

Making the Familiar Strange -- and Interesting -- Again: Interpretivism and Symbolic Interactionism in Educational Technology Research

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Abstract: The purpose of this chapter is to discuss the methodological and theoretical assumptions of interpretive research as proposed by Erickson (1986), based on the premises that Blumer (1969) posed for symbolic interactionism. A specific example of a conceptual framework for studying the major theoretical constructs identified in distance education research will be presented. Although this framework was initially developed for studying distance education and online learning environments, methodological and theoretical assumptions will be discussed as they relate to the general field of educational technology. Issues such as the kinds of research questions that are appropriate for interpretive research and the possible goals of inquiry will be discussed in detail and concrete examples will be presented. The emphasis of the discussion will be on the interplay among the researcher’s conceptual framework, role, data collection procedures, data analysis, and issues of validity, reliability, and generalizability.

Introduction

Interpretive research is a term preferred by Erickson (1986) when referring to *qualitative* research because of three reasons. First, the term of *interpretive* research is a broader term than *qualitative* research and it encompasses all other approaches based on participant observation such as ethnographic, qualitative, phenomenological, constructivist, and case studies. Second, interpretive research does not carry with it the false connotation of excluding the use of quantitative measures. Third, it emphasizes interpretation and suggests a focus on the meanings in action of participants and how the researcher uncovers and interprets those meanings. These major ideas will be addressed later in detail. Although his ideas in the chapter he wrote for the *Third Handbook of Research on Teaching* were focused on research on teaching, they transfer to a variety of educational research topics including educational technology research.

“Paradigm Wars,” as Gage (1989) calls them, have been around for decades. Kuhn (1996) argued that paradigms are sets of beliefs, examples, traditions, that guide a certain scientific community on how to conduct its practices. He also postulated that “paradigms gain their status because they are more successful than their competitors in solving a few

problems that the group of practitioners has come to recognize as acute” (p. 23). However, dominant paradigms, in both the physical and social sciences, rarely replace each other by falsification (Erickson, 1986; Lakatos, 1978). Instead they tend to co-exist and are used whenever they are appropriate. For example, quantitative and interpretive research methods are based on different epistemological assumptions. They coexist and they are used when they are appropriate. Some research questions lend themselves to the use of quantitative methods, whereas some other questions lend themselves to interpretive methods. Interpretive and quantitative approaches to educational research should not be seen as competing paradigms, since both have important things to offer towards the understanding of educational phenomena and the improvement of teaching and learning.

The difference between the two paradigms is their focus and what kinds of questions it addresses. As Erickson (1986) has argued, “a research technique does not constitute a research method” (p. 120). Although quantitative methods use numerical data and advanced statistical techniques for analyzing the data, interpretive approaches to educational research do not necessarily exclude the use of similar techniques. The key issue is "deciding what makes sense to count" and how it can strengthen the plausibility of the researcher's assertions (Erickson, 1977, p. 58).

The big difference is in terms of content rather than procedure. Behrens and Smith (1996) have argued, “all quantities are measures of qualities, and the understanding of qualities is not simpler matter” (p. 947). Interpretive research focuses on the meanings of phenomena, whereas quantitative research assumes the meaning and then studies its distribution. The emphasis of interpretive research is on the meanings in action of the actors involved, which meanings traditional research has pushed aside as non-important, attempting to explain behavior as a result of a set of factors. To understand the meanings of actors the researcher has to study them in naturally occurring situations and not in highly controlled laboratory settings. Traditional approaches focused on behavior only, whereas interpretive research studies the actions of participants. An action is the observable behavior, plus the meaning attached to it by the actor. In Blumer's (1969) words, in traditional research approaches, “meaning is either taken for granted and thus pushed aside as unimportant or it is regarded as a mere neutral link between the factors responsible for human behavior and this behavior as the product of such factors” (p. 2).

In the following sections I will first briefly present the setting for an interpretive study I conducted. Then, I will discuss the theoretical assumptions of symbolic interactionism and how they relate to interpretive research. Following that, I will use concrete examples from my study to illustrate and discuss the importance of the conceptual framework, the researcher role, data collection procedures, data analysis, and standards of rigor. The emphasis will be on the research process itself. I will attempt to illustrate how interpretive research can be applied by discussing the various stages of the study from conceptualization to the final write-up. Due to space limitations, the findings and implications of the study cited will not be addressed.

