

Micro and macro perspectives in analysis: Discussions about the applicability of the concept of scale in research on teacher education

**MICRO AND MACRO PERSPECTIVES IN ANALYSIS: DISCUSSIONS
ABOUT THE APPLICABILITY OF THE CONCEPT OF SCALE IN
RESEARCH ON TEACHER EDUCATION**

***AS PERSPECTIVAS MICRO E MACRO EM ANÁLISE: DISCUSSÕES
SOBRE A APLICABILIDADE DO CONCEITO DE ESCALAS NAS
PESQUISAS SOBRE FORMAÇÃO DE PROFESSORES***

***PERSPECTIVAS MICRO Y MACRO EN ANÁLISIS: DISCUSIONES
SOBRE LA APLICABILIDAD DEL CONCEPTO DE ESCALA EN
INVESTIGACIÓN SOBRE LA FORMACIÓN DE PROFESORES***



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How to refer to this article

NETO, A. S.; SILVA, A. C. D. Micro and macro perspectives in analysis: discussions about the applicability of the concept of scale in research on teacher education. **Revista Hipótese**, Bauru, v. 8, n. único, e022005, Jan./Dec. 2022. e-ISSN: 2446-7154. DOI: <https://doi.org/10.47519/eiaerh.v8.2022.ID10>

Submitted: 09/06/2021

Revisions required: 09/08/2021

Approved: 15/09/2021

Published: 01/01/2022

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ABSTRACT: This study intends to carry out initial discussions on the possibilities of using the concept of scale in educational research, analyzing, in particular, the limitations and potentialities of the microsocial and macrosocial perspectives in teacher education. Current studies indicate that educational research is used from one perspective at the expense of another. It is believed that despite the various challenges in trying to articulate the micro and macrosocial perspectives in the same research problem, the use of the two perspectives together tends to broaden the understanding of the studied problem.

KEYWORDS: Scales. Educational Research. Macrosocial. Microsocial.

RESUMO: Este estudo pretende realizar discussões iniciais sobre as possibilidades de utilização do conceito de escala nas pesquisas educacionais, analisando, em especial, as limitações e potencialidades das perspectivas microsocial e macrosocial na formação de professores. Os estudos atuais indicam que as pesquisas educacionais se utilizam de uma perspectiva em detrimento de outra. Acredita-se que, apesar dos diversos desafios ao tentar articular em um mesmo problema de pesquisa as perspectivas micro e macrosocial, a utilização das duas perspectivas em conjunto tende a ampliar a compreensão do problema estudado.

PALAVRAS-CHAVE: Escalas. Pesquisa Educacional. Macrosocial. Microsocial.

RESUMEN: Este estudio pretende realizar discusiones iniciales sobre las posibilidades de utilizar el concepto de escala en la investigación educativa, analizando, en particular, las limitaciones y potencialidades de las perspectivas microsocial y macrosocial en la formación del profesorado. Los estudios actuales indican que la investigación educativa utiliza una perspectiva sobre otra. Se cree que a pesar de los diversos desafíos para tratar de articular las perspectivas micro y macrosocial en un mismo problema de investigación, el uso de ambas perspectivas en conjunto tiende a ampliar la comprensión del problema estudiado.

PALABRAS CLAVE: Escalas. Investigación Educativa. Macrosocial. Microsocial.

Introduction

This study aims to conduct discussions on the possibilities of using the concept of scale in educational research, analyzing, in particular, the limitations and potentialities of microsocial and macrosocial perspectives in teacher education.

There are several studies that question which perspective - microsocial or macrosocial - best suits school realities and the analysis of educational phenomena (LOPES, 2006; COMPIANI, 2007; BRANDÃO, 2001).

This is the question we intend to answer at the end of this analysis.

