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## Keystones of research: epistemological and ontological analysis of educational studies

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### Abstract

In educational research, it is vital for researchers to have an underlying philosophy and to shape their studies in the borders of a framework. Epistemological and ontological views of the researchers are the key factors affecting the process of research design. Researchers' perceptions about *knowledge* and *reality* are important not only in shaping their research but also reporting the way they use in their research paper. Therefore, this study is designed as an in-depth epistemological and ontological analysis of three selected studies based upon the English Language Teaching classes. For the analysis part, especially the table (see Appendix) reporting different research approaches with different epistemological and ontological views by Guba and Lincoln (1994) were employed. The conclusion drawn from the analysis of these three studies indicate that researchers conduct their studies by basing on one framework or theoretical approach, which best suits for the nature of their research in accordance with the aim of the inquiry.

**Keywords:** Epistemology, ontology, educational research, research framework.

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## **Introduction**

Recent educational research have aimed at defining, predicting and controlling the different variables and situations especially in language teaching, which is a perspective seen in positivism among the philosophical approaches in educational research (Guba and Lincoln, 1994). Although in educational research, positivistic studies are more popular, in language teaching with the rise of modern methodologies such as communicative language teaching; critical theory with an aim to post-positivism is also preferred philosophical approach to each distinguished steps of educational studies.

Additionally, researchers may have different perspectives on ontological and epistemological issues. Thus, here, it is important to define what we mean by ‘ontological and epistemological perspective’ and their effects on research. In educational research, ontology refers to the “nature of reality” or in other words it is the study of how researchers approach the reality and how they aim to determine the reality existing in the universe (Allison and Pomeroy, 2000). Epistemology, on the other hand, refers to the knowledge of knowledge or “nature of knowledge” (Allison and Pomeroy, 2000). In educational research, the question to understand the epistemological approach of researchers is about where they know this piece of knowledge or how they know that reality. Although the perceptions of the researchers may vary in accordance with their philosophical approaches to research, in general, ontology is the study of realism and epistemology is the study of knowledge.

However, the problem about philosophical approaches to research and all these theoretical frameworks is the fact that in educational studies, as researcher, we deal with the reality of human mind and human beings. So, according to some researchers (Tanaka, 1999; Horwitz, 1999; Rifkin, 2000), the main concern of the educational research is the beliefs and perceptions of teachers and students in educational settings especially in language teaching setting, which is totally the centre of different cultures and learning occurs in relation with the psychological perspectives of the students. This fact leads to the idea that educational research cannot be apprehended in the way that any laboratory study can be apprehended. In this paradigm of the inquiry, Strauss and Corbin (1990) argue that in educational research, qualitative ways of research give more reliable results as research concern is qualitative variables such as beliefs and perceptions. Thus, educational research needs a comprehensive understanding of ontological and epistemological framework in relation to four philosophical approaches to research, which are categorized as positivism, post-positivism, critical theory and constructivism.

In the light of these approaches with a concern to epistemological and ontological perspectives of the research studies, the main aim of this paper is to shed light on three selected educational research the main interest of which is second language education research and underlying philosophies. The main focus is on the methodology, data collection tools and the conclusions of the studies with regard to language teaching and language teacher education. It is mainly asked in the study what the epistemological and ontological perspectives of the researchers are in deducing their remarks of research during data collection process. Thus, this qualitative study is designed as an in-depth analysis of three studies on language teaching in

terms of epistemological and ontological concerns. Thus, it is mentioned in the study how the studies approach the piece of knowledge they suggest and how they reflect the reality.

### **In-Depth Analysis of the Selected Study From Ontological And Epistemological Perspectives**

1. Lasky, S. (2005). A sociocultural approach to understanding teacher identity, agency and professional vulnerability in a context of secondary school reform. *Teaching and teacher education*, 21(8), 899-916.

In language teacher education, the study by Lasky (2005) that is about a sociocultural perspective to development of teacher identity in the secondary school context is under scrutiny firstly. The main aim of this study is to investigate the factors that affect the development and shaping of the teacher identity and teacher vulnerability in secondary school context.

According to this study, very little is known about the effects of teachers' professional identity on teacher vulnerability. A socio cultural perspective to understand the issue in detail is employed in the study. The starting point in the study is pointed as the belief that human beings are of the skill to affect their environments while being shaped by the social and cultural surroundings. The same *reality* is also pointed as a fact of teacher development.