The Interpretive Research Process: A Concrete example

Advances in telecommunications are changing the field of education and are blurring the boundaries between traditional and distance education. Several university courses are offered completely online, or they require a combination of face-to-face and online meetings. In order to illustrate the concepts addressed in this chapter I will be using

an example of an interpretive study I conducted in distance education to examine the nature of interaction in an online course offered partly online and partly face-to-face (Vrasidas, 1999). Parts of the study were reported elsewhere (Vrasidas & McIsaac, 1999).

Some of the methodological approaches employed in studies on interaction in distance education include interpretive methods, survey research, experimental design, and factor analysis (Baynton, 1992; Comeaux, 1995; Fulford & Zhang, 1993; Howell-Richardson & Mellar 1996; Ritchie, 1993). Several of the recent studies that examined interaction in online environments concluded that qualitative methodology is necessary to shed light on the meaning of interaction and the complexities of online environments (Gunawardena, 1995; Howell-Richardson & Mellar 1996; McHenry & Bozik 1995; Oliver & Reeves, 1996; Walther 1997). Jorgenson, Joshi, and Monroe (1996) postulated that the complexity of the online environment could only be understood by using naturalistic methods of inquiry. Gunawardena (1995), while discussing patterns of interactions in online environments, argued that studying such patterns require "more naturalistic, ethnographic, and microanalytic research" (p. 156).

The purpose of my study was to examine the nature of interaction in an online course from the meaning-making perspectives of the teacher and students. Participants in the study were seven students and the teacher of a graduate course at a southwestern university. The course met nine times face-to-face and seven times online. Online interaction was mediated via the computer conferencing system FirstClass. FirstClass is an advanced text-based computer conferencing system, which integrates electronic conferencing, electronic mail, access to information databases, file transfer and sharing, and real time online discussions among multiple users. The method of the study was based on a symbolic interactionist theoretical framework and interpretivist methodological ideas.

Blumer and Symbolic Interactionism

Interpretive research and Erickson's (1986) ideas are based on the premises that Blumer (1969) posed for *symbolic interactionism*. First, human beings act upon the world on the basis of the meanings that the world has for them. Second, the meaning of the world is socially constructed through one's interactions with members of the community. And third, the meaning of the world is processed again through interpretation. The traditional approach to educational research tends to ignore the importance of meaning, interaction, and interpretation of the actors in shaping behavior. Interpretive inquiry attempts to understand the multiple layers of meaning represented by human actions and how they are interpreted by those involved.

Under a symbolic interactionist conceptual framework, interaction can be defined as the process consisting of the reciprocal actions of two or more actors within a given context (Vrasidas, 1999). Blumer (1969) argued that interaction is actors engaged in joint action. The minimum interactional sequence consists of at least two reciprocal actions. There is reciprocity with the sense that each actor has to indicate, interpret, and act upon objects on the basis of the meanings that the objects have for her or him. Interaction always takes place in response to others' actions or in relation to others' actions.

Under a symbolic interactionist conceptual framework, interaction is not a variable that you take out from a broad context and you examine on its own. Interaction is an ongoing process that resides in a context and also creates the context. Quantitative approaches to research use "context stripping" techniques in an attempt to control the

influence of context on the findings of the study (Guba & Lincoln; 1998; Mishler, 1979). However, context is crucial for the study of interaction. Context is provided by the history of the situation, past interactional sequences, and future interactional sequences. There is a reflexive relationship between context and interaction that prevents us from isolating interaction from its context. To examine human action and interaction, it is important to examine carefully the context and the moment-to-moment events that lead to further interaction among people. An important component of the interlinkage of action is that any joint action always arises from the past actions of participants. There is a history of action and interaction upon which new actions are based. Traditional approaches to studying interaction in distance education attempted to examine interaction as a variable isolated from its context.

According to Blumer (1969), meaning is constructed through social interaction. How others act with regards to the world, influences the meanings of the world for the individual. Meanings are used to form action through the process of interpretation. Human beings are active organisms. They make indications to themselves, act upon objects, interpret their environment, and engage in action. What is important here is that interaction is interaction between actors and not factors. Social interaction is an ongoing process, which shapes human conduct as actors fit their actions with one another and form a continuous flow of interaction. In an online course, when participants fit their actions to each other's actions, they can respond to each other's messages or they can ignore them. Participants have intentions that influence interaction. However, participants always take into account other's actions, and in light of those actions they revise, abandon, replace, or follow their initial intention.

Erickson and Interpretive Research

One of Erickson's (1986) major epistemological assumptions, and which closely relates to symbolic interactionism, is that reality is created through social interaction. There is not one universal *truth*. There are multiple truths, which derive from the local communities and have particular *local meanings* to the members of that community. Meaning and knowledge are socially constructed within a particular context, at a certain time, with specific people.

