Data Sharing in Interpretive Engineering Education Research: Challenges and Opportunities from a Research Quality Perspective

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ABSTRACT

This article explores challenges and opportunities associated with sharing qualitative data in engineering education research. This exploration is theoretically informed by an existing framework of interpretive research quality with a focus on the concept of Communicative Validation. Drawing on practice anecdotes from the authors' work, the article examines which aspects of the social reality under investigation and what details of the contextual research process would need to be understood by a researcher attempting a secondary analysis. To foster a thoughtful discussion in the community, we propose to conceptualize data sharing as the tentative re-use of data analogous to the concept of the tentative transfer of interpretive research findings. We contend that such a tentative re-use of data would need to be supported by communicating sufficiently detailed "thick metadata" to safeguard the continuity and robustness of the theoretical, methodological, and value commitments made in the original study.

Key words: interpretive research, data sharing, research quality

INTRODUCTION

Set in the context of recent calls for and efforts to promote data sharing in engineering education research (National Science Foundation 2014), this article explores challenges and opportunities associated with sharing qualitative data in this interdisciplinary field. More specifically, we argue that

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the ever-broader range of interpretive methods of inquiry that are being adopted by the engineering education community prompts the need to discuss some of the epistemological assumptions that underpin this paradigm and implications of these assumptions for the secondary analysis of qualitative data.

In the context of qualitative research in other fields, scholars have explored secondary analysis in practical terms (Hinds, Vogel, and Clarke-Steffen 1997, Bishop 2006, Fielding 2000), from an epistemological perspective (Mauthner, Parry, and Backett-Milburn 1998, Parry and Mauthner 2004, Thomson et al. 2005), and with respect to ownership and copyright of data, participant confidentiality, and informed consent (Hammersley 1997, Parry and Mauthner 2004, Yardley et al. 2014, Thomson et al. 2005). Building on these considerations, this article explores challenges and opportunities for sharing qualitative data from a research quality perspective. More specifically, we draw on a parsimonious framework for qualitative research quality (Walther, Sochacka, and Kellam 2013) to examine how considerations of research quality, both in original and secondary studies, might inform decisions of whether or not and, if so how, to share qualitative data. We first provide a brief overview of relevant discussions in other disciplines and then introduce the Quality Framework to theoretically anchor our later practice-based explorations.

LITERATURE REVIEW

While secondary analysis of quantitative data is a well-established practice, secondary analysis of qualitative data is far less common (Heaton 2008). Calls to archive and reuse qualitative data are prompted primarily by the need to leverage diminishing resources available for funding research (Parry and Mauthner 2004). Some funding organizations, such as the Economic and Social Research Council (ESRC) in the United Kingdom, for example, require all their award-holders to offer their data for collective archiving, irrespective of whether the data are more quantitative or qualitative (Parry and Mauthner 2004).

The push to share qualitative data has prompted debate in the qualitative research community concerning the epistemological, practical, and ethical implications of making qualitative data available for secondary analysis. This debate stems from a recognition that qualitative studies, with their focus on context, personal experience, staying close to the data, and the reflexive relationship between the researcher and the researched, produce and use data in fundamentally different ways from quantitative studies (Parry and Mauthner 2004, Fielding 2000, Heaton 2004, 2008).

From an epistemological perspective, Mauthner, Parry, and Backett-Milburn (1998) contend that because qualitative data are produced in specific "biographical, historical, political, [and] theoretical"

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(p. 742) contexts, which are not only inescapable but also irreproducible, secondary analysis of archived data is valid only if limited to "historical methodological exploration" (p. 743). Put another way, while archived qualitative data may provide insight into where and how researchers were positioned at the time of the original study, "any attempt to go further than this is incompatible with an interpretive and reflexive epistemology" (p. 743). As Mauthner, Parry, and Backett-Milburn (1998) further explain:

> Our point is, if researchers generate new substantive findings and theories from old qualitative data, without attending to the epistemological issues, they are being 'naively realist' thus unwittingly serving to reify the data by hoodwinking us into believing they are entities without concomitant relations. (p. 743)

Fielding (2004) and others (Bishop 2006) counter this view, arguing that the epistemological challenges faced by secondary researchers are no different from those faced by primary researchers. As Fielding argues:

