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A Conversation About Rethinking Criteria for Qualitative and Interpretive Research: Quality as Trustworthiness

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EDITORIAL

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This editorial shares a conversation about qualitative and interpretive research quality between friends. The *Journal of Urban Mathematics Education* (*JUME*) is being relaunched after moving to its new home at Texas A&M University. The *JUME* mission as stated on the *JUME* website's "About the Journal" page is to

> foster a transformative global academic space in mathematics that embraces critical research, emancipatory pedagogy, and scholarship of engagement in urban communities. Here, the view of the urban domain extends beyond the geographical context, into the lives of people within the multitude of cultural, social, and political spaces in which mathematics teaching and learning takes place. (Journal of Urban Mathematics Education, n.d., para. 1.)

Given this mission statement, we anticipate *JUME* will attract many mathematics education scholars interested in these types of inquiries using qualitative and interpretive approaches. The vast majority of qualitative researchers learn about trustworthiness and its relationship to research quality and rigor during their formal training; however, qualitative research practitioners do not typically ascribe to or feel compelled to conform to strict frameworks of quality. Nonetheless, that does not suggest that there should not be evaluative criteria of quality for qualitative research for those inclined to consider them. Additionally, our theorizing about qualitative research quality criteria does not claim that these are the only criteria or that they stand above any others; however, these criteria are building upon criteria established over time by thoughtful qualitative researchers interested in quality.

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As one of the inaugural *JUME* Associate Editors, Dr. Melva Grant engaged Dr. Yvonna Lincoln as a colleague and friend in an extended conversation theorizing about the trustworthiness of qualitative research, which Yvonna wrote about in the first volume of *Qualitative Inquiry* (Lincoln, 1995) in an article titled "Emerging Criteria for Quality in Qualitative and Interpretive Research." During this conversation, we endeavored to consider changes to the landscape of quality of qualitative research as trustworthiness.

Context

Dr. Yvonna Lincoln, University Distinguished Professor Emerita at Texas A&M, has been a pioneer in the field of qualitative and interpretive inquiry research. I asked her to provide an overview of her work. She offered the following:

> I have been doing this kind of work since I was a graduate student and worked for Bob Wolf, who brought naturalistic inquiry, very unformed, from Bob Stake from upstate at [the University of] Illinois. So, I was noticing that it was unformed and unsystematic and began to work with Egon Guba. We invited Bob to work with us, but Bob was busy doing other things . . . But Egon and I went ahead with this project of trying to systematize and create a metaphysics for qualitative research which was different from the metaphysics of rationalistic research, otherwise known as scientific method, and I've been working in that area as well as working in higher education administration for now close to 40 years. (Conversation 1, 2020)

Yvonna's brief and modest description failed to mention her extensive scholarship and mentorship. After a brief internet search, I found a short description on the Texas A&M University (n.d.) website that described her as having "written over 100 peer-reviewed journal articles and chapters, and written, edited or co-edited more than a dozen books. . . . chaired over 100 doctoral committees . . . [and] won the Presidential Citation from the American Educational Research Association." There are other notable contributions, such as her being co-editor for five editions of the seminal *Sage Handbook of Qualitative Research*, being co-founder and co-editor for the *Qualitative Inquiry Journal*, having held leadership roles in several professional organizations in her field, and being the recipient of many prestigious awards for scholarship and teaching. I assert that most if not all qualitative researchers have read something authored or edited by Yvonna Lincoln during their research education journey.

The purpose of this paper is to share Yvonna Lincoln's contemporary thinking about quality criteria for qualitative and interpretive inquiry research and to make it available to mathematics educators who conduct qualitative research in urban settings. This manuscript emerged from eight phone conversations that averaged about 35 minutes and took place for just shy of two months as well as quite a few text and email messages that governed our collaborative writing efforts. Our conversations started out by unpacking or increasing my understanding of Lincoln (1995), a very

theoretical endeavor. For those interested in a less theoretical conversation and are seeking guidance for writing up qualitative research for publication review, see Levitt et al. (2018). However, if you seek to understand theoretical articulation about criteria for qualitative research that is trustworthy and inclusive of emerging qualitative approaches, we invite you to read on.

