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Ontological and Epistemological Foundations of Research: The Analysis of Three Educational Studies

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Abstract

Ontological and epistemological perspectives constitute the philosophical scaffold of a research study. The main problem of most studies is the inconsistency in the rationale of the studies, in other words, the discrepancy between theory and practice. Identifying a study's perspective to the truth (ontology) and the knowledge (epistemology) contributes much to the coherence in the rationale of the study. In this respect, this study aims to analyse three selected educational studies from ontological and epistemological perspectives to reveal how the consistency can be achieved relying on the philosophical underpinnings.

Keywords: Ontology; epistemology; research; education; analysis

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Introduction

Research is regarded as any kind of investigation to find out the facts through the interpretation of the results in a systematic way (Walliman, 2017). In this definition, the keywords “investigation, interpretation and systematic” constitute the characteristics of the research. The definitions, classifications, assumptions, methodology and implications about research are well-documented in the literature. What is unique about research is that it is systematic and structured, and what makes it systematic and structured is the hierarchical order of research design. To put it simply, research collects data using particular methods which are based on a methodology which is based on a paradigm. As can be seen, research is based on a generic system from paradigm to methodology and to methods. A paradigm dictates the perception of truth (whether it is objective or subjective), a methodology deals with how the knowledge is discovered and methods is particularly related to data gathering techniques. The critical point in this hierarchy is the consistency and coherence between these components.

Paradigm is a broad term describing the way one understands the world. Several researchers draw attention to different aspects of the concept of paradigm. Guba and Lincoln (1994) define paradigms as beliefs systems that are driven by ontological and epistemological assumptions while Schwandt (2001) regards paradigms as a shared worldview that represents beliefs and values in a discipline. Paradigms constitute the skeleton of research since the researchers adopt a stance to the perception of truth in their studies. They act as a framework for researchers that guide them in their studies and paradigms are like glasses. The glasses you wear changes the way you see the world (Killam, 2013).

Ontology and epistemology are two main paradigms that comprise the philosophy of research. While ontology’s primary focus is on truth, epistemology is concerned with the knowledge (Patton, 1990). Ontology questions the fundamental nature of existence and the question associated with ontology is ‘What is there?’. On the other hand, epistemology deals with the nature and the production of knowledge asking questions such as ‘What do we know?’ and ‘How do we know it?’. The methodology is related to how you can discover the knowledge systematically by relying upon the assumptions of ontology and epistemology. Guba and Lincoln (1994) stress the interrelated relationship between ontology, epistemology and methodology in that they shape and are shaped by one another.

Ontology is the outcome of a philosophical thought process and was adopted by several different disciplines in time, one of which is research. In philosophy, ontology studies

the existence and reality by questioning the fundamental issues. In research, ontology shapes the researcher's beliefs about reality. Blaikie (2007) suggests a comprehensive definition of ontology: "claims and assumptions that are made about the nature of social reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other" (p. 3). As can be inferred from these definitions, ontology can be regarded as an umbrella paradigm that has a broad and in-depth perspective to the truth.

The assumptions of epistemology are based on the ontological underpinnings. Differently from ontology, the main concern of epistemology is the relationship between the researcher and the knowledge by questioning how knowledge is acquired (Killam, 2013). Crotty (1998) defines epistemology as "the theory of knowledge embedded in the theoretical perspective and thereby in the methodology" (p. 3). Epistemology acts as a bridge between ontology and methodology since the data should be interpreted in a systematic way to transform it into knowledge and ultimately to the truth. Epistemology is characterized by two primary approaches, etic and emic approach. These two terms were coined by Pike (1967) to distinguish phonemic and phonetic accounts of the sounds of language, but the real meaning of these terms evolved into the notion that etic approach represents qualitative research while emic approach is quantitative research (Markee, 2012).

This study aims to conduct an ontological and epistemological analysis of the three studies related to English Language Teaching. In an ontological sense, the studies will be analysed by their stance to the truth in the light of realist (positivist) or relativist (post-positivist) perspectives. Epistemologically, how the researcher approached the knowledge will be analysed from the perspective of etic and emic approaches.

Analysis of the selected studies

Pishghadam, R. (2009). A quantitative analysis of the relationship between emotional intelligence and foreign language learning. Electronic journal of foreign language teaching, 6.