> Qualitative researchers have always been in the position of having to weigh the evidence, and often have to deal with incomplete information or speculate about what may have happened if a researcher had not been there. The difficulty is not, therefore, epistemological but practical. Information regarded as vital in providing evidence for a given analytic point may well be missing from the archived data. But that happens in primary analysis too— the tape runs out "just when things get interesting," or the respondent withdraws their remark . . . or any number of other contingencies. (p. 99)

Qualitative researchers are also concerned about a number of ethical issues associated with sharing qualitative data, including ownership and copyright, respondent and researcher anonymity, and informed consent (Hammersley 1997, Parry and Mauthner 2004, Yardley et al. 2014, Thomson et al. 2005). Parry and Mauthner (2004), for example, describe the tension between removing key identifying characteristics of research participants and compromising the integrity and quality of the dataset, as well as removing the possibility for the de-identified respondents and, in some cases, primary researchers, to object at a future time as to how their data will be used.

While the qualitative research community has not yet reached a consensus on how to address these potential epistemological, practical, and ethical challenges, two points that are generally agreed upon are: i) the importance of archiving raw primary data alongside "contextual data," or what we in this article call "thick metadata" (discussed shortly), and ii) the need to evaluate the

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potential suitability of a shared dataset for secondary analysis in terms of the purpose and nature of the new research questions (Bishop 2006, Parry and Mauthner 2005, Fielding 2000, Hammersley 1997, Yardley et al. 2014). Given the vastly diverse nature of qualitative inquiries, it is reasonable to assume that data from some studies will be more conducive to sharing than others. In this article, we adopt a research quality perspective to examine what types of thick metadata would be required to make this judgment and facilitate a meaningful secondary analysis that honors the epistemological, theoretical, methodological, and ethical commitments of the original study.

THEORETICAL FRAMEWORK

To frame our focus on research quality, and particularly on the interlocking processes of social construction that characterize the entire research process in interpretive studies, we draw on a framework for interpretive research quality (Walther, Sochacka, and Kellam 2013) that proposes a process model spanning the acts of *Making Data* and *Handling Data* (see Figure 1). This model shows how the interlocking processes of shared meaning-making occur within the various communication communities (Apel 1972) that characterize the interpretive inquiry. In *Making Data*, the relevant communication community comprises the participants and the researchers as they co-construct an authentic and rich understanding of the participants' "experience-near" constructs (Geertz 1974), that is, accounts of participants' lived experience in their own terms. Transitioning into the analysis phase in *Handling Data*, generally speaking, the communication community shifts from the relationship between the researcher and the research participants to the research team while, at the same
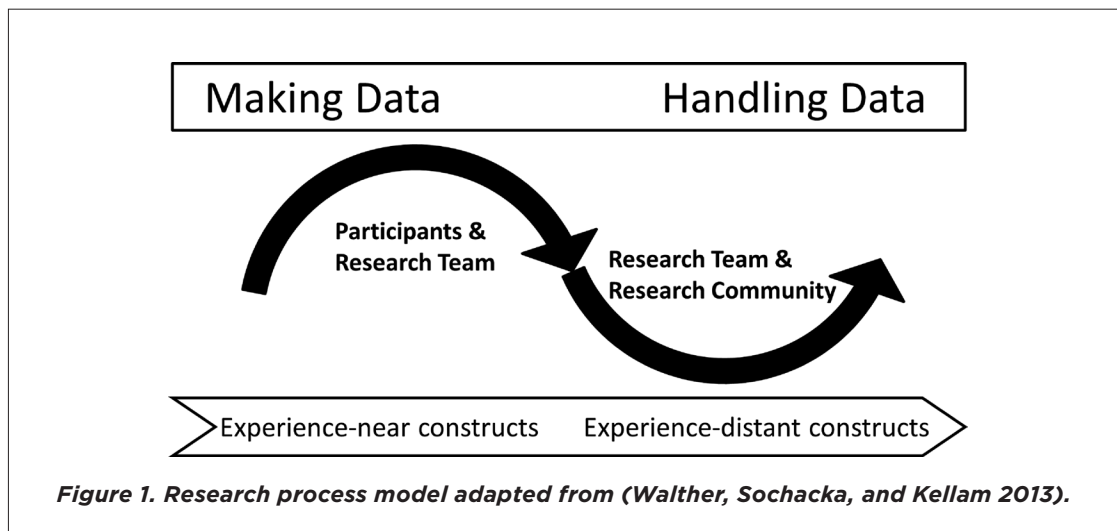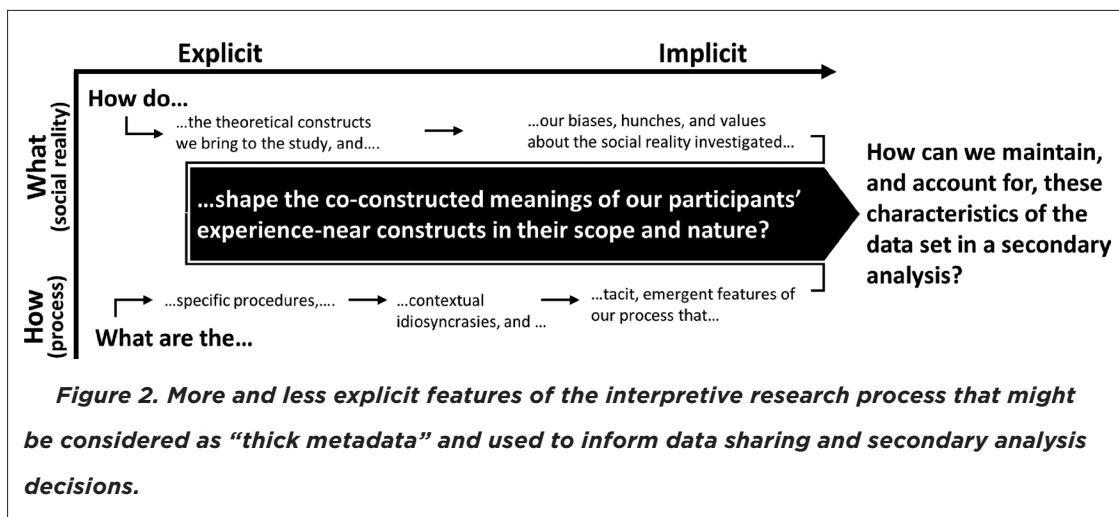

