



THROUGH THE LOOKING GLASS: METHODOLOGICAL FEATURES OF RESEARCH OF ALTERNATIVE SCHOOLS

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Abstract/Povzetek.

On the basis of the analysis of the general characteristics of alternative schools and the methodology of pedagogical research, the comparison and synthesis of the obtained facts were formed. It is pointed out that in the field of pedagogy, the adoption of (positivist) methodology has become a global trend. It emphasizes the uncritical application of research tools from the corpus of quantitative methodology in research of specific educational problems, as well as in research of alternative schools in which the context of the research is significantly different than the one of the conventional public schools.

Keywords:
alternative schools,
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Ključne besede:
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Pod lupo: metodološke značilnosti raziskovanja alternativnih šol

Na osnovi analize splošnih značilnosti alternativnih šol in z metodo pedagoškega raziskovanja smo oblikovali primerjavo in sintezo dobljenih dejstev. Opozarja, da je na področju pedagogike sprejetje (pozitivistične) metodologije postalo globalen trend. Poudarja nekritično uporabo raziskovalnih orodij iz korpusa kvantitativne metodologije pri raziskovanju specifičnih problemov vzgoje in izobraževanja ter pri raziskovanju alternativnih šol, pri čemer se kontekst raziskovanja pomembno razlikuje od konteksta raziskovanja konvencionalnih javnih šol

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Introduction

Recent formal education, both at global and national level, has been significantly characterized by standardization, economization, psychologization, medicalization and educationalization of social problems (Autio, 2017; Smeyers & Depaepe, 2008; Topolovčan & Dubovicki, 2019). Such phenomena that characterize the contemporary formal education are a consequence of what has been happening at the economic, political and social levels in the last seventy years, more precisely since the end of World War II (Topolovčan & Dubovicki, 2019; Tröhler, 2013, 2014). That is, it is justified to point out that the current state of education, educational policies and reforms are somewhat the consequences of the Cold War (Topolovčan & Dubovicki, 2019). In this respect, current education is said to be in a paradoxical situation (Tröhler, 2016). This paradox emerges from the realization that we now have more research on education and research results than ever before in the history of pedagogy, and on the other hand, the possibilities to create creative and innovative educational policies and reforms are slim (Tröhler, 2016). Likewise, this paradox is based on the excessive and uncritical application of the *evidence-based practice* and the adoption of positivist methodologies for educational research in other scientific fields (Tröhler, 2016). Such observations and findings offer an intriguing insight into some of the characteristics of the recent anatomy of a discipline, such as education. On the other hand, with formal, conventional and national formal education, alternative (germ. *Alternativschule*) and free schools (germ. *Freischule*) have formed. The basic definition of alternative or free schools is that they do not follow the prescribed state plan and program (of curriculum), that is, they have not been created by the state. Therefore, because of their own school culture, pedagogical, didactic and educational pluralism, alternative schools are much less determined by the aforementioned Tröhler paradox of education. In other words, they do not obsess with standardization, psychologization, medicalization and economization. That could be a possible repercussion of the alternative schools' awareness of the differentiation of the terms schooling and education. Alain Madelin (1991), in his book *Free School: Education a la carte* (The original title in French: "Pour liberer l'ecole: l'enseignement a la carte") elaborates on the distinction between education and schooling, and public and private schools. In his distinction between education and schooling, Frans Carlgren (1991) goes a step further by asking whether state schools should exist at all? Be that as it may, and without discussing whether state schools should exist, it should be noted that a recent, but also future, state schools will not

be able to meet all the educational needs of all individuals and the society. Therefore, in the wake of school pluralism, there is room for both state and free schools.

On the other hand, as mentioned above, the immanent element of the anatomy of the discipline of education is also its associated research methodology. That is, the global trend of adopting (positivist) methodology of other sciences (natural and medical) which results in *evidence-based practice* of education policies and reform of school systems. Such methodologies are based on quantitative approaches that "detect" and explain, but do not offer ideas for addressing the problems that researchers originally set out to investigate. Therefore, it is scientifically interesting, due to the relationship between free schools, state schools, and global trends in educational reform and policies, to explore the characteristics, possibilities, and limitations of exploring alternative (free) schools. Based on the introductory premises, the aim of this study is to analyze the characteristics of some alternative schools and the methodology of educational research. And in doing so, take a peek from the other side of the looking glass and describe, define, understand, categorize and synthesize the methodological possibilities of alternative school research based on the scientific facts obtained.