An interpretivist researcher can never get to the one complete "truth" and obtain a complete understanding of the setting she is studying. The idea of *completeness* of knowledge relates to the idea of the hermeneutical circle. There is a circular movement and shift of the focus of interest from the whole to the parts and vice versa. Every time the circle is completed, the researcher and the interpretation are changing. You always get closer to a more complete understanding but you never reach completeness.

He disagrees with the traditional approach to research which attempts to explain the idea of causation in mechanical, chemical, and biological terms. The fact that the methods of science employed to study the natural world were successful, does not warrant the use of such methods for the study of human affairs and particularly teaching and learning. One cannot control for the myriad of variables that influence human action and therefore, there are no *billiard ball* relationships in the study of education. The constant change in social life makes the idea of *uniformity* to be just an illusion. Erickson (1986) argued that "life is continually being lived anew, even in the most recurrent of customary events." (p. 129).

Interpretive research is appropriate when one wants to find out more about certain structures of experience, the meaning-perspectives of the actors, and specific interrelationships between actors and environment. Erickson (1986) criticizes the traditional research on teaching as an input-output process, because it does not acknowledge the reciprocal relationship between teacher, students, and environment. Traditional research on teaching never looked at how daily events produce certain actions. Interpretive research attempts to understand the *process* within a given context, and the *temporal* relationships of events and actors.

The types of questions that are appropriate for interpretive inquiry are those dealing with the choices, actions, and meaning-perspectives of those involved. Erickson proposed five types of questions for which I formulated specific examples that relate to my research interests in distance education and online learning environments:

- What are the specific structures of experience that unfold in this particular online learning environment?
- What does interaction mean for the learners and the teacher?
- What are the specific patterns of social life and how are they manifested by these particular learners in this online course?
- How does what happen in this online course relate to the department's policies on the use of technology in the classroom?
- How are the meanings of these particular learners compare to the meanings of learners at another university?

One of the major goals of interpretive research, in Erickson's (1986) words, is "to discover the specific ways in which local and non-local forms of social organization and culture relate to the activities of specific persons in making choices and conducting social action together" (p. 129). That is, how all the actions combined constitute an online learning environment. Important issues that are addressed by interpretive research in the field of educational technology focus on the nature of teaching with technology, the nature of the classroom as a cultural environment, how it is influenced by technology, and the meanings teachers and learners negotiate through out in technology based learning and technology-mediated situations. Traditional research attempts to predict and control human behavior and studies humans as a combination of certain characteristics. The emphasis of interpretive research is not to study the "traits" of the actors or the environment, but to examine the process that takes place and the meanings of the actions of those involved.

Furthermore, interpretive research attempts to investigate the "invisibility of everyday life." Erickson (1986) argues that those processes that lead to knowledge construction are habitual and local in nature. Therefore, traditional methods failed to account for them. He cites the anthropologist Clyde Kluckhohn, who said "The fish will be the last creature to discover water" (p. 121). We often take most of social life for granted and fail to notice and understand the local meanings certain actions have for those involved. In Erickson's words, interpretive research allows the researcher "to *make the familiar strange* and interesting again" (p. 121). Actors are only aware part of the scene. The researcher is the instrument and it is the researcher's job to uncover those meanings and lift the veils to unravel the multiple layers of meanings represented by human action. One can only achieve an understanding of the situation by closely attending to and documenting the particulars of the given setting.

By examining the local meanings in action, the researcher asks: “What is really happening in a distance education course? How does the learner perceive the content of instruction? What does learning via a computer conferencing system mean for the learners? What does it mean to the teacher? How is interaction formed online and how face-to-face? How does technology and technology skills influence the flow of interaction?” The majority of traditional research failed to examine these kinds of questions and mainly attempted to compare various delivery systems without paying attention to the perspectives of teachers and learners.

Interpretive research also seeks to shed new light on the comparative understanding of different social settings. How do the different levels of a phenomenon interact and influence each other? For example, how does this particular school’s policy on distance education relate to the design of a particular distance education course? How does what happens in a particular setting compare to what happens in other similar settings? How does the interaction that takes place in this online course compare to the interaction that takes place at another online course in another university? By comparing the different levels and different settings we can get a better understanding of a given situation and improve teaching and learning at all levels.

