Sophia walked hastily toward the Keller building. She held a poster under her arm, and she felt her face glow as she thought of what she had been doing in her research course. She couldn’t wait to share with others the wonderful things she’d learned. Before even stepping out the elevator, she already sensed the liveliness coming from the third floor. The air was full of conversation and laughter. It was Friday.

She spotted Andy, a new master’s student this year, explaining his training project to Dr. Foster, who has been teaching an introductory instructional design course for years. To complete the course, every student must develop at least an instructional module working with real clients in the K-16 arena or the corporate world. Sophia really appreciated that experience. What she did for her research course this semester followed up in a way on the instructional program she developed for a learning module for a freshman seminar course, teaching students to use concept mapping as a learning strategy to promote their understanding. Her research project examined the effects of concept mapping on students’ learning.

Sophia set up her poster right beside the entrance of the computer lab. On the poster was a flow chart of the steps she had undertaken for this research project: imposing the research questions; describing the theoretical explanations and hypotheses; reviewing the literature; laying out the research design including the sampling process, pretest-posttest control and data collection; and presenting the data analysis and results. She was so proud of herself for going through all of this process. She had always been labeled non-scientific by her family because of her interest in the liberal arts and her not-so-impressive math grades. Now she could show them her ability in this scientific inquiry that uses statistical analysis of data and interprets through numbers the significance of the effects of the manipulated instructional treatments.
Several students in her research class stopped by and asked questions about validity and reliability issues concerning the instrument that she used to measure the problem solving and metacognitive skills. Her classmates were impressed with her understanding of the terminology. The excited discussion of those ideas also attracted Joanne, a doctoral student who is one year ahead of the others, to join the conversation.

Joanne looked at the flow chart and asked Sophia about why she had done the research and what she had found out. Sophia gave specific explanations and asked Joanne what she thought about the study.

Joanne looked at Sophia. “The research questions are well laid out,” Joanne said. “I don’t see any particular problem with the logic in the development of the hypothesis or with the design. But I’m interested to know what you think of research. Actually, my question is: ‘What do you think research is?’” Joanne posed herself attentively and waited.

Sophia replied without any hesitation. “Research is a hypothesis testing,” she said. “You begin with a theory, make an assumption based on that theory, and set up a situation to observe whether that theoretical conclusion holds up. The speculation here was that there would be a positive effect on students’ learning if students use the concept mapping tool to analyze content because the theoretical assumptions about human memory support such an inference. So I made the effort to test it out.”

Joanne, smiling, nodded to Sophia. “I understand that a lot of research in our program has focused on effectiveness of a certain instructional method or instructional material on students’ learning outcomes,” Joanne said. “But how about the questions such as what those learning experiences mean to students and how the process of implementation is related to learning
outcomes. Can an empirical, experimental, quantitative, theory-driven research study answer those questions?”

Sophia didn’t know what to say. In class, they had indeed reviewed some research articles that talked about the illogical connection between the theories and hypotheses and about the concern that the time of treatment is not enough to result in any effects. They also read criticism by Driscoll and Dick (1999) that researchers are either investigating a limited range of research hypotheses or are using inappropriate designs to test their hypotheses. But seldom had Sophia thought about what are the changes in students’ perceptions of learning owing to their experience of the innovation.

Joanne sensed Sophia’s thoughts by the puzzled look on her face. “As instructional systems researchers, what questions should we ask?” Joanne said. “Recently, a lot of instructional designs have shifted in approach from the delivery of materials to the inquiry process of learners and the supporting roles of instructors. Should we concern ourselves with different questions, exploring something more than the effectiveness of the instructional interventions and materials? Could such questions help us understand and explain what, how and why changes are occurring in the classroom?”

Sophia recalled her reading of Earl Babbie’s *The Practice of Social Research*, explaining what science is. Babbie defined science as a method of inquiry, a way of learning and knowing things about the world around us. Sophia’s research on concept mapping is an inquiry process examining the probability of her inference about the usefulness of concept mapping developed from theoretical assumptions of how people learn taken as true statements. The power of such a research inquiry is more explanatory in testing a hypothesis based on control of the environment and observations of changes in behaviors. With artificial control of independent and dependent
variables, it is expected that the inference of causal relationship is more likely to be established. But, as Joanne had just mentioned, how can the experimental research help describe students’ interaction with the use of the concept mapping?