The concept of scale, origin and predominant use in the areas of knowledge of Geography and Mathematics, has been little explored in the educational area (LOPES, 2006; COMPIANI, 2007; BRANDÃO, 2001). Nevertheless, we consider that this is an element that can be explored in studies of this kind, especially to think about the scope of certain problems and possibilities of action.

In order to achieve the objective of this theoretical essay, we will initially make an analysis of the process of transformation of the concept of scale. Next, we will analyze the micro and macro perspectives in Education and, finally, outline some considerations about them | 3
in teacher education.

Transformation of the concept of scale

The concept of scale derives from the Latin *scala* and means a graduated line divided into equal parts that indicate the relationship of the dimensions or distances marked on a plane with real dimensions or distances (CASTRO, 1985).

The concept of scale is as old as the concept of Geography. The name scales:

[...] it is so incorporated into geographical vocabulary and imaginary that any discussion about it seems devoid of meaning, or even utility. As a fundamental mathematical resource of cartography, the scale is, and always has been, a fraction that indicates the relationship between the measurements of the real and those of its graphic representation (CASTRO, 1985, p. 117, our translation).

Although its use derives from geography, epistemologically, the scale has expanded its range of application to other areas of knowledge, due to its potentialities in the construction of new knowledge:

The word scale is often used to designate a relationship of proportion between objects (or surfaces) and their representation in maps, models and drawings, and indicates the infinite set of possibilities of representation of the real, complex, multifaceted and multidimensional, constituting a necessary way to approach it. The practice of selecting parts of the real is so trivialized that it hides the conceptual complexity that this same practice presents. Since it is not only about size or graphic representation, it is necessary to go beyond these limits to face the epistemological challenge that the term scale and the necessarily fragmented approach of the real pose (CASTRO, 1985, p. 129, our translation).

The notion of scale includes both the relationship and the inseparability between size and phenomenon (COMPIANI, 2007).

The concept of scale has expanded its borders due to the multitudes of possibilities of its application in other areas. Thus, as stated by Castro (1985), the concept of scale ceases to be only a Mathematical and Geographical representation to become a representation of different forms of perception and conception of the real:

So far, three assumptions can then be established: 1) there is no more or less valid scale, reality is contained in all of them; 2) the scale of perception is always at the level of the perceived and conceived phenomenon. For philosophy this would be the macrophenomenon, the one that dispenses instruments; 3) the scale does not fragment the real, only allows its apprehension (CASTRO, 1985, p. 132, our translation).

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In the past, the scale was seen only as a solution for cartography and geographical representation. In recent decades, however, the scale has begun to be seen as a strategy of approaching the real. It is increasingly evident that scale is not only a dimensional problem, but also, and deeply, phenomenal, which implies important consequences in the development of modern science (CASTRO, 1985).

The function of science is to create theories/models that represent reality. A good model approaches the complexity of the territory. The use of theoretical models directs the type of data collection and observation. The model is not equivalent to reality, but good theories/models approach reality. The mapping of the phenomenon is a representation that cannot be confused with reality (COMPIANI, 2007).

Understood the process of transformation of the concept of scales we can move towards the analysis of micro and macrosocial perspectives in Education.

The micro and macro perspectives in education

Brandão (2001) analyzes the micro and macrosocial perspectives in the interpretation of social phenomena and defends the need to overcome the theoretical-methodological antagonisms between the two perspectives in the field of Sociology of Education. For the author, in the field of educational research, there was initially a great hegemony of macrosocial studies that analyzed issues related to global processes and that focused on the social functions of the school. In a second moment, mainly from the 1980s on, there was a redirection of research, which goes from the macrosocial perspective to a microsocial analysis. Such studies begin to try to understand and enable the researcher to approach the investigated reality and school problems, being characterized by case study methodologies and ethnographic approaches, among other methodologies. Brandão (2001, p. 154, our translation) exposes the controversy between micro and macrosocial approaches in the following terms:

An old controversy crosses the research in sociology of education, the divergence about which perspective is most compatible with the study of educational processes: that of face-to-face relationships between individuals undertaken by microsocial analyses, or of the relationships between the more general structures (impositions) of social life on exchanges and more specific situations, as it seeks to achieve with the use of macro-social analyses.

