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ABSTRACT

Reviewing the information systems (IS) literature shows the prevalence of studies claiming to exploit the grounded theory (GT) method. However, most of these studies follow an objectivist approach to GT. This manuscript addresses another recognized yet rarely used GT approach in IS: constructivist. The importance of IS constructivist research is briefly explained. This is followed with a recapitulation of strategies pursued in a constructivist research experience within IS doctoral education domain in order to achieve a contextual theory. Procedures for establishing satisfactory levels of trustworthiness and authenticity are described. Finally, implications of taking the constructivist approach as well as some major lessons learned are discussed.

Keywords

Constructivist research, trustworthiness, authenticity, IS doctoral education

INTRODUCTION

Reviewing the IS literature shows the prevalence of studies claiming to exploit the GT method, more in IS application and much less in IS education research (as examples for IS education research, see Burns, 2011; Guthrie, 2010). The history of GT application within the IS domain can be traced back to 1985 when a paper by Huff and Munro (1985) reported a field study which mainly was following the tradition of theory building in GT. While the main source of inspiration for Huff and Munro's (1985) study was the notions of Glaser and Strauss (1967), the subsequent studies in the IS domain did not necessarily follow the same line in terms of understanding and applying GT. This issue is well studied by Matavire and Brown (2011). Matavire and Brown (2011) try to delineate different approaches to GT within the IS literature by analyzing 76 papers published within the period of 1985 to 2008. Their analysis reveals four main GT approaches in use: classic, evolved, mixed method, and analytical. While they refer to studies such as Glazer and Strauss (1967) and Glaser (1992) as instances for the classic GT, the evolved GT can be identified by their reference to the works of Strauss and Corbin (1990, 1998). On the other hand, Matavire and Brown (2011) put Charmaz's (1983, 2005, 2006, 2008) works, which are largely known as having constructivist orientation, in the evolved category.

Although the constructivist stream has shared ground with the evolved GT approach and even the classic one, what is intended in this type of GT research is a kind of grounded theory building which is set in an interpretive paradigm (Rodwell, 1998, p. 147). In one way, this position is different from what is taken by Glaser (2002) who implies that classic GT is "paradigmatically neutral" (Matavire and Brown, 2011, p. 6). In the other way, it is different from most parts of the GT literature (including "Glaserain" and "Straussian" approaches) that insist on doing positivist/objectivist research with goals of generalizability, reproducibility, and verification, among others (Rodwell, 1998, p. 147). In this sense, the constructivist practice is congruent with some standards to establish trustworthiness and authenticity instead of control for generalizability; hence, the produced theory is kind of tentative and context-imbedded (Rodwell, 1998, pp. 147-148). On the other side, this should be noted that the *interpretive* interpretation of GT is not something popular among GT studies in IS. There can be found only a few number of this kind of studies (see, for example, Galal, 2001; and Gasson and Waters, 2011).

Contributing to the thin body of the interpretive GT literature in IS, this paper recounts a constructivist research which is done as an IS education research for making a contextual theory of how IS doctoral students in a particular institution make meaning of their study in the field. Specifically speaking, in this paper, the main focus will be on the research process in which a collaborative meaning making procedure was run to construct a body of knowledge/meaning about the experience of study in the IS field. In the rest of this essay, we first briefly look at why the constructivist inquiry is an important and fruitful research approach to be taken in IS studies. We then explain different facets of our experience of adopting the constructivist

process for warranting trustworthiness and authenticity. Finally, in the last section, we circle back to what we presented at the front of the paper to show that this sort of research can be helpful. Additionally, we discuss some of the important lessons which we learned by doing this constructivist inquiry.

IS CONSTRUCTIVIST RESEARCH: WHY?