The study of Pishghadam (2009) aims to investigate the role of emotional intelligence in foreign language learning. The study adopts a quantitative data collection procedure and tries to find the effect of emotional intelligence in second language learning in general and its

effect on academic achievement, reading skills, speaking skills, writing skills and listening skills in particular. The participants of the study are composed of 508 second-class university students at Iran (134 males 374 females) who are all English language learners. The emotional intelligence of the participants was measured by a scale with 133 items developed by Bar-On (1997). Data were collected quantitatively by scoring the questionnaire based on the guidelines suggested by the developer. Academic achievement and skill scores were obtained from the university, and a correlation analysis was made. The participants were grouped as successful and unsuccessful according to their GPA (grade point average). The findings of the study suggest that “Important factors for success in second language learning are: intrapersonal, stress management, and general mood (for GPA), stress management, adaptability, general mood (for reading), intrapersonal and stress management (for listening), intrapersonal, interpersonal, general mood (for speaking), and stress management and adaptability (for writing)” (p. 38).

Pishghadam’s (2009) study represents all the characteristics of a quantitative study from the research questions, methods, participants and the findings. Onwuegbuzie and Leech (2006) suggest that quantitative research questions are precise in nature and they group quantitative research questions into three: descriptive, comparative and relationship. The research questions of Pishghadam’s (2009) study which questions the role of emotional intelligence on the GPA, speaking, reading, writing and listening skills can be classified as descriptive questions.

To make an ontological analysis, the researcher’s perception of truth should be identified first. The findings of the study suggest clear-cut statements based on empirical data such as “There is no relationship between emotional intelligence and reading skills” or “Stress management has an effect on GPA’. The results of the study are not affected by the context and focus on the observable and empirical data. The design of this study is consistent with the principles of realism (positivism). The fundamental perspective of realism to the truth is that only one truth exists that can be measured objectively and is generalizable. Pishghadam’s (2009) study generates truths that are context-free, generalizable and measured objectively. In this respect, this study reflects all the characteristics of realism (positivism).

In an epistemological sense, the relationship between the researcher and the study should be examined beforehand. First, we need to identify the role of the researcher. In this case, Pishghadam (2009) is data collector and analyser. In the data collection process, the researcher stays away from the research to obtain objective results in that he administers a structured test to the participants and collect the data. In this process, the researcher is more

like a data collector, and in the analysis process, the data analysed statistically without the interference of the researcher and other contextual factors. The relationship between the researcher and the study indicates that an etic approach is adopted in the study.

Pishghadam's (2009) study can be regarded as a classic realist study with its perception of truth, an etic study with the researcher's stance and a quantitative study relying on the empirical data.

Stracke, E. (2007). A road to understanding: A qualitative study into why learners drop out of a blended language learning (BLL) environment. ReCALL, 19(1), 57-78.

The phenomenological studies have been on the rise with the increasing importance of qualitative studies. The study of Stracke (2007) serves as a seminal example of a phenomenological study. The primary aim of the study is to understand the reasons why students dropped out a blended learning environment. Three students constitute the participants of the study. Sample size in a phenomenological study differs radically from empirical-statistical studies. Dukes (1984) states that 'a sample size of one would suffice' since a phenomenological study aims at a deep understanding of individuals. Blended Learning Environment constitutes the setting of the study in which face-to-face and computer-assisted interaction are maintained. The researcher wants to discover the rationale behind the reasons why three students left the class by describing their experiences from their point of view. To do so, the researcher administered a questionnaire to 190 students and interviewed with 32 students and 9 teachers. The study revealed three reasons why students left the class: (1) lack of support and connection between the face to face and computer-assisted components of the environment, (2) lack of usage of the paper medium for reading and writing and (3) rejection of computer as a medium of language learning. Finally, the researcher suggests some implications for the blended learning environments.

This study radically differs from the previous study both ontologically and epistemologically. What makes the study ontologically different is the perception of truth. Unlike the first study, Stracke adopts a different stance to the truth. The researcher highlights the changeable nature of truth within a particular context and the truth revealed by the study only belongs to the circumstances of the setting, time and the participants. In other words, this

means that truth derived from the study can change under different conditions which make it subjective. In this sense, the findings of this study are shaped by the context, can evolve and change in a different design and are outcomes of a subjective process. All of these aspects of the study indicate that the study has a relativist perspective in the ontological sense.