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Therefore, there is no consensus in sociology of education about the type of perspective most compatible with the studies of educational processes: whether it would be microsocial analysis – an analysis close to individuals; or macrosocial analysis – a more panoramic analysis of how social aspects impact individuals.

At its origin, educational research had a more macrosocial and structuralist view, with a global focus to the detriment of the local. On the other hand, currently, there is the predominance of the postmodern paradigm and the microsocial perspective of analysis of social phenomena, focusing on the subjects and their social relationships (D'AMBROSIO; BARBI; COMPIANI, 2017).

In fact, few educational studies have been used from both perspectives in order to obtain a greater range of information about the phenomenon studied (LOPES, 2006; COMPIANI, 2007; BRANDÃO, 2001; D'AMBROSIO; BARBI; COMPIANI, 2017).

Parallel to this, Brandão (2001, p. 164, our translation) indicates that:

It is an illusion to imagine that the multiplication of microsocial analyses would allow a more appropriate form of reconstruction of the general

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(structural) social configurations, or that these configurations could be achieved by the diversified and expanded reconstruction of the particular configurations. The world of experience has an inexhaustible ability to recreate and build new forms of interactions and collective patterns of values that unfold into complex significant actions at the individual level (face-to-face interactions) and macrosocial. The researcher's art, it seems to us, would be exactly in his ability to choose the instrument of analysis most appropriate to the research problem that challenges him and the empirical possibilities of the field of research in which he is placed.

For both Brandão (2001) and D'Ámbrosio, Barbi and Compiani (2017), the theoretical-methodological options should be anchored in the needs of the research and not in a previous choice of the researcher for one of the alternatives:

Much has been discussed about which perspective of theoretical methodological approach would best fit in research in education: whether a micro look, as highlighted by postmodern, or whether a macro look, such as the one prioritized in a structuralist trend. While the former focuses on face-to-face relationships between individuals, their actions and social exchanges, the second prioritizes the relationships between the more general structures. Inherent to this dichotomy there is a fundamental problem: are these general structures of social life that influence the behavior of individuals (determinism, macrosocial focus) or do the actions and social exchanges of these individuals permanently build and reconstruct the so-called social order (autonomy of social action, microsocal focus)? (D'AMBROSIO; BARBI; COMPIANI, 2017, p. 2, our translation).

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The macro-school level deals specifically with networks, educational public policies, educational statistics and school systems. The micro-school level analyzes, among other aspects, daily life and school practice, school units, the classroom, content organization, teacher/student relationships and teaching and learning strategies.

D'Ámbrosio, Barbi and Compiani (2017) discuss the role of scales in research in Science Teaching and the potentialities of articulating different levels of scaling in research. The authors propose to discuss the micro and macrosocial perspectives in educational research. They try to show the relevance of the relationship, dialogue and the transition between the two perspectives:

A heuristic view also intends to overcome this duality, since it is understood that one of the problems related to the local school is that the observation of the individual and its possible effects may or may not be representative of the set to which it belongs. In a macro perspective, in turn, a huge amount of detail sands and personal stories are lost, which influence the conformation of the global (D'AMBROSIO; BARBI; COMPIANI, 2017, p. 3, our translation).

It was the model of the American Jeffrey C. Alexander (1987), called "new theoretical movement", who proposed to articulate the action (micro) with the structure (macro) in the

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analysis of social phenomena (D'AMBROSIO; BARBI; COMPIANI, 2017).

Positioning themselves in favor of approaches that dialogue between the macro and the micro, D'Ambrosio, Barbi and Compiani (2017, p. 4, our translation) highlight the difficulty in establishing this dialogue:

It is difficult to deny the complexity of social and educational systems, just as it is also difficult to deny that looks at different levels of observation, including broader contexts and more specific situations related to the same problem or research issues, can be very enriching. However, this articulation is not trivial and requires reflection.