As a mathematics educator and qualitative researcher who is interested in understanding Dr. Lincoln's perspectives and learning more about qualitative research quality, I found these conversations with her interesting and informative. In the beginning, between conversations, I wrote questions to focus our discussions, but over time the dynamic changed; we no longer needed questions to focus our conversations and the writing, which included a revised and eventually expanded table, became its own focusing artifact. During periods between conversations, we both added to or edited the evolving manuscript. I sometimes listened to conversations, took notes or reviewed prior notes from our conversations, and transcribed portions of the recorded conversations for inclusion in the manuscript. We both read literature related to the expansion and past *JUME* qualitative publications in search of examples. Yvonna wrote, edited, and collaborated with other peer qualitative researchers, as well as read new things related to our conversations (Conversation 2, 2020).

I believed that the table in Lincoln (1995) would benefit *JUME* readers if we could reformat it to improve its readability; this table describes criteria of trustworthiness of qualitative research over time and method. Our discussion about Table 1 (see Lincoln, 1995, p. 277) shifted because I wondered if the table, referred to hereafter as the *trustworthiness table*, needed an additional column for post-qualitative research, and I asked Yvonna her thoughts. This inquiry transformed our conversations and made the trustworthiness table a central theme of our focus for several weeks as an impromptu cooperative study of reading, outside consultation, and discussions (see Table 1).

Our conversations took place by phone, and I talked on a land line and used an app on my smartphone to make recordings. I did not share audio recordings with Yvonna because she prefers paper. However, I shared portions of transcribed conversations to ensure accuracy of interpretation. I did not code or analyze the audiotaped conversations because this was not a research study but an editorial that shares an account of our conversations. I did use the recordings for capturing meanings to support writing, refresh recall, and to produce a coherent account of our conversations, including accurate capture of Yvonna's comments.

The trustworthiness of our work, if it were an inquiry, was continuous in the sense that one might characterize what we were engaged in as relational research (see Reinharz, 1977). This manuscript was written collaboratively, and we exchanged it multiple times throughout the writing process. We worked this way until we were both satisfied that our voices and perspectives had been captured and represented. In this research analogy, our process blurred the lines between the researcher (i.e., first

author) and researched (i.e., co-author) and exemplified Reinharz's (1977) notion of relational research where the researcher and researched were entwined in a caring relationship, which she characterizes as a "lover model" of research. Our entanglement was enhanced and enabled because of our friendship that manifested as mutual respect as well as our shared desire to hear the voice of the other within the final document.

Let me speak on our friendship briefly. In this manuscript, it is clear that I hold Yvonna in high esteem and there is a significant power difference between us. However, I believe our friendship is unique and adds to this work and its trustworthiness. Our friendship has grown over several years and has moved beyond a professional acquaintance; it has evolved into the personal, which nurtured openness and honesty. These experiences have afforded me a level of privilege that I would not otherwise claim, and it allows me to engage in this work as Yvonna's "peer." After typing this sentence, I chuckle because even on my best day, I am not her professional peer, but I believe she considers me an equally dear friend. This privilege afforded me to speak truth to her powerful professional presence and to ask questions bravely that emerged through this work without fear of retribution.

Definition of Qualitative and Interpretive Inquiry Research

The first exchange during our initial conversation was about Yvonna defining qualitative and interpretive inquiry. In Lincoln (1995), Yvonna wrote about this:

> Consequently, as its acceptance has been debated, it has been involved in intense cross-disciplinary discussions of what constitutes its quality criteria. I prefer to think of this issue of quality as a dialogue about *emerging criteria*. I label this discussion that way because I believe that the entire field of interpretive or qualitative inquiry is itself still emerging and being defined. (p. 275)

This passage led me to ask Yvonna to define qualitative research and to comment on if and how the field continues to emerge. Vastly simplifying and paraphrasing, she defined qualitative inquiry as research that is centrally focused on people and their lived experiences using their authentic social constructions while recognizing that there is no single accepted reality that can be used for comparison, which renders judgements of goodness or righteousness invalid. Social constructions are shaped by people's social interactions and influenced by their attitudes, values, beliefs, prejudices, biases, stereotypes, and the like. Yvonna summarized the definition as, "So, qualitative or interpretive inquiry seeks to explain why people act the way they do based on how people go about constructing their own reality" (Conversation 2, 2020).