Sophia turned these thoughts into a question for Joanne that kept the conversation alive. “What are the other research inquiry methods?” Sophia asked.

Joanne didn’t answer Sophia’s question directly but instead continued to talk about the research in the field of instructional systems. “Recently,” Joanne said, “much attention has been dedicated to diverse applications of technology that support active, student-centered learning. I’m particularly interested in an instructional approach, called problem-based learning. In this approach, students aren’t exposed to a series of lectures, but to a series of problems. By engaging in problem solving, students are responsible for generating their own learning issues, and instructors become facilitators helping students identify what they need to know and the resources of the information. The implementation of any kind of instructional approach is a phenomenon of change in teaching and learning. I think since it is the students and the teachers who live in the changes, it should be their experience to tell. So, I would like to investigate the students’ and the instructors’ perceptions of their roles in learning and teaching as well as how students and instructors engage in and experience a problem-based learning environment. I’m still trying to plan my study in a more solid framework using different methods to tackle my questions. Maybe you can help me and give me some feedback. Why don’t I lend you a couple of books that I read for my qualitative research course? You can read them over the weekend. We can get together next week, perhaps over coffee, and talk more.”

Sophia thrilled to the idea. “Sounds great to me,” she said. “I’d love to learn more about this. How about meeting around three next Wednesday at the Saint’s Café downtown?”
“Great. I’ll see you then,” Joanne said. “I’ll drop the books in your mailbox first thing tomorrow morning. Can’t wait to hear your comments.” Joanne said goodbye to Sophia and roamed over to the lab to see demonstrations of some web-based instruction developed for a family study course.

Wednesday afternoon’s sunshine showered onto the window table at Saint’s, and Sophia was happy to see that the table was not occupied. She ordered a hazelnut-flavored latte and waited for Joanne. Billie Holiday’s voice floated with the aroma of coffee. Ballads always caught Sophia’s imagination. She enjoyed lyrics describing the living experience of others. She’d heard others sing the same lyrics, but never like Billie Holiday. It seemed that Holiday’s voice and the lyrics had become one. Her interpretation of the lyrics came from her life experience, and Sophia felt that when she listened to Holiday singing, her own life experience was melted down with Holiday’s. They were sharing the same reality of the existence of someone’s life experience revealed in the lyrics, but the reality was transformed when experiences of singer and listener blended together. Sophia suddenly had an idea about Joanne’s work.

Without probing the perceptions of students and instructors, the investigation of their experience of the problem-based learning environment in the classroom would be based only on Joanne’s speculations or her inferences of other theoretical assumptions. If Joanne is interested in students’ and instructors’ perceptions of their roles in learning and teaching as well as how students and instructors engage in and experience a problem-based learning environment, she should first look into the individual point of view, i.e. the realization of subject consciousness perceived in the objects, to get to understand human phenomena as lived and experienced, which Giorgi (1985) pointed out as the major characteristics of a phenomenological psychological method. There should be two aspects of phenomenological analysis in Joanne’s study: the people
who are living through the phenomenon, in this study, the students and the teachers; and the researchers. In order to return to the things themselves (Husserl, 1970), Joanne cannot impose the meanings for the students and the teachers because they are the absolute sources of their own existence. Moreover, Joanne has to be aware of her own experience being infused into both her analysis of interviews and her classroom observations.

“But, I have a feeling that Joanne’s study is more than a phenomenological one. I don’t think she pursues only the meaning and value attached with the problem-based learning environment. Just like she will not be satisfied with the interpretation of the life experiences expressed by the songwriters through their words in their songs. She wants more. She wants to see the experience as the actions on a stage.” While Sophia was thus talking to herself, Joanne’s voice joined in.

“Sorry I’m little late – I was having an argument with a classmate in my qualitative research course,” Joanne said, her tone still argumentative. “He insisted that my study was purely a phenomenological one. I argued that the boundary of a classroom actually expands my study into an ethnographical one. The class environment, regarded as a social unit due to its particular boundary defined in an educational structure, implies an ethnographic study of a cultural phenomenon. The ideational and psychological reflection of the students and instructors are used to build up the foundation to gain a comprehensive and complete picture of interaction of these actors in classroom as a social group. The philosophical exploration of the meaning of the lived experience may taint my research with the color of phenomenology, but the target of description will be a collective consciousness revealed both in reflections and behavior. It is the patterns of thinking and behaviors in the problem-based learning environment that I’m really interested in. To ask students and teachers to define their reality is only one means to get to the ends.”
Joanne hadn’t even taken off her coat. Sophia sought to calm her down. “Take it easy, now,” she said. “Tell me more after you get something to drink.”

