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ECT Masters Exam

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Question 1

Summarize the basic claims and assumptions (i.e., epistemological, ontological, and methodological) of one of the following five traditions of qualitative inquiry within the field of Educational Communications and Technology (ECT) research:

- Biography
- Phenomenology
- Grounded Theory
- Ethnography
- Case Study

Include a discussion of the criteria for selecting, doing and evaluating research within the inquiry tradition you have chosen and use examples or a specific study whenever possible to elaborate your points.

Question 1 Response

Background

As a child I wanted to be a scientist. This desire was fueled by the belief that a scientist would trust that the world could be understood and made safe by measuring and describing it with numbers. The embrace of qualitative analysis in Educational Communications and Technology research has been both a shock and an awakening but ultimately a validation of the philosophical and possibly more human components of academic research. In this response essay I intend to summarize the basic claims and characteristics of the qualitative research tradition known as Phenomenology.

Claims of Phenomenology

Phenomenology is the search for the "essential structure" of a qualitative investigation – the phenomenon. A phenomenological study involves a group of participants where individual experiences are combined, categorized and reduced to reveal the essential structure of the phenomenon (Creswell, 1998, p. 51).

Ontological Aspects

While it is the hope of researchers that their efforts will reveal some aspect of the real world, the results of a phenomenological analysis are not necessarily a statement of the nature of the physical world. Quite to the contrary, phenomenology distinguishes the mental experience of an essential structure from the actual physical structures of objects (Wikipedia 2006). That which separates the physical from the mental is the concept of intentionality (Creswell, 1998, p. 52). "Intentionality of consciousness" separates the real-world object from the experience of the object so that the essence of the real-world object is of less concern than the experience. Creswell (1998, p. 53) states this more strongly as a theme of phenomenology:

"*The refusal of the subject-object dichotomy*. This theme flows naturally from the **intentionality of consciousness**. The reality of an object is only perceived within the

meaning of the experience of an individual."

Clearly a phenomenological study is not about finding the essential structures of reality, but rather it is about how the real world is apprehended by the mind and emotion of individuals.

Epistemological Aspects

Understanding that phenomenology is about the comprehension of the world rather than the world itself could lead to the assumption that the tradition is purely about subjectivity. However, unlike a biographic study which relies solely on collected experiences of one individual, phenomenology is an exercise to find commonalities and by assumption, validation in the experiences of multiple individuals.

While understanding that individuals construct meaning from their own experiences, the researcher must also ask how the act of observing and searching for essential structures influences the study. We assume that personal experiences make sense to the individual who experiences them (Creswell, 1998, p. 86) but we must account for how the researcher makes sense of the experiences of others.

Creswell (1998, p. 54) refers to Moustakas and the process of 'bracketing out' preconceptions whereby the researcher endeavors to identify and separate their own preconceived

experiences from the experiences of the participants. Creswell (1998, p. 236) recommends that researchers identify and include their preconceptions within the research rather than simply filtering them out during the analysis process. This is in contrast to Husserl's original "Transcendental phenomenology" which sets those prejudgments aside.

Creswell (1998, p. 151) identifies bracketing as a difficult aspect of the phenomenological study. The researcher begins early in the development of preconceptions simply by the act of envisioning the phenomenon to be studied. Explicating the experience of the researcher not only helps to reveal the essential structures of the participants but also contextualizes the study and provides clues to preconceptions that the researcher may have failed to identify. As an example, consider an investigation to reveal enjoyment of playing computer games. The assumption 'there is enjoyment while playing computer games' is a preconception of the researcher and should be acknowledged at the outset of the study.

Methodological Aspects

Like other traditions in qualitative research the audio-taped interview is the standard data collection tool although video has been used as well (Horwitz et al., 2003), (Olsson et al., 1998), (Macintosh, 2001). Creswell (1998, p. 77)

describes an inductive approach that is reminiscent of the iterative nature of industrial rapid-design. Beginning from initial preconceptions about the topic, the researcher conducts investigations to "create general questions and refines them as the study proceeds." In a phenomenological investigation it is typical to work from the specific interview details to the more general essential structure. Consider this in contrast to the case study, which proceeds from the general concepts towards the supporting details.

Data analysis is comparatively simple for phenomenological research. From the collection of the lived-experience interviews, details are 'horizontalized' or categorized into 'clusters of meaning' which can then be sorted and grouped by commonalities to reveal two critical aspects of the investigation: "the **textural description** of what was experienced and the **structural description** of how it was experienced" (Creswell, 1998, p. 55). From these two summaries of the data the study should convey an "essential, invariant structure of the experience" expressed by all the participants.

Creswell (1998, p. 207) briefly discusses the issue of validity for the phenomenological study and proposes a very interesting mechanism wherein the participants of the study are asked to review the essential structure of their experience.