In an interesting yet short paper, Coles-Kemp (2009) draws an appealing picture of major research challenges found in the information security management area. She contends that for going beyond just simplified views on some important organizational aspects such as "power" and "decision making," we should develop deeper understandings by using alternative epistemological perspectives in addition to the more positivist perspective. In fact, this is a proposition which has been largely supported by lots of senior IS scholars (for example, see Walsham, 1995; Klein and Myers, 1999; Myers and Klein, 2011). But the importance of Coles-Kemp's (2009) notions lies on her focus on the concept of "constant emergence and decay" of issues/practices in the fusional relationships between the human and the technological in organizational contexts. This is where either the socio-technical or sociomaterial perspectives come into the picture (for example, see Mumford, 2006; Orlikowski and Scott, 2008). In fact, most of the advanced views of organization and technology within the IS intellectual domain acknowledge a reconsideration of conventional views of the human and the technological for the sake of getting more effective understanding of emergent and contextual nature of configurations that constitute contemporary organizational practices (Orlikowski and Scott, 2008). This kind of reconsideration necessitates a process-type stand of view rather than a product-type one. It also requires scholars to engage more in action-oriented longitudinal studies, as oppose to snap shot studies, through developing intimate familiarity with given organizational contexts (Coles-Kemp, 2009).

The above considerations are aligned with the fundamentals of the constructivist research. Reclaiming the Chicago school's underpinnings in the GT domain, the constructivist approach conform to this notion that "the naturalistic inquiry inherent in Chicago school tradition means studying what people in specific social worlds do over time and gaining intimate familiarity with the topic" (Charmaz, 2005, p. 521). On the other hand, "looking at data with a Chicago school lens entails focusing on meaning and process" (Charmaz, 2005, p. 522). In other words, the constructivist research approach is one of the suitable approaches for studying emergent and context-bounded phenomena by requiring intimate familiarity with what Rodwell (1998) and before her, Lincoln and Guba (1985) call as *natural setting*. "A natural setting is elemental to constructivism because reality cannot be understood in isolation of its context" (Rodwell, 1998, p. 55). At the same time, constructivist approach is highly considerate about the practical/change outcomes associated with tentative theories which it produces. This can be realized by looking at two aspects of *authenticity* in this kind of research called *catalytic* and *tactical* (Rodwell, 1998, pp. 109-110). These two aspects hold the inquirer and the constructivist process not just to evoke change, but also the change must be effective from the points of view of the stakeholders who have been engaged in the process (Rodwell, 1998, p. 110). That is why the "differences between a grounded theory informed by positivism and one informed by pragmatism appear most starkly in the contrast between objectivist grounded theory and constructivist grounded theory" (Charmaz, 2011, p. 365). Therefore, instead of taking the objectivist position of Glaser (2002) in arguing that analysis in GT uncovers latent patterns in the data, constructivist approach is more compatible with an interpretive position that there are no objective patterns to be discovered but there can be co-constructed patterns that are of interest to the researcher as well as the stakeholders. In this way, the questions we ask of the empirical world frame what we define as data and following that, our analysis results arise through our interpretations of data rather than emanating from them or from our methodological practices (Charmaz, 2005, pp. 509-510).

IS CONSTRUCTIVIST RESEARCH: AN EXPERIENCE

This research piece tries to shed light on an aspect which is largely neglected in studies and commentaries about the state of IS field: IS doctoral students' experiences and attitudes. The community of doctoral students is an important part of any academic discipline. In fact, intellectually strong doctoral students, who are positive minded about their field and its prospect, can highly contribute to steady and smooth growth of any academic field. From this perspective, the way that IS doctoral students experience their field of study should be understood as a key factor in improving the general academic position of the field and as a basis for devising effective corrective or change policies by IS community leaders and or IS senior scholars. All of these were strong motivations for us to do the constructivist research reported in this article. In fact, this research can be viewed as an effort to make a contextual understanding of IS doctoral students' academic life by entering the *natural setting* of an IS doctoral program and attempting to see it from the inside. This is aligned with the conception of what constructivist grounded theorists do (Charmaz, 2011, p. 366). On the other hand, however, our intention in this paper is not to focus on the content of the research. Instead, we consider this research as an illustrative example of constructivist research, and hence we concentrate on the process. This process was mainly driven, as much as possible, by guidelines provided in the

constructivist research book by Mary K. Rodwell (1998). This book is one of the few resources which provide a fairly clear picture of the details and issues in designing and warranting rigor in constructivist inquiries.