Features of some alternative schools

Alternative schools (This applies to all private schools that may be established by citizens' associations) are schools that exist in addition to state schools, and achieve their educational goals through a significantly different didactic and methodical scenario than those in state schools. In this regard, private schools working on state plans and programs (of curriculum) are "alternative", but only in respect to the founders. In addition to the term "alternative" schools, the term "free schools" also occurs. Free schools are those schools that have not been created by the state (but a private person, an association of citizens), and they do not follow the state curriculum (Matijević & Radovanović, 2011, pp. 414-415; Matijević, Bilić & Opić, 2016, pp. 451). The concept of free schools has historically had multiple meanings (Matijević, 2001, pp. 105-108). Free schools can eventually become public schools. Some of the established alternative schools are Waldorf and Montessori schools (Matijević & Radovanović, 2011, p. 370; Matijević, Bilić & Opić, 2016, pp. 451). It should be emphasized that *free schools* and *alternative schools* are not synonyms, but they have not been taxonomically defined and categorized in this research.

In order to demonstrate the methodological pluralism of alternative (free) school research, this study will briefly describe the most important didactic features of Waldorf and Montessori schools, and those schools that work on the ideas of Celestin Freinet and Peter Petersen, that is, schools based on didactic elements of the directions and movements of reform pedagogy (Matijević, 2001; Oelkers, 2010; Pataki, 1938; Skiera, 2010; Topolovčan, Rajić, & Matijević, 2017). The research context provides a significant research assistance (of any research phenomenon), therefore, the following text describes the most significant determinants of the most established alternative schools.

The first *Waldorf school* (and pedagogy) was founded in 1919 by Rudolf Steiner in Stuttgart (Germany) and was based on the principles of anthroposophy. Some of the special features of this alternative school are that there is no rigid subject-hour system, no use of media, which includes making their own textbooks (notebooks), no numerical grading (no grade repetition). Classes are not organized according to the social form of front-line teaching. The attention is paid to out-of-class teaching, working in the carpentry workshop and full-time teaching. One of the essential features of Waldorf schools is the epoch-based teaching, where students engage in a particular activity or problem, in the period of one to four weeks, and then they solve independently or collaboratively. The teaching takes into account the subjects (which are not dominated by national programs) and opens up the possibility of original curricula such as eurhythmics. Student-centered teaching strategies dominate: inquiry-based learning, problem-based learning, collaborative learning, project-based learning, play-based learning, etc. An important role in the teaching process is dedicated to the role of parents and is focused on collaborating with them (more in: Carlgren, 1991; Matijević, 2001; Oelkers, 2010; Seitz & Hallwachs, 2011; Skiera, 2010; Topolovčan, Rajić, & Matijević, 2017).

Montessori pedagogy was created by Maria Montessori, and in the early years of the last century she founded her first school (in Italy). Maria Montessori's pedagogical principle is "help me do it myself", and the starting point for this is the idea of children's freedom. Classes are divided into two blocks: the first is freelance work, followed by the common teaching. In freelance work, students individually engage in specific activities for which an appropriate enabling environment is prepared. In the common teaching, the students engage in organized teaching, according to the relevant subjects, but not dominated by the 45-minute teaching period. An

important feature of the teaching activities is the didactic material and the arrangement of the classroom with the materials available to students. Classrooms are not organized for frontal, but for student-centered teaching (more in: Matijević, 2001; Oelkeres, 2010; Seitz & Hallwachs, 2011; Skiera, 2010; Stein-Erlich, 1934; Topolovčan, Rajić, & Matijević, 2017).

Celestin Freinet founded the original didactic concept and school in the 1920s (in France), and the essential features of the organization of teaching in these schools are: classroom self-government, student autonomy in work and learning, student (and teacher) cooperation in class, inquiry-based learning, freedom of expression, class meetings, the existence of a printing house in the school, a box for written reviews, wall papers, class papers, correspondence with other schools, self-governing cash register, writing free texts, a work atelier, a student-run library. In addition to these characteristics, the dominant teaching strategies are inquiry-based learning, problem-based learning, collaborative learning, project-based learning, play-based learning. Also, the classes are not organized according to the 45-minute teaching periods. The classroom is not designed to provide frontal teaching, but is dominated by furnishings and furniture adapted for the aforementioned teaching strategies, and extra-curricular teaching is of particular importance (more in: Hagsted, 1997; Matijević, 2001; Oelkers, 2010; Skiera, 2010; Topolovčan, Rajić, & Matijević, 2017).