Figure 1. Research process model adapted from (Walther, Sochacka, and Kellam 2013).

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time, remaining firmly grounded in the data. In this latter process of social construction, researchers attempt to "grasp concepts which, for another people [i.e., the participants], are experience-near, and do so well enough to place them in illuminating connection with those experience-distant concepts that theorists have fashioned to capture the general features of social life" (Geertz 1974, 29). In other words, researchers reframe and reinterpret the meanings that have been co-constructed with participants and express them in the meaning conventions of the relevant research community. In this way, the processes of publication and dissemination also become acts of social construction (see *Handling Data* in Figure 1).

One key challenge in interpretive research studies is to authentically maintain or "do justice" to participants' rich accounts and experiences while contributing relevant and useful knowledge claims to the cumulative body of knowledge within the research community (Pawley 2013). One way of addressing this challenge is to use "thick descriptions" (Geertz 1973) of the data presented alongside abstract findings drawn from the same data. Together, these two views on the data allow the reader to grasp the "experience-distant concepts" developed by the researcher as well as the often more tacit or implicit contextual richness of the participants' shared lived experiences. Without these tacit meaning components, the findings risk being perceived as severe and lifeless reductions that fail to generate a vivid picture of the social context under investigation that readers can connect and relate to (Lincoln and Guba 1985, Geertz 1973). In this article, we build on the notion of "thick descriptions" discussed in the literature and propose the metaphor of "thick metadata," which we define as a critically reflexive documentation of the research context and process that captures and authentically conveys both the explicit and the more tacit features of the research (see Figure 2).

Figure 2. More and less explicit features of the interpretive research process that might be considered as "thick metadata" and used to inform data sharing and secondary analysis decisions.

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In the practice-based explorations that follow, we examine how influences along the spectrum presented in Figure 2 shape the ways in which researchers and participants co-construct meaning around the latter's experience-near constructs and, subsequently, what implications these effects have for sharing these types of datasets. In a recently published Quality Framework for interpretive engineering education research, Walther et al. (2013) frame quality considerations concerning the continuous interlocking processes of social construction as *Communicative Validation,* and discuss strategies to foster the robustness and authenticity of co-constructing meaning within the relevant communication communities. *Communicative Validation* is one of four fundamental validation categories (*Theoretical*, *Procedural*, *Pragmatic,* and *Communicative Validation,* alongside *Process Reliability*) proposed in the framework, some of which relate to the discussion here and which we introduce in the respective sections as relevant.