The Conceptual Framework

The conceptual framework guides the process of inquiry, provides a rough guide-map for the study, and communicates the purpose of the study to the researcher’s audience. The categories of the framework are not fixed, but instead are changing and evolving during the course of the study. From the traditional research perspective, the conceptual framework is rigid and consists of a fixed number of categories with all the relationships among those categories identified in advance. Such an approach relies on the belief that “truth” exists out there and the researcher can know in advance what it takes to find it by following the step-by-step “scientific method.” In interpretive research the conceptual framework is neither fixed, nor sequential. It is rather fluid and it evolves as the study proceeds.

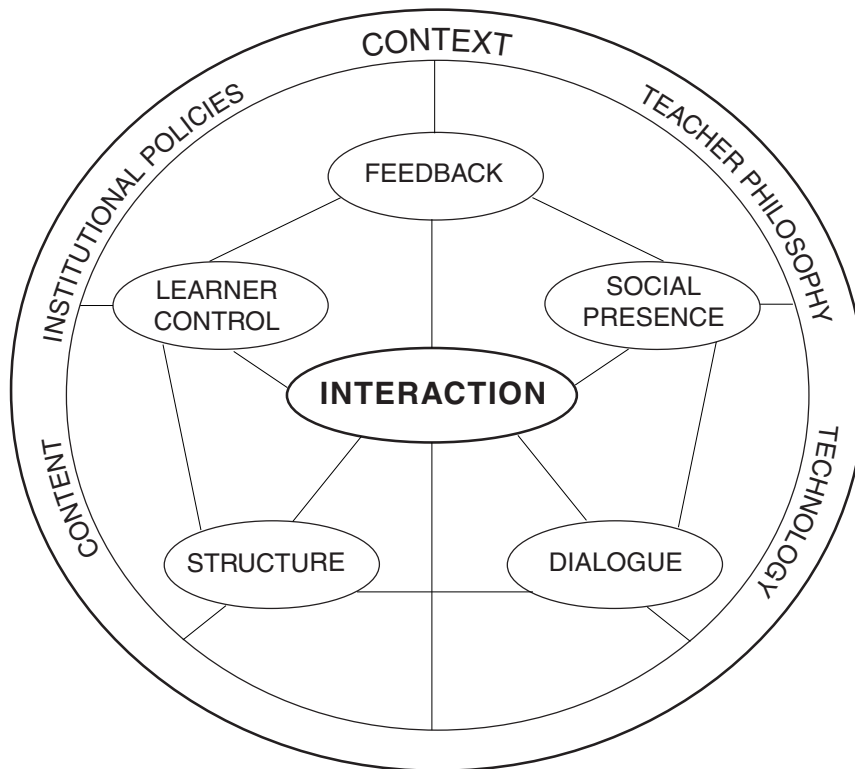
The purpose of my study was to examine the nature of interaction in an online course and try to understand what interaction means to those involved. Interaction is one of the most important components of any learning experience (Dewey, 1938; Vygotsky, 1978) and it has been identified as one of the major constructs in distance education research (McIsaac & Gunawardena, 1996; Moore, 1989; Wagner, 1994). Researchers identified four kinds of interaction in distance education: learner-content, learner-teacher, learner-learner, and learner-interface (Hillman, Willis, & Gunawardena, 1994; Moore, 1989). Under a symbolic interactionist conceptual framework, interaction is constructed by individuals engaged in joint action. Researchers who want to examine the meanings of those involved in interaction, should get close to the setting and examine carefully the everyday events, how they unfold, and how all the actions in that setting constitute a learning environment.

From a pilot study I gradually developed a framework that consisted of the following bins: interaction, learner control, social presence, structure, dialogue, and feedback (see Figure 1). The broader bin within which all categories reside is the context of interaction. Context is defined by the content of the course, the technology via which communication is mediated, the teaching philosophy of the teacher, and departmental and

college policies. These categories were fine-tuned by conducting a literature review of research on distance education and online courses.

The impact that the teacher's philosophy has on interaction is mainly reflected by the structure of the course, which consists of strategies employed, assignments, selection of content, and other requirements specified for the course. Learner control consists of the learner's competency to take control of her learning, the support and resources provided to her, and learner independence, which is the degree that the learner is allowed to make choices of content, objectives, assignments, activities, and the like (Baynton, 1992). The amount of dialogue that takes place among learners and between teacher and learners will also influence interaction and the feeling of social presence. All the categories of the conceptual framework are bound within a dynamic relationship. Changes in one of the bins will influence the other bins individually and the conceptual framework as a whole. Relationships were confirmed or disconfirmed from the data that were collected. Predefining these broad categories, framed the study and focused my attention on some activities and events that might have been more relevant

Figure 1. Conceptual framework for studying interaction.