Peter Petersen founded the original didactic concept known as Jena-Plan, because he got the opportunity to put his ideas into practice at the University of Jena (Germany) in the 1920s. The main feature of this conception is guided by ideas in which classrooms are composed of more (mostly three) chronological years of students, since the idea of this pedagogical-didactic conception is based on the family environment (in which there are persons of different ages). Classes are not organized according to a 45-minute teaching period, the classrooms are not arranged in a frontal formation format, but leave the possibility for the teacher to use the classroom by changing all social forms, which ultimately results in the use of different teaching strategies such as: inquiry-based learning, problem-based learning, collaborative learning, project-based learning and play-based learning. In class, part of the time is provided for joint activities of students and teachers, while the other part is intended for teaching certain subjects (not strictly separated into 45-minute lessons) as well as elective classes. A particular attention is paid to cooperation with

parents, and numerical evaluation is no of importance (more in: Matijević, 2001; Oelkers, 2010; Skiera, 2010; Topolovčan, Rajić, & Matijević, 2017).

By summarizing the didactic features of these concepts, it is possible to point to a shift away from the class-subject lesson system, numerical evaluation, and front-line teaching. In other words, the focus is placed on the project and integrated teaching, the freedom to choose curriculum content (a step away from state curriculum), personal concentration in teaching, and student-centered learning strategies. Also, a smaller number of students in classrooms dominates, as well different ages of students in such classes. These are some of the essential elements that generally do not dominate in public schools, and it is therefore justified to think about the specific techniques and methods for researching such schools and teaching. The main teaching features of alternative and free schools are the focus of the teaching on artistic and work education.

Table 1: Features of working and creative approach in teaching (adapted according to Bogнар & Matijević, 2002, pp. 19-27).

Working approach	Creative approach
1) the aim of the approach is to train participants of the teaching process to work with a predominance of physical activity	1) the emphasis is placed on the classroom experience, which can certainly be achieved through some of the following activities: listening to music, storytelling, watching plays, artistic creation of participants in the teaching process, studying fine arts and more
2) the acquired knowledge serves to fulfill the future occupation more successfully	2) physical activities are aimed at developing the beauty of the body and movement and expressing the inner feelings of the child
3) the teaching areas are enriched with materials, various types of media and instruments that ensure the practical activity of students	3) the teaching nurtures the development of divergent and critical thinking
4) time is organized more freely so that activities can run smoothly	4) self-actualization is encouraged

In this context, we can draw a parallel with the working and creative theoretical approach (Bogнар & Matijević, 2002), as well as the terminological issues of didactics on the basis of which the desired learning outcomes are created (Table 1). Table 1 shows that in a significant part of the philosophy of these two didactic-theoretical approaches, the concepts of most alternative schools overlap, and this is especially evident in the didactic features of the alternative and free schools.

An insight into the methodology of educational research

The previously described special features and characteristics of some alternative schools indicate that the rich pedagogical and didactic coexistence inside and outside the classroom is very different from that in public schools where we have predictable outcomes. The very well-known, measurable and predictable outcomes of the educational process enable us to use research tools (most often those of quantitative methodology) that allow accurate measurement, comparison and ranking. Public schools that adhere to the prescribed plans and programs (of curriculum) have similar teaching scenarios, in which there are usually no major deviations. However, alternative schools are not so “predictable” and it is important that research in such schools (alternative and private) is at least tailored to the specific needs of each researcher and individual alternative school. Previous research “practices” have proven to be more and/or less (not) successful precisely because of the application of the same (similar) research techniques to completely different teaching scenarios stemming from a completely different school culture (research context). The real research paradox is evident in the application of research tools designed for a specific sample size (on the basis of which such data may generalize some of the data obtained), which to such an extent is in fact impossible to obtain in alternative schools, since their classes generally consist of smaller number of students, often of different age, so it is almost impossible to apply the same research instruments that we use in public schools, with a much larger number of students in some classes, to the sample we can get in alternative schools. The study seeks to offer some solutions and ideas for research of educational processes in alternative schools. In addition, some of the research ideas could be applied in contemporary public schools which use the creative (Dubovicki, 2016) and student-centered (Matijević & Radovanović, 2011) teaching scenarios. In the first place, this refers to research tools that belong to qualitative methodology; which not only serve to “detect” the current state (Dubovicki, 2019) but, using an interpretive and multimethod approach, provide multiple insights into the research of people (all participants of the educational process) in their “natural” environment (Denzin & Lincoln, 2000). It is the philosophy of alternative schools that is based on “replicating” the most natural teaching and learning environment, which certainly supports these guidelines. In addition, qualitative research seeks to a greater understanding of specific social contexts (Cutcliffe & Goward, 2000) within different philosophical orientations. The basic aim of the qualitative approach is to study man as a holistic being (Mejovšek,