Emic perspective and qualitative data comprise the epistemological background of this study. Qualitative inquiry is a component of relativistic ontology and emic epistemology (Bailey, 1997). This study makes use of interviews to collect data qualitatively and the data collected is analysed subjectively. One significant contributor to the emic side of the study is the positioning of the researcher. Unlike relativist researchers, Stracke gets involved in every part of data collection by co-constructing the data with the participants. Also, in the analysis part, the researcher acts as the interpreter of the data rather than describing the results statistically.

As the title of the study suggests, relativist studies with an emic perspective target a deeper understanding of the phenomena investigated by referring to the qualitative data such as experiences, feelings, motivation, thought processes and so on.

Brecht, R. D., & Robinson, J. L. (1993). Qualitative Analysis of Second Language Acquisition in Study Abroad: The ACTR/NFLC Project. NFLC Occasional Papers.

The study conducted by Brecht and Robinson (1993) is based on a project undertaken by American Council of Teachers of Russian and National Foreign Language Center with an aim to investigate the process and results of language study abroad. The study comprises two phases. The first phase includes a statistical analysis of the relationship between learner characteristics and program assessments of reading, speaking and listening. The second phase is allocated to an ethnographic study investigating the language learning experiences and behaviours of learners through a qualitative data collection procedure including self-report diaries, observations, interviews and recordings. The qualitative data collection procedure lasted for two and a half year. The researchers define the major focus of the study as to how qualitative methodology can be used in second language acquisition. In general, the findings of the study suggest that qualitative methodology provides rich and in-depth descriptions of the language learning process.

The study is a pure example of methodological pluralism which means using multiple models or approaches in one study (Midgley, 2000). The study makes use of both qualitative and quantitative methods, mainly relying on qualitative data. From the ontological perspective, the study adopts a relativist perspective even if it bears on statistical analysis of quantitative data. This study clearly refutes the idea that all quantitative studies are positivist or qualitative ones are relativist. On the contrary, the researchers put forward that in certain conditions qualitative data can only be interpreted when attached to quantitative data. In this case, the power of triangulation in research can clearly be seen, and this process reveals the perception of the truth of pluralistic studies using triangulation. Other factors that contribute to the relativist nature of the study are timing and the data collection tools. The study lasted for two and a half year which indicates that context-specific observations were made to reach the truth and data was collected through interviews, diaries, observations that allow researchers to understand the phenomena investigated from multiple perspectives. From the epistemological point of view, the researchers demonstrate active involvement in both data collection and interpretation which makes it an emic study. The researchers adopt an insider perspective and conduct an ethnographic analysis to investigate the problem.

The study of Brecht and Robinson (1993) aimed to reveal the significance of qualitative method in second language acquisition, but they claim that in some circumstances the interpretation of qualitative data become apparent only after statistical analysis of quantitative data. From this perspective, the study highlights the effectiveness of methodological pluralism and triangulation of data from a relativist and emic view.

Conclusion

This study aimed to analyse three educational studies from ontological and epistemological perspectives. To do so, the studies were ontologically analysed from realist or relativist perspectives according to their perception of truth and epistemologically analysed if they adopted an etic or emic perspective referring the relationship between researcher and the knowledge.

The analysis of the studies suggested that Pishghadam's (2009) study is ontologically realist (positivist) and epistemologically has etic perspective; Stracke's (2007) study has relativist (post-positivist) grounds ontologically and an emic perspective epistemologically while Brecht and Robinson's (1993) study is a relativist-emic study even if it makes use of quantitative methodology.

Thinking about the ontological and epistemological aspects of a study should be regarded as a fruitful endeavour to capture the governing philosophy of a study. The incompleteness in a researcher's philosophy leads to the emergence of inconsistency in theory and practice (Bhaskar, 2012). For this reason, it is crucial to construct the underlying philosophy of the study. Ontology and epistemology suggest a roadmap to researchers to follow since they have a clear-cut perspective to truth and knowledge which constitute the underpinnings of a study. Developing an accurate and consistent ontological and epistemological perspective would contribute the coherence in the rationale of the study and diminish the problems between theory and practice.

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