The participant feedback from this review would provide an excellent complement to the bracketing performed by the researcher.

Phenomenological Research in Practice

The decision to use the phenomenological tradition in ECT research can be simple one. One need only ask, "Is there a phenomenon to investigate?" Identifying the phenomenon is perhaps the complicating issue. While my exposure to phenomenological research is severely limited, it is my impression that much of it is conducted in the medical sciences and also that much of it focuses on highly emotional phenomena. In particular, studies such as these seek to determine the essential structures of fear (Olsson et al., 1998), uncertainty (Theobald, 1997), anger (Horwitz et al., 2003), & reluctance (Nilsen & Baerheim, 2005). The negative aspects to these studies indicate that strong emotions in the participants must be understood so that remedies may be sought. In these cases there was a clearly understood emotional phenomenon to be researched.

Yet it seems that the inductive and iterative aspects of phenomenological research provide other opportunities. Consider a case where there is a suspicion of a phenomenon. Trotman

(2005) provides an example of a study that was conducted to reveal attributes of "emerging educational practices amongst primary school teachers and their orientation to the imaginative lifeworld of pupils" using hermeneutic phenomenology. Franklin (2001) also describes a study "exploring faculty attitudes about the use of technology in the college classroom," which again indicates that there are suspicions of phenomena to be discovered by the study.

It was my intention to pursue a phenomenological study of the results of my investigations of using the online community of Second Life® for distance training. In this case I have long suspected that there is a phenomenon of enhanced understanding achieved by altering the relative size of the student observer to the subject, in this case a robotic simulation. The investigation concluded with the construction and testing of the simulated robot but did not conduct experiential analysis of the participant experiences. This is an opportunity that remains to be explored.

Question 2

Discuss the risks and promises of information technology in education and what teachers can do to avoid these risks and build on these promises in the classroom. Pay particular attention to how information technology "restructures consciousness," and, be specific in your recommendations.

Question 2 Response

The Promise of Information Technology

There are many dimensions to the understanding of the benefits of using information technology in education. Perhaps a good beginning to this understanding is to illuminate that which is not part of the promise. Information technology, as emblemized by the desktop computer, is not a 'magic pill' for better education. Even so, it is a common and easy failure of school administrators and education decision makers to view information technology in precisely this way.

Muffoletto (1994) describes the cultural mindset of 'technocracy' surrounding the rush to adopt information technology in education purely for the sake of the technology. The hallmarks of technocratic thinking include logical positivism, social control and system management which contribute to the belief that technology by itself will be beneficial to education. Technocratic thought found its

ultimate expression at the time in the America 2000 act of 1991 which was a national, external control mechanism that emphasized outcome-based education and standardized testing. And technocratic thought still finds its expression today in the act known as No Child Left Behind.

Technocratic positivism will always be a factor in the social and cultural dynamics of the industry of education so it falls to those who must utilize educational technologies to understand the promise they offer. Understanding that promise starts first with the realization that educational technologies are only components that must be balanced and integrated into the overall educational approach.

Integrating Educational Technology

Roblyer (2006) describes two strategies for integrating information technologies and labels them 'Directed' and 'Constructivist'. The directed integration strategy emerges from the epistemological perspective of objectivism and the constructivist strategy from the perspective of constructivism. Objectivism is characterized as the philosophical perspective that "Knowledge has a separate, real existence of its own outside the human mind" and constructivism as "Humans construct all knowledge in their minds by participating in certain

experiences" (Roblyer, 2006, p. 37).

It is should be noted that Roblyer makes the noble effort to treat the two strategies on their merits and not endorse one over the other. This is notable because it is very easy to reject the objectivist philosophy as the impetus for technocratic beliefs and decision making. Referring to Sfard in 1998, Roblyer (2006, p. 36) also acknowledges that "the acquisition metaphor" is an older philosophy and the "participation metaphor" is more recent. Here too, it is tempting to reject the old in favor of the new. In the pursuit to reveal methods of technology integration, Roblyer sets a good example by first integrating these often diametrically opposed philosophies.

Technologies and Directed Integration

It is easy to see how educational technologies can be integrated from the objectivist perspective. Whether the technology is paper-based such as flash cards, or electronic in nature such as video, audio and computer multimedia, the view that knowledge is external, quantifiable and transmittable seems well supported when facts can be externally quantified and transmitted using these tools. Educational technologies seem particularly well-suited, especially in their most rudimentary forms, to the chunking of knowledge into teachable pieces

or objects. Roblyer (2006, p. 38) describes a lineage of objectivist learning theories beginning with B.F. Skinner's behaviorist theory and ending with Systematic Instructional Design. All of these theories share the common theme that the human mind is a storage vessel for information objects and that more sophisticated methods of organization of knowledge objects will result in the greater understanding.