Research Design

At the first place, this research enterprise started with some initial context-bounded ideas for evaluating an IS PhD program in a specific business school based on IS PhD students' viewpoints. In this line, the first version of *foreshadowed questions* (see Rodwell, 1998, p. 55) were addressing specific courses and structures in the IS PhD program. Such questions as:

- *What do you think about the A course?*

- *In your view, what is the meaning/role of comprehensive exam?*

- *What do you think about the B course? Is it beneficial?*

However, the initial research ideas/focus evolved through getting involved in *peer debriefing* process (see Rodwell, 1998, p. 99) as well as performing what Rodwell (1998, p. 62) calls *grand tour-type ethnographic activities*. The business school that we considered for our research purpose is among the mediate level business schools in USA. According to its AACSB profile, this business school is coded as B and A in terms of its general and scholarly orientations, respectively. The IS department in this school consists of more than 20 full time and adjunct faculty members. There have been two major changes in the IS doctoral program in the recent year including a raise in the graduate assistantship funds and a major revision in the curriculum. Moreover, the IS department employed two new faculty members in the last summer. In fact, all of these changes could imply some intentions for making improvements in the IS PhD program in terms of PhD students' satisfaction, productivity in research and teaching, and content enrichment. All of these information led us to change our viewpoint regarding what is important and what ought to be known. In fact, we experienced a transition from a program evaluation focus with objectivist-type questions to a more phenomenological focus with a more meaning oriented question. In this sense, the last version of the main research question was shaped as a single question with the following formulation:

> *What does study in Information Systems field mean for you?*

In the subsequent step of the research, the above question plus the gathered information from prior ethnography set the ground for a more focused exploration. In that focused exploration, we were supposed to find out some hidden aspects of the PhD students' lived experience through meaning co-construction. But first, we went through an informal process of rereading and reflecting on what we had achieved up to that point of time, including prior ethnography information and some *methodological logs*. This process led to some emergent themes which are reflected in the following working hypotheses. These working hypotheses show the general dimensions of the inquiry and what we took as the important aspects which required further investigation:

- *Concerns about the relative academic prestige of the IS field compared to the other business fields is part of IS PhD students' study experience in this business school.*

- *Concerns about the future usefulness and practical value of what the IS PhD students learn is part of their study experience in this business school.*

- *Concerns about the impact of choosing either the technical or the behavioral/organizational orientation on the probability of finding professional/academic jobs is part of IS PhD students' study experience in this business school.*

Participants and Interviews

The qualitative method of interviewing was the main method for generating meaning. Four IS PhD students were engaged in this study. We selected these four students based on the idea of getting maximum possible variation and through doing *purposive sampling*. In such sampling act, we were looking for different types of students with a range of different characteristics in terms of gender, nationality (international vs. American), type of enrollment (full time vs. part time), and stage in the program. So, there was no criteria for excluding any type of IS doctoral students. On the other hand, the consenting process was conducted in three major steps. First, we met each of the potential participants in person for sharing the idea of the research and knowing about his/her interest to be a part of this study. Then we contacted each of them through email. In this email, we attached a version of the research's consent form and announced that we are available for answering to any kind of question or issue regarding either the research procedure or content of the consent form. Also, in this email we asked for participants' preferred date and time for conducting interviews. The final step of consenting process was done at the

start of each interview session by signing two hard copies of the consent form. All of the interviewing sessions were held in a same room and all of them were tape-recorded. The average time of interviews was 35 minutes.

By doing the interviews, we went through another evolution process. In this process, the general themes which had been formulated as working hypotheses became refined through our quest for greater meaning. First of all, we devised an initial version of interview questions as part of our interviewing protocol. These questions were based on the working hypotheses. In formulating this set of questions, we tried to avoid cause-effect thinking style and to broaden the answerability of questions to get as variant and broad answers as possible. Additionally, we tried to avoid using some words which could convey any of our presumptions about the phenomenon. The whole of this formulation process was done in an iterative manner and guided by the comments of our peer reviewer. Finally, we came up with the following version of questions and their associated probes:

- *Tell me about your choice of studying in IS?*

- *What is your feeling about what you learn in IS field?*

  Probes:

  - *The relative importance of IS*

  - *Future scholarship*

- *In your view, what are the important topics to be learned in IS?*

  Probes:

  - *Technological issues*

  - *Behavioral/Organizational issues*

  - *Research methodologies*

The above questions, then, became revised through co-construction which happened during the interviews. In fact, this is how *hermeneutic circle* (see Rodwell, 1998, ch. 4) developed in our research process. Each interview elevated our insights and this happened either through our own improved understanding of the issue or points made by the participants. By writing the extended field notes of each interview session, we were finding some critical points and issues that should be considered in subsequent interview sessions. In this sense, we had a new version of questions in terms of their associated probes at the start of each interview session. These new probes then helped us to build upon what had been constructed earlier and to get other participants' perspectives on them. On the other hand, at the end of interview sessions we were reviewing what was responded by participants to make sure that we are getting their perspectives correctly. This was the first step in our *member checking* practice (see Rodwell, 1998, p. 99).

