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Susanne Hall and Holly Ryan

The Neglected “R”: Replicability, Replication, and Writing Center Research

Abstract

This article makes an argument for the value of both replicable research and replication research in writing center studies. In their discussion of replicability, the authors argue that writing about empirical research so that this research can be replicated will improve the quality of communication in writing center studies whether or not replication studies are subsequently undertaken. The authors further provide for researchers specific guidance on how to create replicable studies, focusing on best practices for describing data sets and sampling, sharing surveys and interview protocols, detailing coding efforts, establishing infrastructure to share data sets, and writing about statistics. Further, the authors explain how replication studies would add new kinds of knowledge to writing center studies. The authors specify that the kinds of replication studies they wish to see should be distinguished from both the positivistic approach to replication taken in other, more quantitative fields and from a looser, iterative approach to building on previous research that has been advocated for within writing studies.

In her International Writing Centers Association (IWCA) award-winning article, “The Oral Writing-Revision Space: Identifying a New and Common Discourse Feature of Writing Center Consultations,” Melody Denny (2018) announced her discovery of the “*oral writing-revision space*” (OR) (p. 36) in writing center tutorial discourse. In her article, Denny’s use of conversation analysis of four recorded writing center tutorial sessions revealed a unique “discourse space” (p. 40) that participants in writing center tutorials use to generate or revise language intended for their written work. Denny argued that an awareness of the OR helps writing center professionals better understand their daily work, and she explicitly positioned her research to encourage later researchers to take up her concept in future research.

While there is much to discuss about the content of Denny’s (2018) exciting work, we would like to use her article as part of a thought experiment on research design and replication. If readers will indulge us for a paragraph, we would like to ask them to imagine the following scenario taking place ten years from now: You do a citation search on Denny’s article and find six more recent studies that, just like her study, sought to detect, define, and analyze the OR via conversation analysis of recorded tutorial sessions. Denny conducted a conversation analysis of four videos of writing center tutorials led by graduate student consultants, and the sessions she analyzed focused on a writing project in a single composition course. The newer studies you find share this methodology and sampling strategy. Denny’s study was done at a “large, Midwestern state university writing center” (p. 40), but these later repetitions of her work focused on different places: a large, Southern state university; an Ivy League university; a small, religious, liberal arts college in Colorado; a historically Black university in a mid-Atlantic state; a branch campus of the California State University system that is a Hispanic-Serving Institution; and a research university in Germany. While the later researchers hewed as closely to Denny’s method as possible, the writers in these studies were different people, creating different studies in different contexts, and these differences were all carefully noted and considered by those researchers. In our imagined 2032, we would now have access to seven studies analyzing a sample size of over 50 session videos and yielding additional results about whether the OR exists, what the OR is, and how we should understand this discourse space. How might these results change our understanding of this key concept? How might that new knowledge influence and strengthen future research projects that seek not to repeat Denny’s work but to use it to ask and answer new research questions? We hope readers will join us in imagining how generative and transformative this kind of multiplication of knowledge would be if it were applied not only to this one study but also to others across our field. Our excitement about this imagined future has led us to write this article, which seeks to promote replicability and replication in writing center studies.

There is a history of the discussion of replicability and replication in writing center studies, but, so far, our conversations have not yet led to a proliferation of the publication of replication studies nor to clearly articulated guidance for what authors might do to make their work maximally replicable.¹ We suspect widespread replication studies have not happened up to this point because writing center researchers may be struggling to imagine how such studies can be executed and how to write about methods in ways that allow for this kind of practice to occur.

This article has two goals. First, it extends the arguments made by previous writing center researchers that replication studies of various kinds will help fill crucial knowledge gaps and that such work should be taught, prioritized, and funded. In this article, we build on an existing discussion of the needs for replication in writing studies more broadly. Second, we promote the creation of replicable studies and offer specific guidelines for writing about RAD (replicable, aggregable, data-supported) writing center research in ways that make replication possible, more likely, and easier. The starting points of any efforts at replication are in the quality of the work of the original study and, crucially, in the clarity with which the methods are articulated. While we have seen calls for writing about methods in more robust ways (e.g., Driscoll & Wynn Perdue, 2012, 2014), there have been few efforts to explain exactly what it might mean to write about methods more robustly. We hope to offer such guidance to researchers in our field.

We wish to note, before moving forward, that our emphasis on replication should not be understood to imply that we value replicable or RAD studies to the exclusion of other types of research and writing in our field. The possibility of replication is not something we suggest as a requirement or even goal for all the work done in our field. Rather, we believe that both writing with replicability in mind and undertaking replication are valuable and, at present, underutilized. Thus, for researchers who wish to undertake empirical projects, we hope to help encourage careful attention toward the “R” in RAD.

What Are Replicability and Replication?

