concepts), and intellectual categories that can potentially be used to put forward the intelligibility of these actions (which we can call concepts of intelligibility), which according to Ricoeur, we can call the semantics of action.

In fact, our day-to-day social, family and professional life is primarily marked by a vocabulary that serves to accompany or organize our “ongoing” activities; this is covered by the terms “semantics of action” and “mobilizing concepts”. Conversely, research activity is primarily marked by a vocabulary whose primary function is to “make the situation we are studying speak”, in the sense of understanding it better, and thus, it is “semantics of intelligibility”.

Let us take an example that illustrates the difference between a social concept and a research concept: wanting to carry out research aimed at identifying the skills of professionals at work, or the quality of the work carried out in a company, actually amounts to adopting the viewpoint of a “social actor” because “skill” and “quality” are first and foremost social concepts. Why? The terms “professional skill” and “quality of work” have been put forward by social actors, often intermediary actors or collective representations; for example, the MEDEF² attached great significance to the word “skill” by proposing it be made a major benchmark when talking about work from the beginning of the year 2000. In the same way, the term “quality of work” was introduced by economic actors and companies thinking about how to raise customer confidence and loyalty (leading to quality charters, quality systems, quality certification etc.). Consequently, using the terms “professional skill” and “quality of work” as research tools amounts to “embarking” on research (and carrying out research), without questioning them, the social motives for using the words then leading to them being considered de facto “natural”.

What can we do to avoid this pitfall and retain the position of a researcher? If we want to undertake research to identify professional skills or quality of the work carried out in a company, at least two options are available to us:

- Either *to study how the words* “skill” and “quality” are used by professionals and businesses to talk about work, bearing in mind that these two words are primarily social propositions that permeate social practices in the work arena. It is a matter of taking the view that studying the “skill” and the “quality” of work amounts to studying the way in which social actors (professionals and businesses) use these words, the way in which they speak about them, the criteria they adopt to judge a skill or quality, the use of these words, for example, in the context of professional evaluation, etc. We use the terms “reference to skill or quality” or “discourse on skill or quality” rather than the words “skill” or “quality”.
- Or to study not the uses of the two words but *the realities they are supposed to describe*, namely, activities and knowledge acquisition at work (relating to the word skill) and work output, both at the level of expected outcomes and observed reality, for example, does the car coming off the production line function faultlessly (relating to the word quality). We will then use, for example, the words “activities/knowledge acquisition” instead of the word “skill”, since referring to these activities/knowledge acquisitions as skills falls within the activities of social actors (professionals, businesses, etc.).

1.4. The issue of the epistemological choices made by the researcher and the implications

In line with the previous point concerning the difference between social concept and research concept, carrying out a piece of research inevitably leads the student – sometimes “unwittingly” – to choose an epistemological option, in other words, here, a way of taking into account and conceiving the reality surrounding it.

The term “epistemology” has at least three meanings:

- The study of how each discipline is constructed (not only philosophy as each discipline is interested in the way in which research methods and knowledge are developed in such a way as to identify, in particular, specific features of a certain discipline).
- The study of how a piece of research can be considered scientific (this refers to the way in which conducting a piece of research work obeys the rules of scientific activity. Gaston Bachelard (1938), for example, laid down a number of rules on this subject).
- The study of how each person conceives the reality around them, for example does the person feel that the reality around them is imposed

upon them, or that it is the product of a social construction? (see the remarks above about the social concepts of “skill” and “quality”).

It is this third meaning of the word epistemology that will be of interest to us here. Each trainee researcher “takes on board”, often unconsciously, a certain conception of the world that will influence them in carrying out their own piece of research. There are, in fact, two major and opposing options that lead to different “readings” of the reality around us:

- An “*ontological*” epistemology based on the idea that the reality around us exists independently of individuals, the purpose of research being to bring to light “the truth of the order of things”, assuming that this exists independently of the analysis scheme used.