However, in order for the study to address the complexity of social life in an online environment its design has to be evolving and allowing for new relationships to emerge from the data. In fact the conceptual framework changed several times during the pilot study and during the actual study. For example, the category of feedback falls within the

interaction bin and for the purpose of this study it was addressed as such. However, it is important to note that by carefully examining the data from the pilot study, feedback emerged as a strong category by itself. Therefore, feedback was added as a separate bin in the conceptual framework.

Research questions are also context sensitive and as such, they are also evolving and might change as the study proceeds. I have initially formulated five research questions for this study. Two of these questions are: (1) What kinds of interaction take place in an online course? and (2) How does gender influence the social organization of an online course? By the time that the study was completed, the second question was dropped, since there was not enough data to address it.

Data Collection

The conceptual framework and research questions of the study determine the appropriate data collection procedures. Since I was interested in the meaning-perspectives of those involved in an online course, I collected data that address these issues. The techniques I used to collect data were the following: classroom observation of face-to-face interaction, observation of pairs of students when participating in online synchronous chats, semi-structured interviews with the teacher and students, collection of text transcripts of online discussions, and collection of messages exchanged online. I counted the number of messages each student posted in each discussion, number of messages exchanged with the teacher, the amount of time each student spend logged on in the conferencing system, times each students logged in to the system, and counted the number of emoticons each student and teacher used in their online contributions. I also calculated simple descriptive statistics of the numerical data collected for the study. An important component of the data collection and data analysis procedures was the writing of detailed memos.

Memo writing is a common practice in interpretive research as well as in grounded theory approaches. A memo is a theoretical write-up about ideas, concepts, categories and their relationships as they strike the researcher while in the field and or during data analysis. It is the researcher's note to herself about the data, ideas, method, and the like. It is a narrative representation of the researcher's understanding of certain aspects of the study. This procedure is used to keep track of emerging ideas and categories, stimulated further analysis and data collection, and serves as a means for the development of assertions and theory integration. As an analytical process, writing memos helps the researcher in filling out the analytic properties of the descriptive data collected. Subtle connections may also emerge during the process of making memos. In the later stages of analysis, the memo helps in connecting the data, assertions, and the theoretical discussions.

As the study proceeds the researcher gets a better inside view of the setting and might adjust the conceptual framework in order to accommodate certain constructs and categories that emerge. Consequently, he might also have to modify the data collection procedures so that the categories in the “surviving” conceptual framework will be adequately instantiated and the relationships established or challenged.

Researcher Role, Choices, and Implications

The researcher always acts in political, institutional, social, and historical contexts. My role as a researcher was closely defined by a social network of relationships with the department offering the course, the teacher, and the students. I had a responsibility towards the department, the teacher, and the students to maintain confidentiality and make sure that I did not cause any problems or harm to any of the parties involved. I created a relationship based on trust and collaboration with the participants, which allowed me easy access to the setting and collection of quality data. The assumption was that, the closer I get to the setting the more likely is that I would be able to access information from multiple sources to warrant my assertions.

The researcher is the instrument of the study, and therefore, his or her experience with the subject of study will influence the validity of inference. Articulation of the background of the researcher is important in interpretive research. Whereas, in traditional approaches, certain techniques are employed to eliminate possible “researcher bias.” My role was influenced by my experience with the topic of study, which also influenced data collection and analysis. In the last two years I participated in three online courses, taught an online course, and presented papers at conferences about online learning environments. Therefore, I had a lot of inside information and experience with this particular topic. On one hand, this was an advantage since I was able to ask the right questions and get more quality data. On the other hand, it might have impeded my ability to get to, what Erickson (1986) calls, “the invisibility of everyday life.” By entering the setting with a lot of preconceptions about the topic, I might have not been able to notice information that is often taken for granted.

Where I place myself on the continuum of observer-participant (see Figure 2), or which position I negotiate with the participants in the setting, influence the kinds of data collection procedures that I am able to employ. During the course of this study, I have chosen to be more an observer than a participant. Such an approach allowed me to focus more on what was happening in the setting and be more aware of the actions that unfolded in front of me. But, like all the other elements of the study, my role as a researcher was not static. It shifted back and forth from participant observer to mere observer. For example, in five occasions during the observations of the face-to-face meetings I was asked to express my opinion on issues relating to the content of the course and on technical problems that some students and the teacher had to deal with. I responded and participated in the class when the participants asked me to.

Figure 2. Observer-participant continuum.