The goals for this article require that we clarify what we mean by replicability and replication. For our purposes, *replicability* is the degree to

1 At the same time our article was accepted for publication, John Raucis's (2021) “A Replication Agenda for Composition Studies” appeared in *College Composition and Communication*. His article's broad history of discussions of replication in composition studies usefully contextualizes our arguments here about writing center studies. We are excited by the alignment in goals between his work and ours and believe it indicates the time has come to take calls for replication more seriously in both fields.

which research is written so that it could be repeated by other researchers; this requires work on the part of the original researcher. *Replication*, as distinct from replicability, is the work of a researcher who comes after the original researcher and refers to the act of undertaking a study that tries to repeat the methodology of an existing study.

Replicability

Even though the term “replicable” is seemingly ubiquitous since it is, after all, the first word in RAD, this is a slippery term that deserves close attention. It is worth explicitly noting that in writing center studies, we do not define the term “replicable” as some experimental fields do, namely, to suggest that an experiment could be performed multiple times and, if the experiment is replicable, yield the same result consistently (e.g., Brandt, IJzerman, Dijkserhuis, Farach, Geller, Giner-Sorolla, Grange, Perugini, Spies, & van’t Veer, 2014). (We prefer the term “reproducible” for this idea.) Instead, we turn to the influential work of Dana Lynn Driscoll & Sherry Wynn Perdue (2012), which was instrumental in bringing Richard H. Haswell’s (2005) argument for RAD research to writing center studies. Driscoll & Wynn Purdue (2014) provided writing center studies with this definition: “Replicability refers to the degree to which the study’s methodology is described in a manner that another researcher could use to replicate the study’s design, given reasonable contextual differences” (p. 123). A very similar definition of replicability is used in many social science disciplines (e.g., King, 1995; Freese & Peterson, 2017). Furthermore, in her work on practitioner inquiry in the writing center, Georganne Nordstrom (2015) advocated for “systematicity,” which requires “presenting information through thick description and so that processes are replicable” (p. 111). Thus, a study is replicable when an author gives a reader enough information to repeat the study. To ensure replicability, researchers must be systematic and clear in their writing about a study’s goals, methods, and outputs.

Creating and writing a replicable study can be a challenging task because complex processes need to be well-explained and terms need to be clearly defined. Karen J. Lunsford (2017) pointed out that one of the challenges of replication is that words do not have a static meaning. For example, if one of the steps of a study is to count the number of writing center visits, other researchers need to know what the original writer meant by “writing center visits.” In one context, this could mean counting each one-on-one, face-to-face session. In another context, attendance at a workshop sponsored by the writing center could count as a visit. Without clear explanation of terms by the researcher, the study’s replicability is compromised.

Unfortunately, recent books on research methods in our field have not focused on replicability or replication. For example, Jackie Grutsch

McKinney’s (2016) *Strategies for Writing Center Research* offered readers the following strategies for developing original projects: identify a problem, look for related sources by doing a literature review, and form a research question (pp. 20–25). This focus on developing original research projects does not lead to a discussion of designing and implementing replication studies. Grutsch McKinney did make clear that authors “should provide enough detail that another researcher could replicate your study” (p. 141), but she did not offer guided instruction in what that means.

The recent *Theories and Methods of Writing Center Studies: A Practical Guide*, edited by Jo Mackiewicz & Rebecca Day Babcock (2020c), also did not focus on replication. The term “replicable” did make frequent appearances in the book, typically in conjunction with the acronym RAD, which has been adopted by the book’s editors and many of the book’s authors. And, near the end of the book, the editors did briefly note that future researchers should heed Steve Price’s (2020) call to “test and retest findings across our institutions to be secure in our claims” because our field “needs replication research” (as cited in Mackiewicz & Babcock, 2020a, p. 222). However, the book offered no chapter on writing replicable studies nor on conducting replication research. The editors indicated the book did not cover topics that have received “hardly any use at all in published writing center studies” (Mackiewicz & Babcock, 2020b, p. 4), so we can assume the limited efforts at replication in our field are the reason for the omission. But even without many replication studies, researchers undertaking RAD research should aim to design and publish replicable studies, and researchers would benefit from guidance for doing so. In our Best Practices for Writing Replicable Research section, we aim to offer some of that guidance.

Replication

Part of Driscoll & Wynn Perdue’s (2012) definition of replication acknowledged that researchers who want to replicate research are not going to have the exact same conditions under which to run their study. “Reasonable contextual differences” (Driscoll & Wynn Perdue, 2014, p. 123) between the first researcher’s location and that of the researcher who wants to replicate the study do not impact the study’s replicability, so long as the original researcher has explained the methods clearly. But what are reasonable contextual differences? What does it mean to repeat a study at a new place and time with new participants? Answering these questions takes us to a discussion not just of replicability but also of replication. Replication is a more difficult concept to define, in part because writing center researchers have only recently produced studies that they explicitly consider to be replication studies. For defining replication, disciplinary context and intent of the researcher matter.