Quality Criteria for Qualitative and Interpretive Inquiry

Our conversations regarding the state of qualitative research methodologies and criteria for quality or trustworthiness in the present moment was the focus. The trustworthiness table presented within this manuscript is a revision and expansion of the original table presented in Lincoln (1995, p. 277).[1] Yvonna and her late husband, Egon Guba, had created the original table in response to a critique by John K. Smith, a scholar and critic who suggested that quality criteria for qualitative research ought not to merely focus on the "foundational" parallels to conventional or positivist inquiry, although the criteria she and Guba created were drawn primarily from classical anthropology and sociology, and speak to careful methodological rigor (see Table 1, Column 2). Rather, Smith suggested that there should be criteria that were drawn from the premises, axioms, and metaphysics of constructivist/naturalistic inquiry itself, and thus the third column of the original table was created. This third column represented quality criteria directly growing from the axioms of naturalistic and constructivist inquiry. I asked Yvonna if there was a relationship between the two columns of quality criteria for qualitative and interpretive inquiry (i.e., Table 1, Column 1 versus Column 3). She responded by saying that the five quality criteria (column 3) were deemed responsive to the axioms of constructivist inquiry and were in no way parallel to the methodological criteria for conventional inquiry (Column 1).

When I queried her as to what she might assent to in this present moment for quality criteria, she commented that she had thought a lot about the criteria and came to the conclusion that she and Guba had created the five criteria intuitively and had unconsciously connected them to other streams of research. So, for instance, *ontological authenticity* not only references how individuals come to understand their own tacit positions and recognize how they "own" them, but it can also be extended to refer indirectly to Freirean notions of "true" and "false" consciousness. This is so because the research process can often uncover hidden feelings, beliefs, attitudes, values, and other systems of thought of which a stakeholder might be formerly unaware. Consequently, ontological authenticity has the power to sometimes unlock subconscious motivations and beliefs that may be somewhat less than productive or may simply be surprising to the individual. In the same vein, *educative authenticity* connects strongly to the premise of qualitative inquiry that information, data, and interpretations do not belong solely to those who hold power and/or money but rather are the right of the stakeholders to have and to work with. Thus, researchers have the responsibility to share information and interpretations with the stakeholders who have provided the data from which interpretations were drawn and to negotiate collaboratively about what the interpretations and context mean.

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[1] Dr. Lincoln quickly pointed out a typographical error in omitting one of the criteria, ontological authenticity, from the table in the original 1995 manuscript. This omission was corrected in the revised version of the table presented in this manuscript.

The sharing of data between researchers and stakeholders serves two purposes. First, it permits a more sophisticated and nuanced understanding of stakeholders' own circumstances and a richer appreciation of the context (e.g., that others in their context might think, believe, or construct as their realities). Second, and more importantly, it is the desire of researchers that having this knowledge, having access to data, and reflecting on the interpretations that are proffered by researchers will lead to *catalytic authenticity,* or the genuine desire to act upon stakeholders' own circumstances, and to move toward agency in their own lives (see, for example, Toness, 2002). It is the case, however, that sometimes stakeholders are unsure of how to act upon this new knowledge and understanding. In this instance, researchers can, and should, work with stakeholders to demonstrate how to access the levers of power in order to act with efficacy on their new understandings.

Table 1
Criteria for Assessing Qualitative Research's *Trustworthiness or Quality*
(revised and expanded from Lincoln, 1995, p. 277)

Qualitative Research/Interpretive Inquiry/Constructivist/ Naturalistic Paradigm (Trustworthiness)			Expanded Social Consciousness Paradigms (Quality)
Qualitative Methodological Criteria – Positivist Parallels (Reliance on data)	Publication Standards for Judging Quality Criteria (Reliance on community consensus)	Authentic/Ethical/ Relational Criteria (Reliance on ethical system)	Transformative/Deconstructive Criteria (Reliance on positioned theorizing/power structure deconstruction)
Methodological Criteria	**Paradigm Beliefs & Norms**	**Paradigm Axioms & Metaphysics**	**Multiple Emerging Paradigms**
Extrinsic	**Extrinsic or Intrinsic**	**Intrinsic**	**A-trinsic**
Credibility (Plausibility) Transferability (Context-embeddedness) Dependability (Stability) Confirmability (Value expectation, triangulation)	Publication Standards (A priori institutionally bound and structured) Positionality/Standpoint Community as Arbiter Voice Critical Subjectivity Reciprocity Sacredness Sharing Privilege/Power	Fairness/Balance (Equity of stakeholder representations) Ontological Authenticity (Knowledge of self revealed) Educative Authenticity (Stakeholder knowledge grows) Catalytic Authenticity (Stakeholder agency develops) Tactical Authenticity (Stakeholder learns self-sufficiency)	Theoretically Structured (Postmodern, poststructuralism, new materialisms, posthumanism, postcolonialism) Ontologically Unrestricted (Expansive, posthumanism, postanthropocene) Non-replicable (Not easily reconstructed) Values (Non-anthropocentric) Educative Authenticity (Stakeholder knowledge grows, liberationist focused) Catalytic Authenticity (Stakeholder acts autonomously, awakened agency) Tactical Authenticity (Stakeholder self-sufficiency)