2013). Qualitative research, according to Brinton & Fujiki (2003), is closer to the problems that we perceive in practice and seek to research, but also offers a greater opportunity to approach practice and research.

Some of the previously established and most commonly used research techniques among researchers who study the peculiarities of alternative schools in recent years (Krbec, 1997; Rajić, 2008) and in the world are the most common surveys, assessment scales, interviews (mostly structured or semi-structured), tests and quasi-experiments, and some pedagogical workshop or notes on the observation of the teaching of the lesson by the researcher. Most of the studies focus on the theoretical description of the concepts and philosophy of particular alternative schools (Matijević, 2001), their founders and/or functioning in relation to the state system (and even their comparison), and a considerable amount of research also relates to statistical comparisons of the results obtained on knowledge tests and the passage of students from public and private (alternative) schools further into the education system (and even longitudinal research). We can say that the situation has recently changed somewhat in the research sense in favor of action research, whose use is something the researchers are more intensively encouraged to (Bognar, 2009), but they are still underrepresented in order to speak of a significant number in this context. From the above mentioned, we can see that the listed research techniques are mostly members of the quantitative methodology, which represents a kind of a problem to us researchers, because it can give us only a small (superficial insight) into the real life that takes place inside and even more outside the classrooms. To explore alternative schools using only quantitative indicators is the same as just superficially observing an iceberg. The only possibility of a holistic approach to the research of alternative and free schools is with the use of under-researched and used research methods within the qualitative paradigm that allows us to look “through the looking glass”. Taking into consideration the growing body of the established pedagogical methodology (e.g., Creswell, 2012; Gorard & Taylor, 2004; Hatch, 2002; Mertens, 2010; Scott & Ushur, 2001; Sherman & Webb, 2005; Walford, 2001) and some recent research techniques (discussed in this study), it is very important to emphasize that there have been, at the theoretical-didactic level of discourse, discussions about the conception of a, on the one hand, coherent and consistent, and on the other hand, a theoretically-methodologically pluralistic framework of educational research (Biesta, 2011, 2015; Terhart, 2016, 2017). It is important to note that in recent times, various programs and even robots (Arvin et al., 2019) are

being developed to facilitate the collection and processing of qualitative data, which would make it much easier for researchers in the future to collect and interpret the data obtained.

Discussion: how to research alternative schools?

Same as with quantitative research tools, it is not enough to use only one insight (one research technique) in our researched world. Therefore, if the conditions so permit, we need to use more research techniques (preferably by triangulation) to make sure that we approach the subject of the research holistically. We can compensate for the lack of one research method by complementing another research method by contributing to the credibility of the results obtained (Gorard & Taylor, 2004). It has been pointed out earlier that it is often not optimal to answer questions and problems of education with a quantitative methodology, but with a qualitative one (Dubovicki, 2017; Topolovčan, 2016, 2017; Halmi, 2013; Sekulić-Majurec, 2000). Regardless of which methodology we decide to use (qualitative and/or quantitative), it is important that it is tailored to our research problem (Dubovicki, Mlinarević, & Velki, 2018). In addition to the already known and scientifically established research techniques, the authors of this study see the potential for alternative and free school research through research tools that could contribute to a better interpretative and comprehensive methodological approach to alternative school research. It is important to gain as much insight as possible through extensive narrative gathering. We primarily men: interview (semi-structured or freelance), case study, systematic observation, action research, ethnographic and historical research, and some of the futurological research methods (Dubovicki, 2017). Although it has been noted that the *interview* was used in such research, we want to emphasize here its importance and the special role of the researcher in constructing the interview protocol. Such interviews should not have rigorous (structured) questions that would strictly adhere to the given topic, but should only be guided in the construction of the protocol by some guidelines to a greater extent determined by our interviewees (research participants), of which in this case we could find out a lot more than what we had planned and thus "explain" to ourselves some cause and effect relationships. In addition, the interview (interview protocol) is a suitable instrument for such research because, due to the smaller number of students in such classes, time is not a limiting factor, and the processing and presentation of such results is much easier.