The goals of replication are discipline dependent. For example, in particle physics, researchers replicating experiments seek to affirm that the

understanding of the physical world produced by previous research accurately describes that world (e.g., Junk & Lyons, 2020). In medicine, researchers replicating experiments investigating a particular treatment that was found to be effective in the past may seek to confirm it is effective in a different context (Witkiewitz, Roos, Mann, & Krantzler, 2019). In social psychology, a field that has been roiled by failed replication studies (see Open Science Collaboration, 2015), researchers replicating experiments seek to confirm that theories of human behavior based on previous empirical research are generalizable.

In writing center studies, the objects of study differ from those in particle physics, medicine, and social psychology, and so do our goals. The fields of particle physics, medicine, and social psychology are invested, in different ways, in developing universal explanations or concepts (for what the physical world is made of and how it works; for how a drug will act when ingested by humans; for how and why a human acts in a particular social context). Therefore, these fields seek reproducibility in their studies—producing the same results in varied contexts to confirm the results were correct. In our view, the field of writing center studies does not aspire to such universal, or positivist, claims, nor to concomitant goals of reproducibility. As Cara Marta Messina & Neal Lerner (2020) wrote in a chapter on mixed-methods research, “When conducting quantitative research, researchers using an antipositivist approach will value the complexities of localized contexts of the situation and spaces they are researching, rather than attempt to create a universally representative argument based on their data” (p. 210). For example, when Aaron Colton (2020), who studied the Georgia Institute of Technology’s CommLab, found that “non-visitors were more likely than visitors to see the CommLab as mainly serving students who struggle in courses emphasizing writing or communication” (Findings section, para. 3), he did not then conclude that this attitude is universally held by all students who have not visited a writing center across the world. Instead, he situated his finding in the context of the specific center he studied and called for a multi-institution expansion of his study about student perceptions of writing centers that would enrich our understanding of how context affects such attitudes.

Our promotion of replicability and replication is expressly not an argument that our field needs to pursue positivist research that searches for universal truth. Rather, in writing center studies, our research goals are different. Grutsch McKinney (2016) offered many reasons for doing empirical research in writing center studies: to participate and contribute to larger conversations, to interrogate practice, to make strong arguments, to make better decisions, to complicate received narratives, to gain academic or professional cachet, and to enjoy the work (pp. xix-xx). Thus, the role of replication studies in our field can be to extend knowledge in a range of ways rather than to search for universal truth. We would all benefit from more information about whether research

outcomes are similar or different when following the same methodology in a new research context as well as from more exploration of why those similarities or differences exist. For example, Holly Ryan & Danielle Kane (2015) did a quasi-experimental study on the effectiveness of writing center classroom visits, finding that such visits to first-year composition classrooms by the writing center director can use active learning to change student opinions about the writing center and motivate visits to the center. If another scholar were to replicate the study at their institution and find a different result—let us say that active learning visits annoyed students by taking time away from assigned coursework, resulting in fewer visits to the writing center—this would add to our knowledge about how classroom visits can impact writing centers, not invalidate Ryan & Kane’s (2015) original study. We would now understand there was something specific about Ryan & Kane’s research context that led to their result. If 10 more scholars replicated the study, the field’s understanding would be further enriched, as patterns and correlations would emerge. Our field cares a great deal about context, difference, and customized approaches; replication studies would help us see and understand these differences, honing our theories and helping us customize our practices to apply them in unique local contexts.

One replication-based project in our field exemplifies this approach. For an article published by *Praxis: A Writing Center Journal*, Pam Bromley & Andrea Scott (2020) undertook a bibliometric analysis of the German-language writing center studies journal *JoSch: Journal of Writing Consultation*, replicating Lerner’s (2014) methods from his bibliometric study of the English-language *The Writing Center Journal*. Bromley & Scott explicitly noted their intention to replicate an existing, U.S.-focused study in order to make direct comparisons between the U.S. and German-language contexts possible.² Their project revealed interesting similarities and differences between the U.S. and German-language contexts. The possibility of direct comparison of specific findings across the studies provides the immensely valuable opportunity for

2 In this study, Bromley & Scott also collected additional data beyond what Lerner collected for his study. Instead of presenting that additional data in the *Praxis* article, the authors chose to highlight the new data in an article published in *JoSch* (Scott & Bromley, 2019). This splitting of the data does raise some questions about whether this is a replication study. For example, in some types of human subject research, such as surveys or interviews, additional questions beyond the original researcher’s established instruments might impact a participant’s answers to the original questions. This influence could confound the results of the study as a comparator to the original study. This would raise questions about whether the study design was, in fact, a replication. In the case of the Bromley & Scott and the Scott & Bromley articles, the authors collected data on texts—human subjects were not involved—so the concern about influence is not an issue. While additional data were collected, we do not see an impact on the data analysis; consequently, we believe this is an example of a replication study published in our field.

U.S.-based researchers to consider the extent to which their knowledge about writing centers is culturally specific; at the same time, it offers new knowledge to German-language researchers about their own context.