Given qualitative researchers who opt to support stakeholders in these ways, conventional researchers lodge critiques of such choices and frequently label qualitative researchers as "activists" or "moralists" rather than actual researchers, but this is also a place where qualitative inquiry comes closest to action research. Some qualitative researchers, especially those taking critical stances, are likely to argue that research itself *is* a moral activity, and one which endeavors to move communities toward more equitable ends that are more socially just—social justice research.

Quality as Trustworthiness: Examples from the *JUME* Archives

There are many examples of trustworthy qualitative research that show both the methodological and the authentic, ethical, and relational criteria (see Table 1, Column 3) that characterize or align with socially just research. We found articles from the *JUME* archives[2] with examples of trustworthiness; however, in the examples cited, authors rarely made explicit claims of trustworthiness described in Table 1. We took this approach because many qualitative researchers omit criteria of trustworthiness, perhaps because they fail to recall them after completing their doctoral studies, because qualitative researchers do not value or discuss trustworthiness as a criterion of quality, or because journal editors and reviewers do not require researchers to make such articulations and claims.

I cite my own work as complicit in this failing to make clear our intent to not demonize research that lacks an explicit claim of trustworthiness as a show of transparency. My research report about a group of Black boys and their mathematics identity development while learning as a cohort in the Algebra Project (i.e., Grant et al., 2015) has authentic trustworthiness. This research report, which shared findings about six high school boys' mathematics identity transition from others initially positioning them as "at risk" to the boys demonstrating and the researchers documenting them over time as being confident and productive mathematics learners, suggests both educative and catalytic authenticities. Another example of trustworthy qualitative research comes from a study that used a combination of critical race theory and historical critical analyses and revealed how little change has manifested in education for minoritized populations from policy emerging from the equity message of "mathematics for all" (Berry et al., 2014). In this example, stakeholders experiencing

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[2] Yvonna and I dedicated most of our time focused on the revisions and expansions of the trustworthiness table. We decided close to the deadline that we should cite examples from the *JUME* archives. So, Yvonna asked a graduate research assistant to gather examples of qualitative research published in *JUME* over 10 years. Dr. Grant randomly selected articles in search of examples, sometimes choosing articles that she was familiar with. For example, Dr. Grant chose to cite her own research because she was familiar with it and thought it a good example at the time. We were not seeking to cite the "best" articles or to exclude anyone's work in particular but rather to share an example that might improve clarity of the particular point being made.

nuanced understandings are not research participants, as in the case of Grant et al. (2015), but the stakeholders are readers who hold positions in educational leadership or as policy makers with potential to effect change. These stakeholders may experience ontological, educative, and ideally catalytic and tactical authenticities in relation to trustworthy research.

Another study with potential for claims of trustworthiness reported an instance of tactical authenticity experienced by a research participant (Leonard & Evans, 2018). This stakeholder participant's involvement in research supported adoption of a culturally sensitive approach to teaching mathematics using guided inquiry instead of direct instructional telling after participating in a community-based immersive learning experience. Other examples of research, just to name a few from the *JUME* archives, with potential for instances of trustworthiness claims using authentic, ethical, and relational criteria (see Column 3 in Table 1) include Kurz et al. (2017), McGee (2013), and Ragland & Harkness (2014).