- A “*constructivist*” epistemology which takes the view that reality does not exist independently of the people who construct it. The purpose of research is thus not to bring to light “the truth of the order of things” but to design analytical grids that have the status of interpretative models, making it possible to propose a reading of reality. This epistemology considers, for example, that learning is not the “faithful” and “passive” incorporation of “true” knowledge but that it is part of a process of transformation, the construction of knowledge (the individual is “active” in this process). From this perspective, knowledge is constructed (not received), and truth is only subjective truth (individually or socially). Moreover, when a person takes an interest in realities that are processes (e.g. taking an interest in work activities, knowledge acquisition activities), this epistemology takes the view that the actors concerned and the situation are transformed into a phenomenon of reciprocal influences of co-determination: the action, by occurring, transforms the situation and leaves traces on the actor and the situation. This also means that reality is not “finite”, but is a universe of “possibles”.

Let us take the example of a piece of research on the analysis of work or, more broadly, on the analysis of activities (the analysis of the activities of a pupil in the classroom, of a teacher, of an employee in a business, etc.). A fault line seems to exist in the works available between those who implement an ontological epistemology and those who prefer a constructivist or socio-constructivist epistemology:

- An “*ontological*” epistemology: particularly present – though not exclusively – in works with a prescriptive aim and singularly absent (and for good reason) in works with a comprehensive aim. This ontological epistemology tends to regard, for example, the word “skill” as constituting a “reality” which pre-exists and imposes itself on individuals

and institutions, whereas constructivist epistemology tends to view it as a social construct; to avoid confusion, it is probably appropriate to develop a new lexicon to refer to this construct and to study it.

– A *constructivist epistemology*: often present in works that have a comprehensive aim, be it structuralist constructivism (identifying the regular as does Pierre Bourdieu (1972)) or phenomenological constructivism (identifying the singular as does Alfred Schutz (1932) and his successors). Philippe Corcuff (1995, p. 17) notes that “from a constructivist perspective, social realities are understood as historical and everyday constructions of individual and collective actors”. Michel Foucault’s approach (1969) takes the same direction: he gives the name “episteme” to the frameworks of thought that form the basis of discourse on knowledge within a human community at a given time ... any form of knowledge is therefore relative. Foucault maintains that the ways of thinking of an era are precarious and destined to die out one day, to be replaced by others ...

This constructivist epistemology is often accompanied by an attempt to put distance between the lexicon used for research and the social lexicon (as mentioned earlier). Thus, a constructivist epistemology distinguishes between “social facts” and “raw facts”: for example, activity is a “raw fact” whereas skill (talking about activity) is a “social fact” that falls under a function assignment as a result of a collective agreement. Another example: describing the position of the Sun in relation to the Earth is a “raw fact”, but saying that Emmanuel Macron is president of France is a “social fact”. “Raw facts” impose themselves on us and are independent of our intention. Conversely, “social facts” are often constructed by oral or written language.

The epistemological choices that the research student makes or “takes onboard” because of their work can have ideological implications. Thus, adopting an ontological epistemology can lead to making natural something that is only a social construct, thus leading to justifying the existence of certain devices (issues). It is often consistent with a prescriptive model: the products of research appear as truths to be prescribed and applied. Conversely, a constructivist epistemology (especially when it is of a phenomenological nature) makes it possible to restore an element of freedom to others in the construction of their activities. It is consistent with a comprehensive model as a useful reading grid for considering situations (if this model is appropriated by the actors).

In this chapter, we have dealt with research positions; a quiz on the topics covered here is provided in Appendix 3. We now turn our attention to research practices.

- 1 “[&] the notions of skill and ability, for example, when they are used as direct tools for the work of analysis and interpretation, in psychology, in educational research, and even sometimes in sociology, are used in a “realistic” and objectifying way: knowledge is produced “about” abilities or skills, without taking into account the fact that these notions are probably constructions operated by inference from activities, and that these inferences carry social valorizations; in short, these categories actually function more as evaluation tools than as analysis tools” (Barbier 2000, p. 90).
- 2 The Mouvement des Entreprises de France is an employers’ organization founded in 1998, representing French businesses.