ANALYSIS

To explore data sharing from a research quality perspective, here we draw on two example studies from our own work to illustrate the above-described features of interpretive research, and concretely explore their implications for potential secondary analysis. We do not intend for this exploration to provide a comprehensive coverage of the challenges and considerations around sharing qualitative data; we have directed the reader towards other key considerations in the literature analysis above. Nor is the purpose of this article to develop a "checklist" of criteria that researchers can use to determine whether secondary analysis is appropriate in a particular case. Rather, our intent is to present significant aspects from our own research practice, framed in a systematic way, to provide a starting point for a deeper, thoughtful discussion around the possibilities and pitfalls concerning the secondary analysis of qualitative data in the engineering education research community.

Figure 2 illustrates the space in which we explore the implications of the social construction of meaning for secondary analysis. As shown in this figure, we propose that the processes of meaning-making that characterize an interpretive study are significantly shaped by both more and less explicit elements. These elements concern the *social reality* under investigation as well as the *research process* that researchers use to "see" this social reality. The constructs describing the *social reality* include, as more explicit components, the theoretical frameworks used to define the study purpose and inform the methodology and, as less explicit components, the researchers' biases, hunches, purposes, and values relating to the subject of the investigation. Similarly, the *research process* relates to more explicit aspects of methodology, methods, and

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procedural choices, alongside less explicit contextual idiosyncrasies of a particular study, such
as tacit understandings of the procedures that researchers and teams develop in the course of
an emergent inquiry.

The following sections explore these more and less explicit aspects of interpretive studies through
concrete examples from primary qualitative studies in our research practice, and discuss implications
for subsequent secondary analysis.

Case 1: A study of raced and gendered ruling relations in engineering education

This first example study uses stories from engineering undergraduate students considered
underrepresented in the US to facilitate an understanding of how certain engineering educational
institutions—in this case, American universities—are gendered and raced through their structure.
The primary theoretical framework for the project is based on Dorothy Smith's work concerning
ruling relations (Smith 1987, 1990, 2005), which are the "operating procedures" that coordinate
social relations in some settings. These ruling relations can be operationalized as "texts," or policies
that serve as "crystalized social relations" (Campbell and Gregor 2004, 79) that people working
in the institution need to understand how to navigate. For example, in the context of a college of
engineering, there are policies that govern some aspects of how different people (faculty, students,
staff, the public) come together (walk, bus, drive) to do work (teaching, learning, research, outreach,
administration) financed in certain ways (tuition, taxes, donations, grant money) in university build-
ings. This situation requires an intensive network of policies and understood practices that govern
employment, risk, rights, responsibilities, and so on, and yields a body of people who, in the US,
are more often than not male, and more often than not racially classified as "white" (an American
racial category). Specifically, the study is designed to examine the following question: How does
the structure of these ruling relations—our implicit and explicit operating manual—function to allow
certain types of lives to be more successful in navigating engineering educational organizations
than others?

To answer this question, the research team is interviewing undergraduate students or recent
graduates engaged with navigating this social terrain. The students are invited, in a very un-
structured interview context, to describe how they "got to be where they are now," and then
asked follow-up questions judged to be context-appropriate by the interviewer, underpinned
by the construct of ruling relations. Through an involved narrative analytical process (Pawley
2013), and governed by a commitment to feminist theories of intersectionality whereby the
focus is on how constructs of race, class, and gender interact (Crenshaw 1989), the purpose
of the study is to make claims about the gendered-ness and raced-ness of different types of
American university structures.

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Richness of explicit constructs brought to the study

The specific theoretical framework of ruling relations and the researcher's understandings of the universe of intellectual traditions around historical and contemporary aspects of race, class, and gender in the US grounded the ways the researcher engaged in the co-construction of meaning with her participants (asking questions, relating to individuals, building rapport). These aspects of the constructs brought to the study, albeit explicit, shape and are simultaneously embedded and infused throughout the meaning constructions between the researcher and the participants.