Post-Qualitative Inquiry: Expanded Social Consciousness

Readers will notice, however, that we, in dialogue, have added a fourth column to the trustworthiness table, the expansion. Some might see this, as we do, as a big deal. We hope they will consider this proposal, build upon this work, and/or critique it to further the metaphysics of this emerging space. This expansion attempts to articulate our nascent understandings from the study and reflective discourse of this project. We refer to the expansion, the last column of the trustworthiness table, as *Expanded Social Consciousness Paradigms*, which includes something St. Pierre (2018) calls "post-qualitative inquiry" but also includes postmodernism, poststructuralism, posthumanism, postcolonialism, and new materialism models for inquiry. Many of these proposals for an expanded social science can also be aggregated under what might be called *Postanthropocene*, or *Chthulucene,* to borrow a term from Haraway (2019), that is, a movement beyond the Enlightenment's concern for the human-as-agent toward consideration of the natural, geo-spatial, and material world. Also, these models take into account an ecological realm that situates humans as merely one among many actors and include other formations and life-forms exerting agency on the universe. With many of these models, for example, postcolonialism and poststructuralism, there is a decided turn toward considerations of political and historical power and power relations and of questions of social justice (e.g., Gerrard et al., 2017). This social justice focus, for many theorists and proposers of an extended ontological consciousness, extends not just to the marginalized and oppressed groups around the world but also to the biological, geological, and ecological environments that encompass the entire planet, and perhaps beyond into intergalactic spaces.

What we have tried to do in expanding the trustworthiness table is to consider the original question that I posed to Lincoln, which is, "If you were looking at this table now, how would it be different from 1995's work on rigor and trustworthiness?" At that point, we began to contemplate the new movements and proposals that added to the richness and complexity of the realm we call qualitative inquiry. We make no claims to this table's completeness, or even accuracy. What we have tried to do is suggest what previous authors have suggested, and that is what should be in the column itself. We have searched for systematic proposals for quality or ethical proposals, although we have not located formal proposals that lay out a proposed comprehensive metaphysics. Thus, what we have provided in the revised and expanded table is a *sketch*, a kind of liminal, intellectual dotted line that serves as an initial attempt to map an approximation of "quality criteria" for the expanded social consciousness paradigms. Of course, ultimately it may be found that our effort to expand the trustworthiness table for the emerging paradigm was insufficient. Perhaps multiple columns are needed or the representation itself is wholly inappropriate.

In fact, both of us see this fourth column as tentative, incomplete, provisional, troubling, and troubled. It will take many more theoretical explications before any of these proposals become working metaphysics and can be taken into the social landscape for "field trials." We were, however, charged with thinking about where might qualitative research be headed over the years intervening between the rigor proposal (Lincoln, 1995) and now and what would constitute quality, similarly as rigor or trustworthiness previously, in the proposals that enlarged, elaborated, snarled, and made gnarly the terrain of qualitative inquiry. In short, if many of the new proposals beyond constructivist inquiry, broadly, were aimed toward both ecological and human justice, how could we trust the findings sufficiently to act upon them?

In light of our thinking about expanding this trustworthiness table regarding parameters of quality and/or rigor, we reflected on where the field had been in the intervening 25 years and what constituted the most promising models. Yvonna consulted with another knowledgeable scholar,[3] and we settled on the column title, "*Expanded Social Consciousness Paradigms*." This title fit our thinking and our current understanding about this still emerging research. There are multiple emerging paradigms within this research space; many of them are related and some take very different postures on where inquiry should begin, depending on the positionality of the researcher and the questions she proposes to answer or address (e.g., St. Pierre, 2018;

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[3] We are indebted to Gaile Cannella for the titling of the column as "*Expanded Social Consciousness Paradigms*." We had originally labeled this column "*Post-Qualitative Criteria*" but realized that was entirely too narrow to subsume the many models, shifts, research prototypes, and proposals circulating throughout the inquiry realm. As qualitative researchers ourselves, we were also dissatisfied with the linguistic implication that, somehow, the field had moved on, moved away from qualitative research onto something else, and, consequently, we abandoned this terminology for more specific and clearly descriptive terminology.

Taylor, 2016). St. Pierre (2011) described post qualitative inquiry as "becoming"—one must prepare for this type of inquiry through extensive study of theory, beginning with in-depth and broad reading, thinking as writing, and theorizing followed by experimenting with inquiry without methodology. A primary goal of St. Pierre's vision of post-qualitative inquiry is revealing the unknown while transforming or deconstructing along the way. Subtitles used in Column 4 of the trustworthiness table depict these ideas: a) transformative/deconstructive criteria and b) reliance on positioned theorizing/deconstructing power structures (or perhaps archaeological uncovering of power structures, had we chosen a shorter metaphoric subtitle).