Despite the complexity of the use of micro and macrosocial perspectives in the educational sphere, it is undeniable the multitude of possibilities generated and data obtained when using both perspectives in the analysis of educational phenomena. The researcher who knows how to take advantage of the positive points of each of the perspectives can broaden his vision and analysis on educational problems.

Educational subjects, including research in science teaching, are of high complexity, because, as well as in social areas, subjects inserted within a broader and intrinsically dynamic context are involved. Because the subjects, the daily routine of the school and the practices found in it (micro instance), public policies, educational statistics and the context of the educational system as a whole (macro instance) are in the bulge of these analyses, it is extremely important to emphasize the need for these two instances to be in dialogue in investigations (D'AMBROSIO; BARBI; COMPIANI, 2017, p. 6, our translation).

Like Brandão (2001) and D'Ambrosio, Barbi and Compiani (2017), we agree that the theoretical-methodological option to be chosen by the researcher - micro, macro or hybrid, should take into account the particularities of each investigation. In other words: it does not seem pertinent to choose one of these perspectives independently by choosing the object and defining the needs of the research.

Micro and macro educational perspectives in research on teacher education

Is it possible to use both perspectives in teacher training studies?

We believe so. And we go further: we consider that it is feasible and fundamental that research in the area, when possible, broadens its vision using the micro and macro educational perspectives, after all:

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[...] having this multiplicity of instances, in itself, already prevents the researcher from falling into the illusion that only one of the faces, whether micro or macro, is able to coherently elucidate an educational and/or sociological problem (D'AMBROSIO; BARBI; COMPIANI, 2017, p. 4, our translation).

In this sense, we agree with D'Ambrosio, Barbi and Compiani (2017) in defense that, despite the difficulties inherent in the establishment of a dialogue between the macro and micro perspectives, this articulation is beneficial and enriching for the analysis of educational problems.

In the case of studies on teacher education, based on a bibliographic mapping in three journals in the educational area - Revista Brasileira de Educação e Pesquisa e Cadernos de Pesquisa - Carvalho and Shigunov Neto (2018) showed that of the total of 114 articles found, 60% used a macro educational perspective and 40% a micro educational perspective.

The results of Carvalho and Shigunov Neto (2018) corroborate the consideration that researchers in the educational area usually structure their studies either from a micro perspective or from a macro perspective. Thus, we believe that such studies could be expanded or even interrelated with each other. This would be possible to develop more complex understandings about the aspects associated with a given educational issue.

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Final considerations

This study aimed to reflect on the possibilities of using the concept of scale in educational research, analyzing, in particular, the limitations and potentialities of microsocial and macrosocial perspectives in teacher education.

Our analyses indicate that, when feasible, the joint use of both perspectives of analysis of educational phenomena and problems could be enriching, as it contributes to the achievement of a more complex view of educational phenomena and problems.

From the discussions held, in summary, we can conclude that:

☐ The theoretical and methodological options should be anchored in the needs of the investigation and not in a previous choice of the researcher for one of the alternatives.

☐ Both micro and macrosocial perspectives have theoretical and methodological potentialities and limitations.

☐ In the coming years, there may be a tendency for educational research to use the two perspectives together (micro and macro).

☐ There are several challenges when trying to articulate in the study of a research

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problem the micro and macrosocial perspectives. However, the adoption of this hybrid perspective tends to contribute to the understanding of the problem investigated, including in the context of research on teacher education.

Thus, we defend the relevance that new studies can be made and published to deepen the reflections on possible contributions of the joint use of micro and macrosocial perspectives in the analysis of educational phenomena, specifically, with regard to teacher education.

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Processing and publication by the Editora Ibero-Americana de Educação.
Correction, formatting, standardization and translation.