Case study (One case may represent a student, teacher, some historical figure relevant to the field of research, but also a limited system such as: a class, a school, a community, a group brought together by common interests, or a similar philosophy.) implies researching a case in action, it captures reality from close range and shows what it is like to be in a particular situation. Case study determines the cause and effect that is not always apparent from raw statistics, especially because of complex dynamic interactions. In case study, the observation of the researcher is of the utmost importance, whether the example involves one student, the whole class, school or some community. There are two types of observation in the methodological literature (Cohen, Manion, & Morrison, 2007): participatory observation and non-participatory observation. We believe that participatory observation is an extremely important procedure in the research of alternative schools, especially if the researcher himself does not know them sufficiently "internally", but also because he (let us suppose) has been, through his education, a student of a state, and less frequently an alternative school.

Systematic observation includes both participatory observation and non-participatory observation. For our research problem (alternative school research), both research processes are equally important. They are important because we will often resort to non-participatory observation if participants in our study are younger (pre-school children, lower elementary school students) or from a person with special needs (gifted and/or with special needs), whereas participatory observation will be chosen if we are as a researcher, they wanted to fully implement or "mask with a false identity" (Parker, 1974) to investigate a specific problem. Participatory observation is an important part of action research.

Action research is also considered important in the research of alternative schools, because in order to understand more thoroughly a particular philosophical approach (in each of the alternative approaches), it is necessary to observe and be implemented in all stages of the research phenomenon. Action research by itself works in such a way that the researcher is also a participant in the research, and research itself has a tendency to continue over a longer period of time, providing a much more likelihood (as evidenced by a series of studies) of the researchers to be more objective in presenting the results obtained by the action research, and also, more likely to solve most of the identified "problems" within the system. Action research empowers researchers and practitioners of reflection, and encourages them to recognize the

importance of improving the dynamic and complementary relationship between theory, research, and practice (Avgitidou, 2019). Dick (2019) also wrote about the importance of action research for education in the future).

Ethnographic research has been used by sociologists as a basic research approach since the early 19th century. They experience their significant "rebirth" in the 1990s, when they are increasingly taking on an interdisciplinary character (Relja & Matic, 2008). It is at this time that they are more intensively used in educational research.

Ethnographic research is based on participation in a natural environment that can be hidden or not hidden in everyday human activities. It is a direct experience of the phenomenon under study leading to a more meaningful understanding and explanation of the social scene. This can only be achieved through the following methods: first-hand observation, (observation/participatory observation), listening to what has been spoken and asking questions (interview) (Relja & Matić, 2008, p. 149).

From the above we can see that the aforementioned methods of participatory observation and interviewing are intertwined and overlapping, so we can say that this further emphasizes their importance. Just like conducting an action research, it takes a longer period of time to conduct a quality ethnographic study, and for some reason, for some reason, researchers rarely opt for this type of research.

Historical research is necessary to understand the historical context, especially when it comes to researching the alternative schools. They represent the researcher's "reconstruction" of the previous period. It is significant for historical research that no investigated process (subject) can be investigated as isolated. Methodological literature mentions the most important characteristics of historical research such as: enabling solving present problems based on past experiences; ability to predict future trends in relation to the problem being researched; making it possible to re-evaluate some of the insights, theories, hypotheses, and/or research questions that have been answered in the past (Hill & Kerber, 1967; Cohen, Manion & Morrison, 2007). In addition, we use history to predict some outcomes in the future. It is precisely some of the futurological research methods that use historical analysis to predict possible challenges (Milojević, 2005).

Futurology research methods (You can find more details on futurology research methods in Dubovicki (2017) certainly represent considerable potential in alternative school research. Especially because they do not include a large number of research participants, and they produce very applicable results. Oyaïd (2009) points out that the current role of the teacher is not appropriate for the future, and it is precisely the futurology research methods that enable us to approach such challenges and offer guidance that should result in successful solutions. Almost all futurology research methods can be used in researching the alternative schools, but given their abundance, here are just a few that we consider to be less prevalent (in pedagogical research), and could contribute to more objective and comprehensive results. First of all, there is the Causal Layered Analysis method - CLA, Trend Analysis Method, Focus Group Method, Futures Wheel.