“I’ll have jasmine green tea. I love the flavor, and I love to see the tea leaves spreading open and gradually showing their true self after immersion in hot water for a while. “ Joanne went over the counter and brought back a tall glass jar of tea.

Watching the patterns of the lines on the tea leaves gradually appearing, Sophia grasped the vivid images of the tea leaves in Joanne’s mind. “ Maybe you want to think about participant observation then,” Sophia said. “Fetterman (1998) points out the indispensability of participant observation as a strategy in ethnography. The immersion of a culture through participant observation over time helps understand and recognize the patterns of behaviors.”

Joanne agreed and had a sip of her tea. “This observation is definitely critical to my study,” she said. “Interviews of students and teachers are also crucial to my data gathering in order to capture their perceptions of the learning and teaching experience. As ethnographers examine the artifacts in their study of cultures, I would also love to see if it’s possible for me to have students document their reflections on the entire learning process in a journal. I believe analysis of documents like this would be beneficial to get a closer look of the emic perspective, described in literature in ethnography (Fetterman, 1998; Creswell, 1998), the insider’s perception of reality which is instrumental to understand and accurately describe situations and behaviors. Also, I’ve started to think about the selection of places and people to study. I’ll first examine programs on campus that claim to adopt the problem-based learning approach in order to find out the program that best fits the characteristics of problem-based learning. Moreover, before I get access to the classroom, I have to prepare myself with more information, such as how the course is related to other courses in the curriculum and how the decision to adopt a
problem-based learning approach is made. It’s important to put this instructional intervention under study in a broader context.”

“I totally agree with you,” Sophia said, and then she made a suggestion. “I read about the distinction between micro-and macroethnography (Fetterman, 1998). If I understand the concepts right, I think the major difference lies in the scope of the social units under study. However, I think no matter how big or how small the unit is, a researcher definitely has to carry out the micro-level analysis to give a close-up view and the macro-level analysis to give a bird’s-eye view of the investigated phenomenon. Descriptions of both views promote understanding, and that is important to the purpose of the qualitative study. You may want to find out some development of the course over time, and some background information about the students and the teacher.”

“I will, thanks.” Joanne said. “I’m hoping through descriptions of the patterns of thinking and behaviors of students and instructor, the study can promote understanding of this particular learning and teaching experience. Glaser (1978) states that what people in the know know is empirical, experiential, and descriptive. Although the statement is made to indicate the necessity of theorization for its explanatory power beyond description, it also implies the importance of the conceptualization and integration process of the raw descriptive data from the interviews, observations, documents, and any other data sources. Therefore, it is vital to recognize the descriptions as the products of a reflective-analysis thinking process. I’m thinking to use the conceptual analysis of the grounded theory approach in the study, since I found the constant-comparative method in the grounded theory is a more systematic and thorough analysis to help identify the patterns of the observed behaviors and perceptions. But the intention is to systematically ‘conceptualize the underlying pattern of a set of empirical indicators within the
data’ (Glaser, 1978), but not to develop a hypothetical causal relationship between the conceptual codes.”

Sophia felt surprised that she’d never thought of such issues. “There is a paragraph that I read from Merleau-Ponty’s preface in Phenomenology of Perception (1962), describing a constructivist paradigm that individual knowledge is gained form that individual’s particular point of view or from some experience of the world,” Sophia said. “It seems that qualitative researchers explore a lot of different philosophical and epistemological viewpoints. I do not recall during the quantitative research course we had any arguments or discussions about what is the truth and what is meaningful at all. I cared more about the logical inference between the theory and the hypotheses, and the operationalization of the variables. I did not need to examine my position about whether there is an objective reality or whether knowledge about the reality is subjective or objective, although the endeavors to test the causal relationship between the independent and dependent variables entail the premise that there are general laws that serve for explanation and prediction. But, to engage in the qualitative study, it seems that you have to look into your own belief system.”