After a study has been replicated multiple times, a meta-analysis study becomes both possible and exciting. Price (2020) defined a meta-analysis as “the intentional gathering of research studies (not necessarily experimental) with analysis of the aggregate body of work” (p. 152). As Price noted, we are currently limited in writing center studies to meta-analysis that works more like a literature review: narratively compiling disparate, similar studies and looking for overlaps and divergences. In advocating for more replication studies in writing center studies, we join Price in imagining the potential value of meta-analyses in the future of our field (for a new meta-analysis in writing center studies, see Salazar, this issue). Replication could lead to a body of studies asking the same research question and answering them in very similar ways, allowing later researchers to analyze these results in relation to one another, whether via statistical or other means, as appropriate to the studies’ methods.

Replication Versus Transcontextual Research

The fact that replication is valuable does not mean every writing center study needs to aspire to replication. Researchers can and should bring a variety of intents to their work with regard to how it relates to previous work in the field. Some studies may be largely original. Others may be inspired by previous work but make intentional choices to depart from it. The latter idea was usefully explored by Tricia Serviss & Sandra Jamieson (2017) in their edited collection, *Points of Departure: Rethinking Student Source Use and Writing Studies Research Methods*, a book that considers the topic of replication in writing studies. Serviss & Jamieson introduced the idea of “transcontextual research” to describe projects that are directly tied to previous work but intentionally depart from it (p. 27). They explained that transcontextual research projects “embrace transparency and explication of research processes specifically so others can synthesize, connect, or mobilize them to develop theories about writing”—a call we echo—and “yet those research projects themselves may typically be imagined as discrete and original because of their local contexts” (pp. 28–29).

In their emphasis of the new project as original, Serviss & Jamieson (2017) explicitly argued against an idea of replication that attempts to stick closely to the methods of an original study to see if similar results are found in a new context. The authors explained that “RAD research in writing studies ought to be continuously evolving rather than simply being reproduced and verified via replication” (p. 28), further urging researchers to “imagine *all research* as in the midst of awkward adolescence” (p. 29). We agree that transcontextual research will generate new knowledge and, furthermore, is unavoidable in some contexts where the localness of research is so profound that no other

approach is imaginable or the existing studies’ methods contain major limits or flaws. The latter is a concern that was usefully raised by Roberta D. Kjesrud (2015), who warned against repeating problematic, lore-based writing center studies. However, we question Serviss & Jamieson’s dismissal of research that is “simply... reproduced,” as well as their sense that the only goal replication can have is verification (p. 28). Would not both kinds of research—transcontextual and replication—benefit writing studies more broadly, and writing center studies in particular? Researchers should be encouraged and trained not only to pursue both approaches but also to understand the difference in intent that separates them.

Consider, as an example, the Ryan & Kane (2015) piece previously described. Their project used pre- and post-survey data to make an argument about the most effective classroom visit strategy. If a researcher were to take a transcontextual approach to their work, they might be inspired by the nature of the project, be informed by its use of statistical analysis, and decide to conduct a similar study on their own campus. This researcher might wish to focus on visits to biology courses instead of first-year composition courses. And the researcher might partner with undergraduates to deliver the interventions instead of having the director make all of the classroom visits. Further, the scholar might decide to borrow two of the three interventions Ryan & Kane used and develop two new interventions. A fantastic study might result—one that has ties to Ryan & Kane’s work and that should acknowledge that inspiration but that is not a replication of it.

But what about the researcher who wants to do a replication of Ryan & Kane’s (2015) study? We can imagine this researcher might want to do the same intervention on an analogous population of students, collect the same type of data, and use the same statistical analyses on the same types of data at a different research site. Can we say as a field that such a project would be uninteresting or misguided? The goal of these researchers would not be to prove Ryan & Kane’s research correct or incorrect; if a study at a community college or a small liberal arts college found that the outcome of the classroom visits was different from those at Pennsylvania State University, Berks, where Ryan & Kane’s study took place, those findings would not invalidate Ryan & Kane’s research. Even if a researcher at a U.S. university very similar to Penn State, Berks found different results, these findings would not invalidate Ryan & Kane’s work. Rather, different findings in different contexts would suggest interesting questions for further research seeking to understand the nature and causes of the difference. This effort at replication would enrich Ryan & Kane’s work. The replication-minded researcher would be expanding research in our field in a way that few individual researchers in writing center studies have the resources to do on their own.

The quantitative nature of Ryan & Kane's (2015) research makes it a good fit for a replication-minded researcher. Not all studies lend themselves to direct adoption in additional research sites. We believe that at least some statistical and text-analysis studies could benefit from attempts at replication, and we are excited by the idea that more researchers could design and write about research in a manner open to that possibility.