In the third row, we outlined what we believed to be important topics that various models might take up in extended discourses of what might eventuate in the field. We created a new term for this row in the fourth column, *a-trinsic*. We loosely articulate a-trinsic to contrast it with the extrinsic quality criteria of rationalistic, conventional inquiry and the methodological criteria of constructivist inquiry, as well as the intrinsic authenticity criteria later developed for constructivist inquiry. We term this fourth column "a-trinsic" because quality criteria may derive from many places, including social theory (Derrida, 1991), political theory (Foucault, 1972/2010), economic theory (see, for instance, the work of Deleuze and Guattari, 1983, on capitalism and its madnesses), biology, social or natural ecology, linguistics, semiotics, or physics.

To add clarity to why the power structure appears with prominence or centrality in the trustworthiness table, consider two examples. A poststructuralist researcher might be searching for a means to deconstruct a series of linguistic and discursive signifiers to comprehend where power structures shaped meanings and observed endless deferrals-as-deflections that served to obscure understanding of, as well as interrupt, extant power structures. On the other hand, a postcolonialist researcher might seek to understand the oppressions or cultural disfigurations remaining long after the colonials had retreated, and in some cases the colonials have taken up residency as claimed natives but are exempt from the treatments because they never went home and retained power. For these proposed inquiries, power structures are still at the center of inquiry but in very different forms for the two researchers. In much the same way, the posthumanist researcher would be framing very different questions from either of the previous two researchers—still about power structure but in a greatly expanded context of biology, ecology, geography, geo-spatiality, and non-human beings. Thus, the title of "social consciousness" for a paradigm moves to and through questions of social justice and asks, "Social justice for whom? And how?" The criteria are deconstructionist, a la Derrida and Foucault, and transformative, for example, with feminist critique or the new materialism.

When we inspect the criteria themselves, we were not able to extend our investigations deeply but attempted rather to lay out some general themes we were able to discern in the various proposals. Our a-trinsic criteria included a) the theoretical

structuring of an inquiry; b) the ontology(ies) by which any given model might proceed; c) the replicability or non-replicability of a given study, or, conversely, its *dependability*, or ability to have its processes and products proceeding therefrom be transparent and traceable even if the study itself is not replicable; d) the values emerging from a worldview that is not human-centric (Schulz, 2017); e) the educative authenticity through knowledge and liberation; f) the catalytic authenticity of a model, or the ability to prompt socially just and transformative action on the part of stakeholders, research participants, and beneficiaries of the research, and; g) tactical authenticity, or the ability of the researcher to provide support in "speaking truth to power."

None of these criteria were explicitly mentioned as attesting to rigor in the various models of qualitative research-beyond-the-classical-or-constructivist-paradigm, but together, we have inferred some of them from the reading we have done and from discussions among ourselves and with other qualitative researchers also engaged in understanding these new proposals. So, for instance, we might unpack them in the following way. All of the models subsumed under this set of rubrics is, as far as we can tell, theoretically structured and thus likely arrives with its own ontology(ies), whether postcolonialism, poststructuralism, posthumanism, new materialism, or post-qualitative inquiry. Unlike some more classical or constructivist models, which may begin a-theoretically with intentions of potentially creating new theory, many of these models begin and end with a priori theoretical, historical, or hierarchical stances; think Foucault and his ideas of policy archaeology, or Deleuze and Guattari, with their deconstruction of the fault lines of capitalism. Other proposals circulating recommend beginning studies with theory in mind beforehand and then thinking your way through writing to new revelations disconnected from the original theory. The idea, however, that these models virtually always begin with some theoretical structuring is a departure from classical ethnography or qualitative research, which frequently, though not always, tries to grasp whether new theory might be created from lived experience. Sometimes, qualitative studies are undertaken for the purpose of testing extant theory (e.g., Guba & Lincoln, 1989; Lincoln & Guba, 1985). For the foregoing reason, we included "theoretically structured" as one hallmark of quality for these expanded social consciousness paradigms, models or proposals.

We also felt these expanded paradigms were "ontologically unrestricted." That is, we failed to locate any single proposed statement of reality that drew all the models together. Thus, the choice of ontology depends on the theoretical stance adopted to guide a given inquiry, whether power relations, deconstruction of human regulation, or postanthropocene/posthumanism.