Roblyer (2006, p. 41) lists a body of research that indicates that "directed methods work well for addressing certain kinds of teaching/learning problems." There is also a personal resonance with this claim for any student who can cite multiplication tables and the ABC's. When asked to explain how one knows that 6 x 6 = 36, the person who learned from drill and practice simply recalls that equation or in more typical terms, the knowledge is memorized. The objectivist perspective is that, with respect to suspected mechanisms of the brain, the knowledge objects have been imposed upon the mind and restructured the conscious recall of information to be the same as it is described outside of the mind.

Technologies and Constructivist Integration

While many people today have a personal resonance with rote memorization, my children have benefited from the constructivist perspective. Instead of the drill and practice memorization

of multiplication tables, they learned from the TERC math curriculum named "Investigations in Number, Data, and Space" (TERC, n.d., index). They were encouraged to explore, invent and personalize their own understanding of the multiplication of six times six. The understanding of multiplication is encouraged by exploration themes which include; Things that come in groups, Skip Counting, Arrays, Cluster Problems, Problem Situations, Straight Computation and Teaching Muliplication and Division together (TERC, n.d., faq).

The above example demonstrates many of the theories that underlie the constructivist philosophy described by Roblyer (2006, p. 39). These theories include Vygotsky's concept of scaffolding, Piaget's theory of cognitive stages of development, Bruner's environments of discovery and even Gardner's multiple intelligence theory (skip counting being a more kinesthetic engagement compared to grouping which is more visual or spatial).

Each of these theorists have provided great contributions to the methods of constructivism but it was John Dewey who broke the ground to formalize and implement this perspective on education. Dewey's social activism theory describes a learning experience where the individual builds understanding through the personal and social interaction with the world.

Knowledge exists within the contexts of experience and social well-being. Dewey's students went out into the world and got their feet wet and their hands dirty. 'Learning by doing' is a common statement of Dewey's constructivism. Essential to the constructivist perspective is the tenet that knowledge is interpreted and built in the human mind by the experience of the learner and is not necessarily an exact copy of the external, real world facts. In the constructivist perspective, education restructures consciousness in the way that most suits the learner's experience of the world.

Educational technology in the constructivist integration, without any change to its physical properties, functions quite differently from the directed approach. Flash cards, movies and computers, rather than being just the repositories of knowledge objects, become experiential tools of learning. In the early days of computers this was exemplified in curricula that emphasized computer use of programs such as Logo and Hypercard. The content of a Hypercard stack was not as important as the process of gathering, organization and implementing the project. In fact, the computer was often considered to be a tool that actually modeled constructivist theories.

The result is still that as the learner constructs a computer application they also construct knowledge in their

mind of the experience. Here, the educational technology is simply a tool that the learner uses to restructure their own consciousness. The educator facilitates the experience by guiding the exploration and intervening when the technology fails, but it is the learner who shapes their own learning.

Since the time of Logo and Hypercard, computer technology has progressed so that it has become a meta-technology incorporating its predecessor educational technologies including print, audio, film and video. The computer has also created new avenues of mediation in graphical and network structures leading to the concept of virtual spaces. Even so, the computer remains just a component of an integrated learning experience which includes people both as mentors and peers, the physical environment, emotional context, and of course, other non-technological learning tools.

Educational Technology in Practice

Roblyer (2006) devotes 13 chapters to descriptions of integrating specific technologies to a variety of educational purposes in an extremely practical, how-to format. Four chapters are software specific, seven discuss different educational domains and two chapters focus on the internet. Roblyer's book and others provide a vast quantity of examples

and ideas of how to use educational technologies. Yet even with a carefully integrated approach, there remain risks to using educational technology.

Burbules and Callister (2000) directly examine issues of risk and provide good areas for consideration. They present a variety of topics to consider including accessibility, credibility, authorship, and critical reading skills needed for use of the internet. The book addresses issues of deliberate mis-information and the existence of information that is simply wrong and also investigates the changes to our sense of community when mediated by information technology.

One of the greatest risks involving educational technology is the issue of privacy. As computers have grown in technical capability they have also made it possible to track and report patterns of use which can be analyzed and create assumptions about computer users. These assumptions may be right or wrong, but can have a negative impact on the rights of the computer users. Different cultures are responding to this capability in different ways. Burbules and Callister (2000) touch on issues of privacy in information technology but this issue is a very dynamic topic that world leaders and governments are still exploring.

Another area of concern involves the overuse of computers and physical maladies that can occur from too much computer activity such as eyestrain, wrist strain, sedentary obesity and posture (Marcus 2002).

Careful planning and awareness are best skills that teachers can summon for taking advantage of the educational technology and avoiding the pitfalls of risk. By keeping a perspective that educational technology tools are just some of the components in a wholistic view of education, it is possible to utilize any individual technology only when it is needed and only when it serves a useful function within the social, physical and emotional dynamics of the educational curriculum.

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