There is no bias-free point of view in any approach to research. We all filter our view of phenomena through our theoretical lens. It was not an easy task to block out my preconceptions about the setting and the topic under inquiry. No matter how hard I try, I can never enter a setting as the “fly on the wall.” I enter a setting and depending on the lens

I view the setting through and role I assume, I will get a different perspective. I can never renounce my prior knowledge. However, I can discuss my preconceptions and be aware of their existence and how they influence my view of the world and interpretation of social phenomena. By discussing some of the factors that might have influenced my interpretation, it allows the readers to be co-analysts of the study and reach their own conclusions about the validity of inferences.

Data Analysis

Data analysis is a precise and comprehensive process during which the researcher constructs meaning out of data. During analysis, an account is created from the transaction that takes place between the data and the researcher. The researcher as the instrument and interpreter of the world, influences the data analysis by making decisions throughout the research process. All analysis is theory-laden since data is interpreted through a theoretical lens, either explicit or implicit.

In my study, as data became available, I read and prepared summary sheets. For example, after the first class observation, I first transcribed the audio recordings. I then read the observation transcript and prepared a one page summary sheet. On this sheet I included the major events that I thought were important to note, ideas that related to the research questions and the conceptual framework, and ideas that were new to me and which I had not thought about before.

There seems to be the false assumption among researchers that fieldwork is mainly inductive in nature. However, Erickson (1986) argued that “in fieldwork, induction and deduction are in constant dialogue” (p. 121). I entered several cycles of induction and deduction during the course of the study. During data analysis, I followed the inductive and deductive stages as Erickson proposed them.

Upon entering the inductive stage I organized all the transcripts, field notes, summary sheets, and documents and used data displays, concept maps, and tables to illustrate findings of the study. The inductive stage of data analysis is very open-ended and it is the stage in which the researcher generates assertions. After I collected and organized all the data, I read through the data three times and tried to gain an overall understanding of what was happening in the particular course. As I read through the data, questions came to mind. I wrote notes and memos about those issues and events that struck me and began to generate assertions. Assertions are propositional statements that indicate relationships and generalizations in the data and which the researcher believes are true. Assertions were not generated from one single source but from the data as a whole. For example, as I read through the data I noticed that several students explained the lack of online interaction as a result of their limited technology skills. Such indicators came from both face-to-face class observations and the interviews. I then generated the assertion that interaction in an online course is influenced by the participants’ experience with computer-mediated communication (CMC).

Examples of assertions generated from this study are the following: (1) the meanings of interaction can be classified according to the intentions of the participants; (2) the structure of the course, class size, feedback, and prior experience with CMC influenced interaction; and (3) online interaction is slower, lacks in continuity, richness of cues communicated, and immediacy, as it is compared with face-to-face interaction.

Once I generated assertions from the data as a whole, I entered the deductive stage. In this stage I engaged in detailed examination of the data corpus and looked for data to confirm or disconfirm my assertions and instantiate or eliminate constructs of the conceptual framework. For example, three of the constructs in my study's conceptual framework were "learner control," "social presence," and "structure." I looked for incidents and events that provided evidence about the degree of learner control, social presence, and structure. How is social presence manifested in the online environment? How is learner control manifested in online activities? What is the structure of the course like? How does structure influence learner control, and how does learner control influence structure?

During this stage, I found the use of tables particularly helpful. For example, while identifying kinds of intentions driving interaction, I created a table consisting of two columns. In the first column I had the intentions and in the other column examples of interactions illustrating each intention. This table helped me maintain a broad vision on interaction and helped me realize how one kind of interaction can be driven by multiple intentions. I also used the simple marking technique available in word-processor software. I defined a text style that was blue in color. I assigned the shortcut key of the combination of the "control" and the "F2" keys to this text style. As I was reading through the transcripts, I was highlighting segments of text that were relevant to assertions and assigning the text style with a single keystroke. Later, I could skim through the transcript and quickly identify the segments that I could use to warrant or disconfirm my assertions.

During the deductive stage I held "the world suspect." I took all assertions and began to scrutinize them in detail. For example, one part of assertion two states that prior experience with CMC influenced interaction. To examine this assertion I looked for evidence in the data that showed the experience of participants with CMC. I then looked for kinds of interactions that those participants were engaged in and how frequently they interacted with their peers and teacher. By closely examining the data it became clear that prior experience with computers influenced interaction. I also looked for evidence that contradicted assertion two. One of the students had prior experience with computers and with online courses. However, the reason she did not participate often was that her priority during the semester was to finish coursework and graduate. She did not have time and interest in participating frequently in the online discussions. Discrepant cases were also identified and discussed during this stage.