The context of the study, which took place in Ontario- Canada, includes a shift caused by a reform in secondary schools. The study was organized as a longitudinal study and mixed method for data collection and analysis was employed in the study. Data was collected from teachers, students and administrators from ten different schools regarding the perceptions about the educational policies of the government. Survey and interview methods were employed and the in-depth analyses of the interviews were done to shed light on teachers' identity and vulnerability. Also, document analyses were done to reach the most reliable source of *knowledge*.

The results of the study suggest that political situation and educational policies of the governments are most prominent factors affecting the professional identity and the vulnerability of the teachers. Also, sense of purpose and educational reforms are effective in shaping the professional identity in teacher education.

Epistemologically, this study is one of the best examples of the attempts to reach the most reliable *knowledge*. As expressed in the study in a detailed way, various ways to collect data and various sources of data were employed in the study for the purpose of answering the questions of how to get knowledge and from where to get knowledge. The perspective of the researcher in this study is that to reach the knowledge various ways should be used and various participants should be applied to for the sake of stream of knowledge. As explained by Boyatzis (1997), the study mainly employed qualitative type of data collection because the main focus of the study was on social and cultural factors. Furthermore, epistemologically, the study might be claimed to approach the inquiry with "Critical Theory" suggested by Allison and Pomeroy (2000) as the knowledge and results of the study are subjective and the findings may change in accordance with the contextual, historical and cultural shift surrounding the participants, as implied by the researcher from time to time.

Ontologically, the study is of the idea that reality which is put forth as a conclusion in the study is claimed to be shaped by economic, social, and cultural background of the society and to be a part of social constructs in time. Therefore, according to the ontology definition of Allison and Pomeroy (2000), the researchers approach the piece they searched from critical theory perspective. However, the problem in categorizing this study as a product of critical theory is the fact that the aim of the inquiry is not mainly criticizing and emancipation, mainly the aim of the inquiry is stated to define the effects of recent reforms on teacher identity. However, it is acknowledged that the findings of the study propose some critiques about the recent reforms.

Lastly, the study by Lasky (2005) is conducted with a perspective of critical theory basing on its assumptions both epistemologically and ontologically. Although the study cannot be defined as fully a product of critical theory when the aim of the inquiry is taken into account, in epistemological and ontological perspective, the research might be categorized as a part of critical theory.

2. Forman, R. (2014). How local teachers respond to the culture and language of a global English as a foreign language textbook. *Language, Culture and Curriculum*, 27(1), 72-88.

In language teaching, the study by Forman (2014) has shed light on the issue of cultural awareness of the language teachers. In this study Forman combines content analysis of the textbooks used in language courses with pedagogy in order to define the effect of textbooks produced globally to the local culture. The main aim is to investigate the responses of local teachers to the content of globally produced textbooks.

For this study, qualitative ways of data collection which are audio-recordings, field notes and semi-structured interviews were conducted. The data was gathered both from teachers and students. Also, content analysis and pedagogical analysis were used as data collection ways. Thus, in this study, knowledge is gathered by using different ways and by referring to different sources.

The findings of this qualitative study suggest that the textbooks are found “less than positive” both for the students’ learning process and teachers’ roles. The textbooks are also criticized for encouraging only Western cultures in ELT courses.

Therefore, the epistemological review of the study suggests that the term knowledge is subjective for the researcher. Throughout the study, very different ways of data collection are utilized. As suggested by Allison (2000), the inquiry should question what “we do know” along with what “we can know”. This study is one of such inquiries as it pushes the limits of variety of data collection ways. Thus, the study is epistemologically, based on cultural and historical insights of both the researcher and the participants. Another epistemological consideration in the study is that the researcher considers the *knowledge* as something that may change by criticizing the production of the textbooks used in language classes with a bias of Western cultures. Therefore, for this study, the epistemological concerns point the critical theory as a base of the research under scrutiny.

In ontological terms, it is vital to remember the statement of Berger and Luckmann (1966) which suggest that reality is independent of person's beliefs and existence, and reality is just an object of knowledge and thus the person is just "knower" in that case. In combination with this idea, the study declares a combination between epistemology and ontology fundamentally. The reality in the study, which is the current situation of textbooks used in ELT classes, cannot be changed and the participants are only the "knower" and reporter of this current reality for language classes. Ontologically, the results of the study suggest that the reality is shaped with cultural and economic factors and thus it is criticized for producing culturally-biased textbooks, which is a problem for the local teachers. Thus, this study is on the view of critical theory ontologically, which put forth the nature of reality as "historical realism" (Allison and Pomeroy, 2000).