“You are definitely right,” Joanne said, reaching for class notes that contained different viewpoints from students. “I think the bottom line is if quality tells us in WHAT form the thing exists (Baptiste, 2000), you have to confront your own way of thinking about the existence and about the knowledge of the existence. In several class discussions, people argued about the dichotomy of meaning and utility and the dichotomy of qualitative and quantitative data. If you think the reality of the objects only exists when they are attached to consciousness, then the symbols, either words or numbers, have to undergo an active meaning-giving operation. From this perspective, the dichotomy is broken. Meaning itself connotes utility. Also, numbers must be
based on meaningful conceptualization; meaningful conceptualization is informed by numbers (Dey, 1998). Moreover, unlike the experimental research in which the researchers hide in the background and pretend to be absolutely objective, qualitative researchers have to honestly and constantly examine themselves as a key instrument in the study. But, as Guba and Lincoln (1985) warn us, even though there are advantages of humans as instruments in naturalistic inquiry, we can not ignore the issue of trustworthiness of the human instrument.“

“What do you mean by trustworthiness?” Sophia asked. “In experimental research, I have to think about the issues such as validity and reliability. Are they the same?”

Joanne took another sip of tea. “Basically, validity and reliability still imply there is an absolute reality out there that can be objectively measured and conceived,” she said. “But, qualitative researchers adopt the notion of multiple, constructed realities in postpositivism, accept the postmodern sensibilities, capture the individual’s point of view, examine the constraints of everyday life, and secure rich description (Denzin and Lincoln, 1994). The focus of research lies in understanding and meaning. The issues for qualitative research become transferability, faithfulness, and dependability. As a qualitative researcher, your job is to give thick descriptions so that readers are able to make decisions to see whether the results of the inquiry are transferable. The conceptual analysis must be faithfully derived from the data and be checked out against the consistency of different data sources. Moreover, because the meaning of communication depends on knowing the relevant context, and contexts are consciously designed to evoke multiple meanings (Dye, 1998), qualitative research must develop thorough and comprehensive descriptions of the context. With trustworthiness, it is important for researchers to pose the questions about neutrality: How can one establish the degree to which the findings of an inquiry are determined by the subjects and conditions of the inquiry and not by the biases,
motivations, interests or perspectives of the inquirer (Lincoln and Guba, 1985)? It does not mean that there must be exclusion of presuppositions. Rather, qualitative researchers need to recognize their thoughts as an inalienable factor that guides their interpretation. The recognition of the inevitability of subjectivity also yields the process of triangulation that utilizes the use of multiple sources, methods, investigators, and theories (Cresewell, 1998, Lincoln and Guba, 1985; Patton, 1990) to ensure the credibility of the research.”

Sophia had been warming her hands around her coffee cup. She tried to capture what they’d been discussing so far. “Is it fair to say that your study qualifies as a qualitative study because it is concerned with meaning of the problem-based learning experience to students and instructors, and with the descriptions of the patterns of thinking and behaviors of students and instructors, as the actors in a particular classroom culture?”

“Don’t forget,” Joanne added, “that it is qualitative because neither is the observation based on the researcher’s manipulation of ‘the antecedent conditions of the behaviors studied’ (Lincoln and Guba, 1985) nor does the research impose conclusions before the analysis of data. In other words, qualitative research is naturalistic and inductive.”

“Qualitative research seems to be quite challenging,” Sophia said. “When I took the quantitative research course, I felt excitement like when I first learned how to drive. I grabbed information and digested it. I wanted to learn the tool, speak the same language, and fit into the academic world. The excitement is derived from the manipulation of a tool. However, I seldom examine myself as a tool user, as a part of the tool using or as a part of a tool as the qualitative researcher should be.”

“I agree,” Joanne said. “It’s the process of the self-realization and self-examination that makes the qualitative research so fascinating.”
The waiter walked over to their table. It was time to go. Streetlights had come on outside.

“I really enjoyed our conversation,” Sophia said. “If you don’t mind, I would love it if you could keep me informed of the progress of your research project.”

“Sure.” Joanne said. “It’s always helpful for me to articulate thoughts with someone else. It helps me understand what I’m thinking. I’ll definitely keep in touch.”
Reference:

Baptiste, I. (2000). *Calibrating the “instrument”: philosophical and other questions guiding the researcher*. Class Handout.