The richness of the theoretical grounding in this study suggests that other researchers would need to acquire an equally broad and similarly oriented understanding of the primary researcher's theoretical universe in order to be able to fully understand and appreciate the dataset in a secondary analysis, an effort that would have to extend significantly beyond the labeling and abbreviated description of theoretical frameworks that are common in the publication of educational studies.

Implicit value commitments underpinning the work

Related to the richness of the explicit theoretical space around the subject studied are the less tangible, tacit aspects of the primary research team's values, intentions, and purposes relating to the issue under investigation. In the example study, the lead researcher was motivated by a commitment to conduct research focused on changing institutions, rather than the behavior of individuals, and a philosophical and methodological alignment with the social justice aims of feminist and decolonizing research (Tuhiwai Smith 1999) rooted in the context of race, class, and gender in the US. She believed that, if she asked people to share with her, a stranger, what invariably turned out to be intimate stories of their lives, the least she could do is make those stories do as much work as possible towards the cause of increasing the number of gender- and race-minority students in American undergraduate engineering programs. However, descriptions of the role of these emotional concerns are not always welcome in published articles (Walther, Pawley, and Sochacka 2015). Yet, in a similar way to the explicit theoretical understandings, these less explicit aspects significantly shaped the resulting accounts of underrepresented students' experiences of undergraduate engineering programs.

For the potential to share such data, these less explicit elements mean that:

• One would need to acquire a rich understanding of the reflective development of the primary researcher's subjectivity—perhaps beyond the articulation even of the researcher him or herself—to sufficiently understand and be able to work with the data, and

• In subsequent analyses, one would need to maintain a commitment to the values and purposes that informed and motivated the primary study.

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**Case 2: An exploratory study of engineering students' accidental competency formation in
different cultural contexts**

This second example study used the lens of "accidental competency formation" (Walther et al.
2011) to investigate the complex processes of engineering students' competency formation that arise
from the interaction of explicit learning activities and influences from students' entire experience of
attending an engineering program of study (Walther et al. 2011, Walther and Radcliffe 2007b). Data
were gathered in focus groups with 67 engineering students from various majors at institutions in
Germany, Australia, the US, and Thailand. The focus groups followed a semi-structured protocol to
elicit participants' critical incident accounts of their learning experiences. The collaborative imple-
mentation of the focus groups in different cultural settings (Walther 2014) touched upon a number
of *research process* features (see Figure 1) that ranged from more to less explicit (see Figure 2)
and are used here to illustrate their impact on potentially sharing the dataset from this study for
subsequent secondary analysis.

*Contextual richness of the explicit details underlying the co-construction of the critical incident
accounts*

The focus group protocol and procedure were developed in an Australian setting with a specific
focus on eliciting critical incident accounts (Flanagan 1954, Spencer and Spencer 1993, Walther,
Sochacka, and Kellam 2011, Walther et al. 2009) relating to students' experiences, and deemphasized
the sharing of general opinions or espoused beliefs (Argyris and Schoen 1974). When collaboratively
implementing the focus group in Thailand, the Australia-based lead researcher and the local Thai col-
laborators developed a range of additional pointers, follow-up questions, and facilitation techniques
to help the local facilitator maintain a focus on critical incidents related to experiences of accidental
competency formation. For example, the team recommended the interviewers wear informal dress
to deemphasize the cultural characteristic of "power distance" (Hofstede 2001), and changed the
interview prompts to deemphasize the individual nature of the accounts as a way to accommodate
for the cultural characteristic of collectivism (Komin 1990). This process-specific co-construction
of the research procedure within the research team was extensively documented (Walther and
Radcliffe 2007a, Walther 2014) as a way of purposefully developing the communicative validation
of the methodology within the research team (Walther, Sochacka, and Kellam 2013).

With respect to potentially sharing the focus group data, the documentation of the explicit
features of the process and the theoretical characterization of the cultural context would be a first
step in providing an understanding of the dataset. At the same time, however, the relative intricacies
of the actual, implemented research procedures point to the need to share a much broader range
of information about the process beyond a sanitized description of the final focus group protocol.

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Such an extensive documentation of even the explicit features of the research process, decisions, and context to support meaningful secondary analysis would be a formidable task and is particularly challenging because the primary researcher cannot anticipate which aspects would be relevant for a subsequent analysis with a different focus.