Data Analysis

Constructivist data analysis is an ongoing process that starts with the first contact in the field (Rodwell, 1998, p. 147); however, a more formal data analysis is undertaken when focused data collection ceases (Rodwell, 1998, p. 64). This formal analysis is driven by *constant comparison* (see Glaser and Strauss, 1967) and leads to in-depth information with maximum variation in terms of the participants' viewpoints. In this piece of research, we started the analysis process by doing *unitizing* (Rodwell, 1998, pp. 154-156). For this aim, we extracted data units from the extended field notes. We came up with total of 468 data units. Following the *unitizing* step, we started *categorizing* (Rodwell, 1998, pp. 156-162). First of all, we shuffled up the entire index cards and then we took the index cards one by one to compare each of them with the other data units to identify relevant themes or categories. After doing some rounds of *categorizing*, some ideas about the nature of categories emerged. That was when we tried to label each category to keep track of what we were thinking about each of them and hence this could serve as a guideline throughout the rest of the *categorizing* action. Nevertheless, the categories' labels evolved in multiple rounds. First, we came up with some tentative labels. Then, during the process, we changed some labels and we added some new categories which needed new labels. Finally, we came up with 14 basic categories. Following that, by combining those categories which had similar thematic nature, we reached to 5 higher level categories. We also went further by reflecting the associations among the higher level categories into an architecture. An example of such architecture is illustrated in Figure 1 where X refers to the business school, which was investigated in this research.
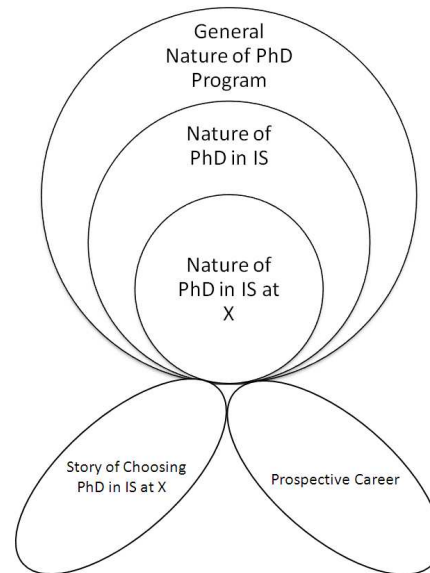
Figure 1. An Example of the Architecture

Although we finished a major part of data analysis by taking the aforementioned steps, the data analysis stage was not complete yet. We were required to check what had been constructed with the participants. For this aim, we wrote first version of case report based on the data analysis results. This report was addressing *emic perspective* (see Rodwell, 1998, p. 27) and was a thick description based on all of the data units, one-by-one. The report, then, was sent to each of the participants to get their comments about the accuracy of its content and to make sure that their experiences are represented accurately. This step was the second one in the member checking process and is called *comprehensive member checking* (see Rodwell, 1998, pp. 64-65). At the end of this process participants just suggested some minor corrections, which we applied to the report.

Aspects of Rigor

In this inquiry, we tried to establish possible aspects of rigor. The rigor in this kind of research can be discussed in terms of two main dimensions: *trustworthiness* and *authenticity* (Rodwell, 1998, p. 59). In terms of *trustworthiness*, we tried to assure relevant elements in the following manner (see Rodwell, 1998, pp. 97-106):

- *Credibility:* We tried to maintain *prolonged engagement* with the context and the participants. On this basis, we think that we were persistent observers in the sense that we diagnosed some emerging themes in the context such as the changes in the structure of the IS PhD program. These observation activities as well as gathering information about the school and looking at relevant parts of the literature helped us to do *triangulation*. Moreover, we have used some other techniques such as *peer debriefing* and *member checking* during this research project. These techniques can significantly help to assure a good level of credibility.

- *Dependability:* Besides doing *triangulation*, we kept all records of all collected and analyzed data as well as formed categories and category labels. Moreover, we were updating our *methodological log* regularly. All of these make an appropriate *audit trail* which consists of all methodological steps and decisions, all raw data, all linkages between raw data and other forms of analyzed data (such as basic categories and high level categories), and all information about the evolution of research questions and working hypotheses.