A reader might ask at this point, are transcontextual-oriented and replication-oriented researchers really so different? After all, inevitably the methods of both types of studies will differ from the original in some ways. We believe there are important differences. Fundamentally, the difference between the two approaches is the researcher's intent, which leads to corresponding choices the researcher makes about methodology. The transcontextual researcher aims to be inspired by prior work; riff on it; borrow from it; head in new, if related, directions. Their intention points toward iterative progress, and they innovate their methods in ways that make sense to them. The replication-oriented researcher is interested in conducting a compelling, empirical study and has the goal of producing results as meaningfully comparable with the original study's results as possible, yielding a larger set of data that seek to answer the same question in the same way. This researcher intends to match the methods of the prior study. When their efforts toward replication are limited by local context, as such efforts often are in many fields, the researcher will explicitly address those limits when writing about the new study, and readers will take those limits into account as they seek to understand the value of the work in comparison to the original study. Both intentions yield useful results. And neither is possible unless researchers write about their methods with great care and specificity.

Replication research seems especially important in a field like writing center studies, in which researchers are typically balancing research with administrative work and teaching and in which many are limited to researching what takes place in our own centers. When time and other conditions allow, studies with large sample sizes or multisite studies are well worth doing. But writing center researchers' resources, including person power and money, are limited. After all, the main research grant provided by our professional organization, IWCA, currently provides \$1,000. On Susanne's campus, this amount buys just 46 hours of someone's time working at the local minimum wage; in just over one work week, a research assistant coding manuscripts could likely only begin such work. Replication allows, to some extent, for larger studies or multisite research to happen across time and space, in contexts where people lack resources to create the infrastructure for synchronous, multisite studies. Replication studies would also make it easier for novice researchers to enter the field, as they could undertake research based on sound methods developed by prior researchers. And, in time, results from replication studies could prove

to be invaluable in the arguments writing center leaders make to institutional administrators who may be skeptical about evidence-based practices from small, single-site studies.

Best Practices for Writing Replicable Research

Many researchers in writing center studies working on writing about RAD research for publication are likely focused on clearly communicating the nature of their study and findings and on building a case for the credible and important nature of their work. Because replication studies are not yet frequent in our field, it makes sense that most authors imagine a reader to interest and convince. However, in a field in which replication studies are currently uncommon, writers are unlikely to anticipate a reader who would want to closely repeat part or all of their work in some manner. We believe a writing mindset that imagines replication-oriented readers would be valuable to our field because it would lead to increased clarity and transparency in our discussions of methods, findings, and data. This outcome would broadly improve the quality of the research in our field, whether or not that research is ever replicated.

As a point of reference, it may be helpful for researchers in writing center studies to examine the expansive standards for sharing methods and data that are increasingly common in many experimental fields. In other disciplines, replicating a study may entail doing the exact same experiment that a previous researcher did, down to the level of the molecule in the lab and the line of code in the analysis of data. For example, the current guidelines for authors submitting to the journal *Cell*, a high-impact journal in experimental biology, require not only the clear description of methods but also the sharing with fellow researchers of exact research protocols and key materials, including cells, DNA, antibodies, reagents, genetically modified organisms, and mouse lines; additionally, researchers must share complete datasets and code in publicly accessible repositories (Cell Press, n.d.). Researchers who publish in *Cell* are expected upon publication to provide readers with a “materials availability statement” as well as a “‘data and code availability’ statement” that allow other researchers to contact them easily for these materials and information (Cell Press, n.d., Resource availability section).

To be clear, empirical research in biology differs greatly in nature and goals from research in writing center studies; the standards expected for publication in *Cell* would be incoherent for research in our field. However, the spirit of disciplinary collaboration and full research transparency behind *Cell*'s standards is inspiring, and it raises an important question for us: What would full research transparency look like in writing center studies? What should researchers be prepared to share, and what infrastructures would need to be

built to facilitate and encourage such sharing? What limits our ability to fully share our methods and data?

We pose these questions with recognition that we cannot yet completely answer them. We venture a start by suggesting some specific choices authors in writing center studies can make to increase the clarity of descriptions of research methods and results, no matter how the field defines replicability. We hope these practical suggestions encourage authors to both consider the importance of writing replicable research and undertake efforts to do such writing, and we invite other authors to help elaborate on the best practices for writing about methods that we have started here.

Describing Data Sets and Sampling

In most writing center research, efforts at replication likely will not involve a researcher studying the exact same data set. Unlike economists (e.g., Hamermesh, 2007) or other social scientists, researchers in writing center studies rarely probe publicly available data sets, instead assembling unique data sets that are protected by some expectation of privacy (more on this in our Data Sharing section). When data sets are not, or cannot be, shared, descriptions of data sets and sampling strategies must be specific and precise. In writing center studies, our samples are most commonly texts or human participants, and the two pose different challenges.

When a data set is created by assembling a set of texts, both the nature of the texts and the method through which they are assembled must be clearly described. For example, a study looking at writing center session reports should explain the nature of the particular reports studied in both formal and rhetorical terms. In terms of their form, we know that some of these reports are highly structured questionnaires that tutors fill in, while some are more open-ended. Rhetorically, these reports can serve different purposes in a center depending on tutor training and the culture of the center; these reports may be perceived as valuable reflections, pedagogical tools, documents that are used for oversight purposes, or perhaps as a mere bureaucratic exercise. Specific descriptions of these particularities are important. While providing a completed version of a text, such as a session report, may not be possible, it is worth considering what could be shared, such as an uncompleted form or an assignment prompt along with a rich description of the rhetorical situation in which the text operates.