When confronted with the question of reliability, we eventually decided that studies such as these, for the moment, were non-replicable; that is, a second researcher could not conduct them in such a way as to come to the same conclusions. While this is also largely true of new paradigms, such as constructivist inquiry, there

are also requirements for such inquiries to be trackable, their methods and methodological choices and decision points to be publicly inspectable, and for analyses to be carried out in systematic and disciplined ways. We found no such requirements within these models and, indeed, in some proposals, found a kind of intellectual abhorrence of rigorous method or publicly inspectable logics leading to conclusions. The labeling of careful and disciplined analyses as "mechanistic" or "mechanical" seems to us to undermine the "science" in social science, but that is a conversation of many weeks and months for another time.

When we considered the question of values, we also found multiple perspectives, some of which were definitely anthropocentric and some of which were anti-anthropocene, or focused on the non-human and its relationship(s) with the human—social, psychic, economic, historic, geographic and place-based, cultural, ecological, mythic (particularly the myth of human mastery, see Schulz, 2017). Consequently, we concluded that values were embedded in the theoretical positions adopted by the researchers but that many were either liberationist in focus, transformational, or non-anthropocentric.

We also examined the potential for some, or all, of these models to provide for educative authenticity, or the ability for stakeholder knowledge to grow in more sophisticated and informed ways and to provide them with the informational tools to begin to re-narrate their own lives toward less oppression. Many of the models seek such transformations, although the extent to which the models mandate that new knowledge be shared with stakeholders in such a way as to enable them to begin to reframe their own experience is unclear. Some models do, and others are unclear regarding the extent to which stakeholders and research participants become equal partners in the discovery/uncovering of hidden assumptions and social and cultural myths that are formed from colonial experiences that suppress transformation. Much of what can be obtained regarding the power of these models to educate stakeholders in new ways of thinking about their own circumstances is sparse and intellectually thin.

We likewise looked at the possibility of these models for prompting catalytic authenticity, or the urge to act upon the stakeholders' own immediate environment or circumstances. While some models do urge increased sophistication and, likewise, deeper understanding of larger geo-political issues related to the distribution of power, other models do not.

Catalytic authenticity, or quality, is intricately bound up with tactical authenticity, or quality, since the urge to act upon one's circumstances is intimately bound together with knowing how to act, where to act, and the appropriate means of achieving influence and voice addressed to power. Sometimes, the impulse to act is without knowledge of how and where to act for maximum impact; it is at this point that the role of the researcher moves to being a facilitator. She is usually accustomed to the means for making one's voice heard and is in a position to aid stakeholders in framing

their actions and petitions in such a way as to maximize input and impact. This is a role that conventional researchers typically eschew, and the resistance is framed as having the researcher move from a "scientific" role to one of advocacy, which is purported to undermine objectivity. However, objectivity has long been discredited as a mark of qualitative or interpretive inquiry, and so researchers who move from inquirer to teacher are frequently understood and employed in new paradigms, such as constructivist, action, participatory action, and transformational paradigms and/or models.

The foregoing are those criteria of quality that we think characterize some, if not all, of the social consciousness and transformation models of research. Many of them rely heavily on qualitative methods but frequently mix and match qualitative and quantitative if doing so illuminates some interpretation and extends some understanding on the part of stakeholders and researchers alike.

When reflecting back on our conversation as a mathematics educator and qualitative researcher interested in producing high-quality qualitative inquiry, I found the revised and expanded trustworthiness table an informative tool to use for considering new ways to address the question that hovers over most manuscripts submitted for publication: What constitutes this research as trustworthy or of high quality? I envision that my next set of manuscript submissions will include discussions about the intrinsic criteria from Column 3. From my perspective, especially after engaging in conversations about them with Yvonna, I was reminded about the existence of the authenticities, their importance for equity and valuing others within a socially just environment. These are important ideas worth consideration from the beginning of an inquiry through the end. Thus, they are worthy for explicit discussion. I am looking forward toward an expanded social consciousness; delving into the literature piqued my desire to read more deeply about this qualitative moment and dreaming about new possibilities for inquiry.

At this point, our conversation must end, or this manuscript will never make it to press. However, we hope this shared conversation addressed, at least in part, the question raised about Lincoln's perceptions about changes to qualitative inquiry and criteria of quality from 1995 to today. Through this editorial, we attempted to remind researchers about the value of trustworthiness, shared an updated table that applies to contemporary research, and provided definitions and research examples of the authenticities. We also encourage researchers to make explicit claims and for editors and reviewers to look for authors' claims about trustworthiness encountered or activated during their research and to work collaboratively to ensure that claims of research quality are clearly articulated in future research reports.

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