- *Confirmability:* The confirmability audit for this research can be done based on the multiple evidences that form the *audit trail* in this research project. These evidences include, but not limited to, *triangulation*, *member checking*, records of collected and analyzed data, formed categories, as well as interpretations and lessons learned.

- *Transferability:* This element can be assured since we provided a thick description (i.e. case report) regarding the context of the study, the participants, and the story which participants were telling.

On the other side, we tried to make our research authentic. This aspect of rigor looks at the quality of the process rather than the product of the research. Although the major part of authenticity can be achieved by doing follow ups and making sure that the research can bring about beneficial changes to the situation/context, we try to show some aspects of *authenticity* that possibly can be assured by the activities which we have done during this research project. Part of these aspects can be

satisfied by considering the above elements of *trustworthiness*. In fact, the demonstration of *credibility*, *dependability* and *confirmability* can also serve the purpose of *authenticity* (Rodwell, 1998, pp. 110-111). Nevertheless, some specific facets of *authenticity* are addressed here (see Rodwell, 1998, pp. 106-115):

- *Fairness:* Although this study lacks the special arrangement regarding the sequence of interviews for moving from the least to the most formally powerful participant, multiple mechanisms such as establishing no criteria for excluding any type of IS doctoral students, conducting the three-stage consenting process, performing the two-stage member checking process, and having balanced attention to all of the participants in narrating the story, provide good reason to think of this research process as a fair one.

- *Ontological and Educative Authenticity:* We think that we have achieved to some levels of ontological and educative authenticity. Two of the participants were impressed by the story that we shared with them during the comprehensive member checking step. One of them said: "I read through it. It is an excellent summary. [It is] eye-opener for me as well to hear what other people feel about the program." This kind of statements can show some levels of *consciousness raising*. On the other hand, we tried to make a connection between separate interviews and perspectives by incorporating ideas from one participant (as some new probes) into our conversation with the other participants. This can also serve as a measure of *educative authenticity*.

DISCUSSION AND CONCLUSION

This research project was associated with high levels of uncertainty and suspension around how the research process and product would evolve. In fact, this sense of uncertainty and evolution is one of the core elements of the nature of constructivist inquiries. We experienced a significant difference between what we had thought as the formal structure of the research and what emerged in the actual interactions with the participants. We did not expect to get this much of different categories which seemed to have no direct relationship with the initial research questions. We think that part of the reason we found surprises in the information was because of attention to the quality of the process (i.e. *authenticity*) where something allowed participants to provide authentic information that might not have been achieved in other more objectivist ways. This is one of the useful contributions of context-based interpretive work. This implies that how constructivist research embodies a deconstruction process and how it can lead to an enriched understanding of the context and stakeholders. This enriched understanding, which part of that can be reflected by a model like Figure 1, can be useful for administrators and policy makers in the context of study in order to diagnose critical areas and design accommodations which could significantly improve lived experience of the stakeholders in that context.

The other important element in our research was the unique role of each participant in constructing a multidimensional and heterogeneous body of meaning. In this line, the shuffling practice was a good invention since it helped us to think about all of the four participants at a same time when we were doing sorting, lumping and finally labeling the lumps. In this sense, we were not stuck into just one participant's ideas at a moment; rather, we were in the middle of a virtual converse. However, one relevant limitation here was about the arrangement of interviews. We were not able to arrange the interviews based on the participants' formal power and this was due to the constraints in their availability. Time constraints, on the other hand, did not allow us to capture more variation in our sample of participants.

Another lesson which we learned pertains to writing the case report. In fact, we experienced a second instance of *categorizing* during writing the case report. Although that was not a major *categorizing* act, we found some few index cards which could be moved to other categories to give a better sense and to complete the puzzle of the story which we were narrating in the case report. Additionally, during the *unitizing* step we came up with this idea that it would be better to do *unitizing* in the interval between two interviews. Although we were writing extended field notes for each interview to detect important points and probes, we think that we could go a step further and do *unitizing*. In this way, *unitizing* could give a much better understanding and a more deep view into the meaning constructed by one participant and hence could prepare us more to be considerate about those important probes in our next interview.

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