As for how a textual dataset is compiled, it is key for readers to know how and where a set of texts came from. To continue with the example about session reports, how were the session reports accessed and chosen? Perhaps a writing center researcher has access to a decade worth of reports in an online appointment system that represents 99% of the sessions the center has conducted in that time. Alternately, another researcher may have access to a semi-organized

file cabinet stuffed with undated paper reports that represent an unknown percentage of sessions. Or perhaps one study combines the reports from two centers, one of each of the above types. The differences are potentially very meaningful to the outcomes of a study and are relevant to researchers wishing to replicate the study.

Sampling methods should also be described. If some subset of the larger data set was chosen for analysis, an author should explain how this subset was selected. Did a computer system randomly choose 100 of 1,000 texts that would be used for closer study? Or did a researcher work to make sure that a sample had certain formal or demographic qualities that made it representative in some way? Methodological choices related to sampling methods affect a study’s results.

When research is done with human participants, as in surveys, interviews, focus groups, or individual tutor-writer case studies, the methods both for recruiting and compensating the participants are important to share. Often, in our field, the methods for recruiting participants have some element of convenience, which can result in selection bias, which in turn may affect the study’s results; such information should be clearly disclosed. For example, imagine that a researcher interviewed 20 student-writers who visited a writing center as first-year students and that 16 of them were former students in one of the researcher’s own courses because those students responded more readily to a request emailed to all sophomores to participate in a study. How might these students’ prior relationship with the research affect the available data? As for surveys, the nature of the distribution will affect who can and does respond. Some surveys may be distributed by emailing the WCenter listserv and hoping people respond, and others could be sent directly via email to selected writing center directors, with participants compensated. In the latter case, it would be helpful to share how the list of directors was assembled and in what ways participants were compensated. In cases where sampling of human subjects attempts to be representative in some way, the nature of the sample sought and method for selecting it should be explained in specific detail.

Data Sharing

In the last two decades, scholars, editors, and grant-makers in various fields have called for researchers to be encouraged or required not only to share selections from their data in their published work but also to share entire data sets as a supplement to published research (e.g., Cell Press, n.d.; Hamermesh, 2007). This practice, usually referred to as *data sharing*, has become popular for several reasons. One reason for its popularity is feasibility: It has finally become technologically possible to share large data sets online. Many major journals in certain fields are equipped to host digital data sets, and when journals lack the capacity, a growing number of repositories serve this role. A

university library may also step in to host the data in a way that will be broadly searchable (e.g., giving the data set a digital object identifier [DOI] and appropriate metadata).³ A second reason for data sharing's popularity is funders' priorities: Now that it is possible to publish data sets, those who fund research require more frequently that data sets be shared so that the power of sponsored grants can spread as far as possible.⁴ A third reason for the popularity of data sharing is facilitating innovation and equity: As Jane Kaye, Catherine Heeney, Naomi Hawkins, Jantina de Vries, & Paula Boddington (2009), researchers in genetics, a field at the forefront of data sharing, explained, the publishing of data sets can accelerate and promote new research and also provide fuller credit to researchers involved in the creation of data. However, their article also identified data-sharing challenges, including making sure data are sufficiently anonymous, informing participants about if/how data will be shared, resolving ethical questions about the uses of the data after they are shared, and ensuring ongoing and open access to shared data.

In writing center studies, we already have several large, public data sets from survey-based projects that gather and share information about the teaching and tutoring of writing. They include the National Census of Writing (<https://writingcensus.ucsd.edu/>), the International Writing Centers Research Project (<http://iwcrp.org/>), and the Writing Center Research Project Survey (https://owl.purdue.edu/research/writing_centers_research_project_survey.html). The contexts for these broad, archivally-oriented data-collection projects are different from those of a researcher who collects local data to answer a specific research question and writes up the results for publication, but these existing data sets still offer useful models for thinking about how data sharing may look in our field. One crucial feature some data sets have is that, in addition to presenting ways to engage easily with specific results, they offer users the ability to download partial or complete data sets in a spreadsheet format, which allows researchers to fully access the data so they can understand and make varied uses of it. Such functionality is crucial when engaging in data-sharing for the purpose of replicability.

Sharing data sets is not without challenges. Currently, many writing center researchers have difficulty obtaining the resources to prepare data sets to be shared. Additionally, researchers who are less experienced in navigating IRB review may need guidance about how to ensure protocols are followed and student privacy is protected when undertaking efforts to share data. Furthermore,

3 See, for example, the University of California Berkeley Library Scholarly Communication Services' (n.d.) description of how and why it will host researchers' data.