To sum up, in epistemological and ontological review of the study by Forman (2014) on the perceptions of local teachers on textbooks used in language teaching, it can be concluded that the study is mostly based on critical theory approach, which is declared to be used in qualitative inquiry in order to describe the perceptions and feeling especially in educational settings (Kincheloe and McLaren, 2002). So, for such studies as shown in the example study, critical theory approach is generally preferred by the researchers.

3. Mori, Y. (1999). Epistemological beliefs and language learning beliefs: What do language learners believe about their learning?. *Language learning*, 49(3), 377-415.

The last study under scrutiny is about the investigation of language learners' epistemological beliefs on language learning, which was based on Mori's doctoral dissertation. It is suggested in the study that previous research has shown that there is a variety of learning strategies used by language learners (O'Malley & Chamot, 1990). So, this study is designed to see the epistemological beliefs about language learning.

The study took place in a private school and one hundred and eighty seven students from various proficiency levels participated in the study. For the data collection part, the epistemological belief questionnaire consisting of three parts was used. Thus, the study was designed as a quantitative one.

The results of the study suggested five factors for epistemological beliefs of learners such as "dependence on the authority" and the "innate ability". Also six factors for the language learning beliefs were suggested as the result of the questionnaire and the correlation between epistemological beliefs and language learning beliefs was put forth. The beliefs were found uncorrelated as a result of the statistics.

From a review of the epistemology, the findings are regarded as "probable true", the findings and hypothesis of the study is not regarded as certain laws, and also Mori (1999) suggest that although the study shed light on the epistemological beliefs of students, there are still unanswered questions related to the issues, which is a statement indicating modified dualist perspective to the study epistemologically. Thus, when the study is analysed epistemologically, it is seen that the study is conducted with a perspective of post-positivism theory, which is described as the justification of frameworks and justification of the outsiders indicating objectivity (Phillips and Burbules, 2000).

Ontologically, the nature of the reality is not dependent on cultural, economic and political shapes of the society. Additionally, the reality is not regarded as the socially accepted laws. The findings and the reality is accepted as probable facts and it is only predictable in accordance with the context of the study as Mori (1999) suggests that “the study was not designed to directly provide instructional interventions”. It only attempts to describe the current situation and predict the further similar cases in language teaching environment. Thus, when the aim of the inquiry and the ontological formations of the study are regarded, it can be concluded that the study is mainly designed with an aim to post-positivistic approach.

Lastly, it is important to note that the study of Mori (1999) was designed to shed light on the beliefs and perceptions of language learners in a quantitative form. When the epistemological and ontological frameworks are considered in one hand, it can be concluded that the study was mainly designed upon the post-positivistic approach, which is suggested by Guba and Lincoln (1994) as underlying paradigms of educational research.

### **Conclusion**

The present paper is designed as an epistemological and ontological review of three different studies conducted in language teaching and namely educational research area.

The studies reviewed in this paper suggested that the educational research studies offer a range of different methodologies with different approaches to research from ontological and epistemological perspectives. The first two studies indicated that the studies are mainly produced with a perspective of critical theory. The effects of critical theory are seen both in ontological and epistemological terms in these two studies. The last study was different from the first two studies in terms of methodology as this study was designed as a quantitative study. Also, the last study was mainly based upon the post-positivistic approach in terms of epistemological and ontological review.

It is also important to mention that the table suggested by Guba and Lincoln (1994) was the main source of this study and the three studies under scrutiny were mainly reviewed by using these research frameworks.

As a last remark, educational research has a variety of ways to describe and find the best ways to teach. However, as educators work with a reality of human being, it is important to employ different types of methodologies to create the most generalizable results in the field of language teaching especially. Therefore, whatever the epistemological and ontological framework of the studies, the most important point is to indicate the most reliable and valid results of such studies.

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**Appendix A:** Table taken from Guba and Lincoln (1994, p.109).

**TABLE 6.1 Basic Beliefs (Metaphysics) of Alternative Inquiry Paradigms**

Item	Positivism	Postpositivism	Critical Theory et al.	Constructivism
Ontology	naive realism—“real” reality but apprehendable	critical realism—“real” reality but only imperfectly and probabilistically apprehendable	historical realism— virtual reality shaped by social, political, cultural, economic, ethnic and gender values; crystallized over time	relativism—local and specific constructed realities
Epistemology	dualist/objectivist; findings true	modified dualist/objectivist; critical tradition/community; findings probably true	transactional/subjectivist; value-mediated findings	transactional/subjectivist; created findings
Methodology	experimental/manipulative; verification of hypotheses; chiefly qualitative methods	modified experimental/manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods	dialogic/dialectical	hermeneutical/dialectical