Context-dependent idiosyncrasies of a "purpose-built" data set

As part of the iterative development of the research process described above, there were a range of contextual decisions that shaped the dataset to the specific setting and purpose of the inquiry (Figure 2). In this example, the research team conducted the analysis of completed transcripts in parallel to subsequent focus groups. This iterative process shaped the data set to reflect participants' meaning constructions, particularly around specific patterns of accidental competency formation that emerged early on in the analysis. This process also ultimately led to the research team's decision to conclude data gathering when they believed they had achieved saturation around the emergent foci of the analysis.

This example indicates that emergent, interpretive work purposefully interlinks the co-construction of meaning with the participants and the construction of analytic meaning in the research team. In the example study, these contextual decisions strengthened the quality and richness of the dataset (*Theoretical Validation,* Walther, Sochacka, and Kellam 2013) for the purposes of this particular analysis. For a potential secondary analysis, the impact of such idiosyncrasies could be severely limiting as the data set shaped in one context and for one purpose might not adequately reflect the participants' shared lived reality as it relates to a different analytic lens (see also Mauthner, Parry, and Backett-Milburn 1998).

Impact of tacit procedural aspects on the shared meaning-making with focus group participants

The transfer of the research design from a Western to a Thai cultural setting not only prompted a richer documentation of the procedure but also revealed a range of tacit assumptions that impacted the shared meaning-making with the focus group participants (Walther 2014). In this study, the research team needed to adjust the process to account for cultural norms and values, and in so doing made some of these tacit influences explicit that in other study settings might go unnoticed.

More specifically, the research team accounted for the Thai cultural characteristic of high power distance, defined as the degree to which inequality in influence or standing is socially accepted or emphasized (Hofstede 2001), to adjust the way in which the local facilitator elicited student accounts in the focus group. In the context of earlier focus groups in Germany, Australia, and the United States, students were willing to share individual, critical accounts of their learning experiences at university. In a Thai setting, where "critique is often experienced as criticism, and seen as a social

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affront or personal insult" (Prpic and Kanjanapanyakom 2004), the focus groups were framed as collective, productive exchanges, an effort that was further strengthened through an attention to deemphasizing cultural markers of power distance in clothing and language. The research team thus drew on other cultural values such as collectivism, where "personal opinion and experience are not perceived as important" (Prpic and Kanjanapanyakom 2004) and relational aspects of communication are emphasized, to be able to authentically co-construct accounts of students' experiences. This purposeful, context-appropriate way of engaging students allowed for their experiences of accidental competency formation to emerge and be richly represented in the data set. The research team chose to accept the resulting "trade-offs" based on the specific purpose of the study in terms of certain aspects of students' experiences that might not have been as authentically present (for example, the students' feelings about and perceptions of hierarchical structures in education).

These subtle adjustments to the research process had a significant impact on the ways in which the Thai students constructed accounts of their experiences. In contrast to the Western students, who focused on individual accounts, the Thai students framed their specific experiences more as collective, shared narratives. In the analysis, this influence of the cultural characteristic of collectivism (Komin 1990, Hofstede 2001), which the research team intentionally drew on when setting up the focus groups, had to be accounted for so as not to "judge" the students' contributions by the notion of individual, critical incident accounts that are based in Western cultural norms. In other words, based on the knowledge of the culturally informed research process, the researchers were able to recognize Thai students' accounts of their concrete experiences as embedded in narratives that, from a Western perspective and without the understanding of the process, may not have immediately appeared as accounts of critical incidents.

For a potential secondary analysis, this example points to two key considerations from a research quality perspective. First, it demonstrates that secondary researchers would need a clear understanding of the particular aspects of a social reality to which a dataset shaped by tacit procedural elements can speak. In the sense of *Theoretical Validation* (Walther, Sochacka, and Kellam 2013), a quality category that speaks to the question whether, as researchers, we "get to see what we think we see" (Kirk and Miller 1986), such a consideration would need to be based on rich contextual details of explicit and less explicit procedural influences that shaped the dataset. Second, if the dataset is deemed to appropriately reflect participants' shared lived experiences with respect to another analytic lens, such a detailed understanding would be a necessary foundation to understand and make sense of the specific social constructions of participants' experiences. This understanding entails how the social constructions relate to the analytic lens of the secondary study, but remain grounded in the way they emerged from the focus and purpose of the primary study. A challenge for providing adequate documentation of these less-explicit aspects of the process is that these influences might not emerge with such clarity in all study settings, and in cases where they do

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emerge, they may only be explicitly documented insofar as they are relevant to the analytic lens of the *primary* study. They therefore might not speak to tacit influences that would be relevant for the analytic purpose and perspective of a *secondary* analysis.