4 For example, by October 2003, all applications to grants with direct costs in any single year in excess of \$500,000 given by the National Institutes of Health had to address data-sharing (National Institutes of Health, 2003).

journals in our field are generally not attached to large publishers that have established platforms for data sharing or have the resources to develop them; it seems unrealistic to expect scholar-run journals to develop such capacities given their limited budgets and volunteer staff. And while some researchers are able to receive data hosting support from their institutions, not all researchers in our field work for universities that offer services for publishing data that way. Mackiewicz (2017) raised the need for a shared data repository or “controlled data collection” for our field that would make data sharing easier (p. 32), and Mackiewicz & Babcock (2020b) noted that two writers in their coedited methods book, Lori Salem (2020) and Randall W. Monty (2020), made similar calls. We echo this wish and think a shared data repository would be especially crucial for advancing both replicability and replication.

Survey and Interview Protocols

Surveys, focus groups, and interviews are among some of the most popular methodologies in writing center studies at present. Replication can be particularly important for studies using such methods because limited resources often restrict such research to local sites and modest sample sizes. Replication offers the field the opportunity to expand our knowledge by posing valuable research questions in multiple locations.

The first and most basic expectation we should have to ensure replicability is that researchers should always share survey instruments as well as interview and focus group protocols with readers. These texts can, and usually should, be provided as appendices or supplements. In some cases, it may be necessary that these supplements exist only online, but their existence should be clearly indicated in the print version of the article.

For surveys, providing the exact text of a survey is a fundamental best practice for ensuring replicability, but providing a text-only copy of a survey has limits. Ideally, readers will be able to see not only what participants were asked but also how those queries were presented. For example, for an online survey, was each question on a separate page, or were some questions together on the same page? What design elements (e.g., images, fonts, formatting) were a part of the survey? Were answer choices sometimes randomized, or were some questions on the survey not asked of all participants? How did participants enter their answers? How accessible was the survey to those with vision loss or participants with other disabilities? Such features are not captured when the survey is rendered into a text document, but they can be semantically meaningful and could affect survey results (Helgeson, Voss, & Terpening, 2002; Schwarz & Hippler, 2004). Therefore, screenshots or the creation of a live, functional copy of the survey open on its original platform for any readers to interact with would be helpful.

Focus group discussion and interview protocols are easiest to share when the inquiry is highly structured and the written protocol provides the reader with a detailed script that offers all the information needed to understand and replicate the inquiry. Semi-structured or unstructured focus group and interview protocols are more difficult to convey since they are more context-dependent by design, involving many decisions that happen within the researcher's mind before, during, and even after the session, some of which may not even be fully apparent to the researcher. In such cases, we suggest researchers still endeavor to provide detailed, written protocols that focus less on scripting of the conversation and more on the goals, benchmarks, and strategies the researcher adopted for the conversations.

In the cases of interviews and focus groups, it is also worth noting how the conversations were recorded and transcribed. Transcription practices vary, and to ensure replicability, researchers should let readers know to what extent and how the more subtle elements of a discussion (e.g., crosstalk, filler words, tone of language) and extra-textual elements (e.g., body language) were preserved for later analysis.

Coding

Many writing center studies researchers analyze textual data sets through analytical coding of some kind, but most researchers could write more precisely about their particular coding methodology. Researchers often indicate a use of grounded theory, but grounded theory only designates a broad approach to coding, rather than a specific and repeatable method. According to Johnny Saldaña (2013), grounded theory “involves meticulous analytic attention by applying specific types of codes to data through a series of cumulative coding cycles that ultimately lead to the development of a theory—a theory ‘grounded’ or rooted in the original data themselves” (p. 51), and in his popular and influential book, *The Coding Manual for Qualitative Researchers*, Saldaña described 26 different first-cycle coding methods and six second-cycle coding methods, as well as the transitional stage between first- and second-cycle coding (p. 59). There are many ways to approach coding depending upon one's research questions, methods, and data set. The coding approach Saldaña described relies on the constant interplay of coding and analytical memo-writing, and methods that use analytical memos should address how the memos were composed and what ends they serve. Using coding to analyze texts is complex, and it may feel overwhelming to try to write about one's methods in precise ways so that they could be repeated. It is therefore crucial for researchers to take careful notes during the coding process about decisions made and work done, as the details of this multi-layered, recursive process will be difficult to recall weeks or months later.

In addition to sharing coding frameworks, it is important to describe who did the coding and how the work was shared. For example, researchers should note whether the person doing the coding was the same person who conducted the data-gathering. Further, it is helpful to share how experienced the coders were and what efforts were made to find and correct coding errors.

Coding often leads to the discovery of many themes or concepts in a data set, and often a single journal article will focus on only a subset of those themes. In such cases, researchers should endeavor to share their full set of themes, even if only some are discussed in the published piece. A simple table containing those findings can be important for those readers interested in replication of the study.