When I identified the instances that supported or disconfirmed my assertions I brought them together and weighed them. I examined those instances carefully and tried to determine whether to keep each assertion, refine it, or drop it. I was not looking for convergence of data during triangulation but for a variety of sources that would back up my claims. The researcher, according to Erickson (1986), should not expect to find only evidence that supports his assertions. The world is a messy place. Therefore, it is impossible not to have disconfirming evidence in a study. In my study, discrepant cases were accounted for and explained. Such explanations came out of careful examination of the data as a whole. I was never able to conclude for sure about a given assertion and I was very careful to avoid premature conclusions. Still, some explanations and interpretations of events were stronger than others because there was more evidence to support them.

An example of assertion that was dropped during data analysis is the following: the gender composition of the course influenced interaction. There was not enough evidence

that could attribute changes of interaction to the gender composition of the course. This assertion was dropped during data analysis.

The use of a variety of methods is more likely to increase the plausibility of each assertion. While considering the second assertion, I examined class observations, synchronous chats, and interview transcripts. I gathered evidence that established the level of experience each participant had with computers and how such experience influenced interaction. In addition, I counted messages that students sent to the teacher, calculated time they spent online, and number of emoticons they used in the synchronous chats. All assertions were warranted using a variety of methods and relied on the data as a whole. No assertion was warranted based on one single source of data.

After assertions were checked and warranted, I examined ways that they could be related. For example, assertion three indicates that online interaction is slower, lacks in continuity, richness, and immediacy as it is compared with face-to-face interaction. This assertion relates to assertion two, which states that prior experience with CMC influenced interaction. Data analysis showed that students with less experience had more difficulties dealing with the characteristics of the online environment than more experienced students. Connections across assertions were also made and discussed in detail in the final report.

Data analysis doesn't end until writing ends. The final step of the analysis was the write up, which included vignettes and direct quotes from the data record. The narrative vignettes included in this study served a rhetorical purpose since they allowed me to communicate the findings of the study to the reader. Erickson (1986) argues that detailed description of the day-to-day, minute-to-minute events "gives the reader a sense of being there in the scene" (p. 150). A good vignette is a vivid depiction of the setting that communicates how life in the setting actually is; it is an abstraction that presents some of the details of a scene. Vignettes also served an analytic purpose since they helped me clarify my thoughts. The vignette's validity should be determined by the degree to which is rich in description and includes enough interpretive perspective. The vignette and the rich descriptions of concrete details and procedures allow the reader to be co-analyst of the study. The report should have enough evidence that will allow the reader to make her own judgments about the plausibility of my account.

For example, in an attempt to warrant assertion three on the differences between face-to-face and online interaction I created two vignettes. One of the vignettes illustrates a situation of a face-to-face interaction and the other a situation of online interaction. After I presented and briefly discussed both vignettes, I compared them to illustrate the differences between the two situations. While comparing them, I was referring to other sources of data from fieldnotes and interviews with the participants. The two vignettes illustrate the ideas of continuity, immediacy, richness in cues used for interaction, and flow of interaction during a face-to-face discussion and a synchronous online chat. The data for the face-to-face vignette came from a class observation during which participants were engaged in a face-to-face discussion. The data for the online vignette came from a chat transcript I saved during a synchronous online chat. The vignettes allowed me to present a "slice of life" from the setting in a way that illustrates the key characteristics of each situation.

In the final report I also incorporated general descriptions, particular descriptions, and interpretive commentary, each of which served a different purpose. Particular descriptions warrant the assertions made about the setting. The general descriptions

establish the patterns of generalization of the study. The interpretive commentary provides the reader with the things that are missing from the descriptions, and illustrates the researcher's interpretation of the event.

Standards of Rigor

The validity of a statement is often defined as the degree to which the statement is true, credible, trustworthy, or plausible. In quantitative research, the validity of a test has often been defined as the degree to which the test accurately measured what it purported to measure. Such a belief rests on the assumption that there is one truth and the researcher can know that truth by following the "scientific" method. Qualitative research is more concerned with understanding rather than knowing a phenomenon (Wolcott, 1990), and more concerned with the validation of a claim rather than its validity (Kvale, 1996). One cannot talk about the validity of the study, but of the validity of the assertions and inferences one makes during data analysis. Interpretive accounts should be judged on grounds of coherence, plausibility, and whether they help us gain a better understanding of the phenomena under study.