DISCUSSION AND CONCLUSION

The analysis of these two case studies demonstrates that researchers need to carefully consider the sharing of interpretive data relative to the context, purpose, and circumstances of each research project. We introduced a research quality lens with a particular focus on the social construction of meanings (*Communicative Validation*) as a useful way to guide such considerations. More specifically, through the research case studies we explored a space of potential influences on the scope and nature of the social constructions that constitute the primary dataset. These influences concern the theoretical constructs that researchers use to frame and make sense of the social reality under investigation as well as another range of influences that emerge from the contextual implementation of the research process and methods.

With respect to potentially sharing interpretive data, these influences lead to the two following key considerations:

1. How can we document and share the necessary explicit information about both the universe of theoretical understandings brought to the study and the rich detail of a particular research process so that researchers can derive high quality findings from a secondary analysis?

2. How can we identify and communicate the less-explicit influences of our assumptions about the social reality and our context-dependent, emergent process, both of which significantly shape the dataset and need to be appreciated in order to make sense of features of participants' shared, lived reality in a secondary analysis?

To frame our thinking around these questions we draw on the parallels between the "tentative application" (Lincoln and Guba 1985) of interpretive research findings to other settings and the, we propose, also "tentative," reuse of interpretive data with a different analytic lens. To support a decision as to whether the data are "transferable" and to facilitate a possible transfer, we proposed to frame the contextual information required as "thick metadata." In the sense of fostering *Communicative Validation*, we argue that such rich, contextual, and critically reflective documentation of the primary study would be the basis from which to safeguard the continuity and robustness of the subsequent processes of social construction in a secondary analysis. It follows that data transferred in this way would have to be considered from both the "sending" and the "receiving" context, similar to Lincoln and Guba's (1985) suggestion for the transfer of interpretive findings. In other words, the primary

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researcher would, first, need to carefully consider the transferability of the data and the thick metadata they are able to even conceive of and articulate, let alone provide without misinterpretation. Similarly, from a receiving context, researchers would need to consider the available contextual information, their own level of understanding of the research subject and its context, and how these relate to the new analytic lens before attempting a secondary analysis. With the suggestions provided in this article, both decisions should be informed and underpinned by considerations of research quality.

In our analysis, we highlighted some of the challenges that lie in providing adequately thick metadata. Some of these challenges include the richness of available and potentially relevant explicit details, the context- and purpose-dependent relevance of such details to the primary study, and the sometimes-tacit nature of factors that significantly shape the data-set. From a research quality perspective, an effort to provide such a broad documentation of the research also offers a range of opportunities. For an individual study, the purposeful attention to and documentation of the research context and process is at the heart of improving overall quality (Walther, Sochacka, and Kellam 2013). For the emerging discussion around interpretive research quality in engineering education, the question of data sharing with a particular focus on research documentation could also offer an interesting perspective on how we, as a research community, communicate the quality considerations and efforts that inform our work. Such efforts might take the form of more richly authentic methods sections in the context of traditional publications, or of critically reflective accounts of "lived-experiences" of methods in the context of explicit research methods publications (Pawley and Phillips 2014).

Based on the synthesis of literature from other fields and our analysis of two research case studies, we can perhaps reexamine Fielding's (2000) suggestions, as quoted in our literature review on secondary data analysis. While we agree that there certainly is *"no logical incompatibility between assessing the influence of contextual features in primary data analysis or in secondary data analysis"* (p. 99), our explorations here suggest that they are also not the same. In the interpretive paradigm, the consideration of contextual information by a secondary researcher presents a range of significant and fundamental challenges that require an extended and thoughtful discussion in the research community; we hope that the thoughts offered in the article can provide one possible starting point.

ACKNOWLEDGEMENTS

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