Statistical Analysis

When quantitative studies involve statistical analysis and an entire data set is not provided, researchers should take care to let readers know all the types of data that were collected and analyzed. For example, imagine a study of writing center-sponsored faculty training workshops. As part of a study that seeks to understand what makes those workshops successful, researchers might collect demographic and identity data about faculty participants, looking at 12 variables, of which three turn out to have statistically significant correlations with completion of the program. It is not uncommon that a researcher might report on only those three variables, leaving the other nine unnamed because no significant correlation emerged. This kind of omission limits both readers’ understanding of the study’s findings and the possibility for replication.

Researchers using statistical methods should also take care to explain clearly the statistical methods used as well as the platform and software package used. For statistical methods that require calibration or feedback loops, the choices researchers make in analyzing data can be central to outcomes. It is further necessary to clarify which parts of the data have been analyzed; for example, if cross-tabulations are performed to look for relationships between variables, it is important to know which variables were analyzed and which were not.

Challenges to Replicability and Replication

If writing replicable studies and doing replication studies were easy and straightforward, it is likely researchers in our field would already have been doing a lot of both. In reality, both pose challenges.

Replicability Challenges

Writing a replicable study means exposing data, methods, and methodological limits to readers, which opens up researchers to scrutiny and criticism.

While we can all appreciate the fact that such exposure benefits readers' understanding of a study and our collective pursuit of knowledge, as a researcher, opening oneself up for critique is always difficult, especially if one is new to using particular methods or lacks formal training in a certain type of research. The solution to this problem is to continue to be generous in our critiques of others and to recognize that such critique benefits our field.

For more experienced researchers, writing replicable studies may require cultivating new research practices, some of which are labor-intensive. As a result, researchers may need to borrow from researchers in other fields, adapting practices such as the lab notebook, which allows researchers to capture detailed, daily information.

If, as a field, we were to set replicability as an intellectual priority, our journals would need to invite—and even require—authors to submit comprehensive descriptions of methods and materials, no matter what effect such requirements would have on the submission's total length. To ensure replicability, the field's publications would need to assure current and future researchers that comprehensiveness, rather than concision, is the priority for describing methods. For print journals, we recommend exploring a model common in other fields: publishing complete methods as online supplements, which allows the necessary length without impacting printing costs—see, for example, *Science*, which asks that a detailed materials and methods section be submitted as part of a submission's supplementary materials (American Association for the Advancement of Science, n.d.). Online-only journals might follow the same approach or might include lengthy methods sections within articles since length is more flexible. Referring again to *Science* as an example, in research articles selected for online publication, the methods are included in the article itself, with full text available online or downloadable via a PDF version (American Association for the Advancement of Science, n.d.). How exactly to handle longer methods sections will vary by a journal's goals, but the key is that to ensure replicability, publications eliminate the current imperative to reduce one's methods section to fit a total word limit.

As the field does more to encourage replicability, reviewers may need more explicit guidance about what standards they should hold researchers to regarding methods. Editors will need to continue to mentor reviewers and researchers who need help with this important work. Perhaps the ideas shared in this article could lead to a list of best practices that publishers or journals might publicly adopt, making it easy for researchers to understand and follow these more robust expectations for sharing methods.

Replication Challenges

Researchers are unlikely to undertake replication studies without a sense that journals value and will publish studies that draw heavily from the

approach and methods of a previous study. Many fields in which the value of replication is acknowledged have a dearth of such studies because of the perception or reality that journal editors view replication studies as less worthy of publication than original studies (Hamermesh, 2007; Freese & Peterson, 2017; Martin & Clarke, 2017). While we are not aware of any public discussions of editorial bias against replication projects in writing center studies, debates in other fields may enter our collective awareness. In response to one such debate, a study by G. N. Martin & Richard M. Clarke (2017) in the field of psychology found that only 3% of the 1,151 psychology journals examined “stated in their aims or instructions to authors that they accepted replications” (para. 1); Martin & Clarke advocated that journals in psychology receptive to publishing replications explicitly state this in guidelines for authors. We echo that recommendation for writing center studies journals. This proactive step could address potential concerns authors may have about bias against such submissions.

A final challenge will, of course, be the limited number of existing models of replication studies in our field. Researchers will need, to some extent, to take the general principles evinced in this article and figure out what these principles mean in the real world. This deductive reasoning is likely to be challenging but worthwhile work.

Conclusion

Regardless of the challenges, we believe replication research is an important, meaningful endeavor and should be part of writing center scholars’ epistemological toolkit. If the field limits itself to new research and transcontextual research, opportunities will be missed to extend the value of existing studies and build a body of knowledge that can be usefully analyzed via meta-analysis. As we have acknowledged, the calls for replicable and replication research in the field of writing center studies are not new, but these calls have rarely included guidance for addressing the lack of activity in this area. We hope our work will be a tipping point that inspires researchers to discuss the ideas of replicability and replication further and take up this work. We believe this is an exciting time for research in writing center studies, and we look forward to seeing what the field can do in the years ahead.

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