Causal Layered Analysis is a research process in which the researcher investigates the “layers” whose gradual detection will eventually lead to the true cause of the problem in which the solution lies (Inayatullah, 2004; Watson, 2015). The trend analysis method is used to study possible trends in the future by examining trends in history. Vrcelj and Mušanović (2001) point out that when exploring the future, trends are often used as starting points (within different professions) for further research. A focus group method that is mainly used in research when it is impossible to reach certain knowledge through classical methods (exploring emotions, values, beliefs, attitudes, addictions, physical and psychological abuse, etc.). Futures Wheel is used because it helps predict future trends and/or possible events based on predictions of primary and secondary consequences. It does not require much preparation or much time to spend, which certainly facilitates the research process.

Over the last three decades, the theory of (deterministic) chaos made a powerful contribution to the paradigmatic shift and the ontological understanding of teaching, learning, and education (Akmansoy & Kartal, 2014; Blair, 1993; Doll, 1993; Gleick, 1988; Halmi, 2001, 2003). With regard to social science research in the light of chaos theory, Halmi (2001, p. 13) writes the following:

“The convergence of the natural and social sciences emphasizes, in particular, the development of a new paradigm within a systematic approach, popularly called the ‘theory of chaos’. This paradigm will surely completely change the image of modern science by

claiming that the nonlinear processes, and not causal and deterministic relations, represent the universal feature of events in many natural and social phenomena.“

Originating from natural sciences, the theory of chaos, which is based on its premises of nonlinearity, dynamic systems, randomness, self-organization, and the unpredictability, substantially alters the axiology, epistemology, ontology and methodology of pedagogical research. It is precisely such unpredictability and nonlinearity that offer considerable opportunities in research of alternative schools.

Conclusion

The analysis of some of the characteristics of alternative schools (pedagogy) reveals their detachment from the rigid plan and program of the state curriculum. These are schools with fewer numbers of children, as well as classrooms with fewer students, and sometimes of different ages. Classes are not organized according to the frontal social formation. Numerical evaluation is not so important. Teaching strategies such as inquiry-based learning, problem-based learning, collaborative learning, project-based learning and play-based learning dominate. The classrooms are highly equipped with appropriately didactically designed materials and furniture. Parents as well as collaborating with them play an important role in teaching. These are just some of the features of stepping away from the importance of "schooling", that is, adding greater importance to "education". It is not only appropriate to explore such schools via certain established methodological techniques; epistemologically valuable insights can be obtained through substantially different research methods.

Nowadays, in educational research, where the global trends of taking over (positivist) methodology from other sciences (natural and medical) prevail, the research "refreshment" can be offered precisely by the research of alternative (free) schools that are not "obsessed" with standardization, psychologization, medicalization and economization, and thus the quantification of data should also be released in a research sense. In accordance with the research context, the research participants (sample) and the research problem, it is necessary to think about the most appropriate research methods and research designs. In the case of research of the teaching, the detection of a theoretical approach (one or more) can greatly help prepare the "ground", but also to understand it for our research. In this respect, a considerable chance of alternative school research can be seen in the use of

interviews, case studies, systematic observations, action research, ethnographic research, historical research, futurological research methods, casual layered analysis, and appreciation of some recent paradigmatic shifts triggered by the theory of chaos.

Definitions, descriptions and categorizations of these issues do not solely lie in the ideas (research techniques in the field of qualitative methodology) with which research into alternative and/or free schools can be carried out, but also in the possibility that the same research techniques can be applied in conventional public schools, which, despite prescribed plans and programs, carry out their teaching by using a creative, work-based, pedocentric and/or artistic theoretical approach, whose main determinants of the organization of teaching, media, communication, educational ecology and climate largely overlap with the concepts of some alternative schools mentioned in this study. It was in this study that we wanted to show how in educational research it is sometimes necessary to take a good look at the "other side of the looking glass" because it can be a key and deciding factor in choosing a methodology, constructing a research design, selecting research tools, and all of the mentioned affects conducting of the research that may ultimately affect the results of the research constructed in such a way.

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