Erickson (1986) argues that meaning and knowledge are socially constructed within a particular context. Therefore, one can make plausible claims about local truths and meanings. The fundamental validity criterion for interpretive research is defined by the attention paid to "the immediate and local meanings of actions, as defined from the actor's point of view" (p. 119). The richness of description of data collection and analysis will determine the validity of inferences. This is what Geertz (1973) refers to as "thick description." While conducting my study, I closely examined the setting and attended to the details and specific actions of the participants in order to infer the meaning of interaction in this particular course.

The issue of generalizability often comes up in discussions and criticisms of interpretive research. Such criticisms are often used to question the "quality" and "significance" of interpretive studies. How can you generalize from a study in which you had only seven students? Erickson (1986) argued that interpretive research is more interested in "particularizability" than generalizability. One cannot reach generalizability without examining the particulars in great detail. Only after I closely examined the *concrete particulars*, I could reach the *concrete universals* and make claims about the meaning of interaction in online courses. In his words, "the paradox is that to achieve valid discovery of universals one must stay very close to concrete cases" (p. 130). Generalizability begins within the case at hand. In my study I attempted to find instances that illustrate recurring themes in the setting I examined. Then, the findings of this study should be compared with other studies that were also examined in great detail in order to see if the results generalize to other similar settings.

The validity of an interpretive account also depends on the comprehensiveness of the description of the procedures followed in the study. After I generated assertions during the inductive stage, I entered the deductive stage where I engaged in detailed examination of the data corpus and looked for evidence to warrant my assertions and instantiate the constructs of the conceptual framework. I also looked for data that cast doubt on the assertions. Identifying discrepant cases is more likely to increase the validity and plausibility of my assertions. The validity of inferences is based on the data as a whole and not upon one single instance.

There are multiple perspectives on the nature of credibility of a given account, and multiple sources give the researcher another way of viewing a phenomenon and insights that can be used to form new questions. In my study, I used multiple sources for data collection, such as interviews, observations, and collection of text messages posted online. Had I relied only on one source I could have missed an important aspect of the meanings of the actors. For example, had I relied solely on text messages, I might not have been able to get an understanding of the meanings of the actors and possibly could have developed a distorted view of the phenomenon. Using a variety of sources is more likely to increase the plausibility of my account.

This study should be judged for coherence and not for correspondence of the findings with the “objective” world. Interpretive accounts are valid to the degree that they are plausible. The reader should ask: “How do things tie together and form the whole? How do the parts and the whole interact? What are the missing pieces? Does it make sense? Do the categories of the conceptual framework make sense? Do they fit the data? Is it a comprehensive view of the phenomenon? Did the researcher look at all possible directions?” As Stake (1995) put it, the researcher should “de-emphasize the idea that validity is based on what every observer sees, on simple replication; emphasize whether or not the reported happenings could have or could not have been seen.” (p. 87).

Narrative vignettes and direct quotes from fieldnotes also strengthen the validity of my account. The vignettes demonstrate how I made plausible interpretations of the data, allowing the reader to act as a co-constructor of meaning, and to make judgments about my account’s credibility. As the researcher I was the instrument of the study, so I also discussed my pre-conceptions, background experiences, and possible biases in the “role” section, allowing the reader to know the lens through which I viewed the phenomenon. By presenting a detailed, comprehensive, and coherent account I allow the reader to act as a co-analyst of the study and make judgments about the strength of the assertions that will be presented.

Conclusion

Teachers and instructional designers are required to develop online courses and online material for delivering instruction. Online education is a recent development that requires interpretive studies to document with detail the day-to-day events that unfold in the online environment and that lead to knowledge construction. The majority of research in distance education ignored the meanings of participants engaging in interaction. Interpretive research brings meaning back to the center of inquiry.

This chapter presented the theoretical and methodological assumptions of interpretive research as Erickson (1986) laid them out, based on Blumer’s (1969) ideas of symbolic interactionism. My emphasis has been on the research process with particular focus on issues concerning data analysis, researcher role, and standards of rigor. The ideas presented are suggestions for educational technology researchers, but they are not prescriptions on how to conduct research. Each case is unique and the researcher will have to make the decisions that best serve his or her purpose.

An interpretivist researcher enters the setting and attempts to *make the familiar strange and interesting again*. By emphasizing the local meanings in action of the learners and the teachers, interpretive research can shed new light in the field of educational technology and guide further research and practice. Acknowledging the multiplicity of

meaning-perspectives and providing for an *objective analysis of subjective experience*, is what interpretive research is all about.

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