OPEN SCIENCE BRIEF 10: NOVEMBER 2023 BRIEF 10: NOVEMBER 2023

To help inform the special education research community, these briefs feature information on prominent open science practices. Content comes from our series of short articles in the DR newsletter, Focus on Research, as well as additional content developed by DR members.



OPEN SCIENCE IN QUALITATIVE RESEARCH

Open science reforms have been proposed as a means of strengthening the credibility of research, addressing the replication crisis, and ameliorating the research-to-practice gap in special education and other fields (Adelson et al., 2019; Cook et al., 2018). However, discussions around open science reforms have focused primarily on quantitative research, whereas the applicability of open science practices in qualitative special education research has received less attention. Similar to quantitative methods, open science reforms have the potential to be a mechanism for increasing rigor, transparency, and trustworthiness in qualitative scholarship. In this *Focus on Research* article, we aim to begin a conversation on the potential applications and potential benefits of four **open science practices** (i.e., preregistration, registered reports, open data, and open materials) **in qualitative special education research** as well as some unique implementation considerations.

Open Science Practices: Preregistration

Preregistration is when researchers publicly post their study plans prior to beginning the study (Gehlbach & Robinson, 2018; Nosek et al., 2019) on an independent, searchable registry (e.g., Open Science Framework; Registry of Efficacy and Effectiveness Studies). Typically, these registries have structured or semi-structured templates that walk researchers through each stage of preregistering the study plan. If and when research plans evolve and change, authors update their preregistration and provide a rationale for changes made to the posted study plan.

Preregistration may be more readily applied to deductive qualitative methods grounded in a positivist or post-positivist paradigm such as grounded theory studies. In these types of studies, authors can preregister their intended data collection and data analysis plans that are determined prior to the onset of a study. However, many preregistration templates also allow for inductive, exploratory decision-making that occurs after the study has begun, as often is the case in qualitative research. Authors can preregister their research aims and design as well as their process and criteria for decision-making, and then update their

preregistration with their audit trail as the study inductively evolves. For example, in my (the first author) hermeneutic phenomenological dissertation study, I preregistered the intended themes of the study's interviews, rather than the interview protocol itself because the protocol was developed iteratively as interviews were conducted. After data collection had begun, I updated the study's preregistration with the finalized interview protocols and the decision-tree for determining data saturation (https://osf.io/5tezu/).



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Preregistration may be particularly beneficial in increasing the trustworthiness and transparency of qualitative research as researchers elucidate intended study plans as much as possible and indicate what portions of the study were planned and what portions evolved inductively. This may also help researchers explore their reflexivity and positionality as they are encouraged to consider themselves as researchers apart and in relation to the proposed study from the onset.

While preregistration lends itself to methodologies where data collection and analysis are linear or planned, some methodologies involve improvisation and require nuanced considerations when preregistering. Ethnographic interviews, for example, may be spontaneous conversations during observations and thus not require a preplanned protocol (Spradley, 1979). What aspects of such preregistered? studies can be Are current preregistration templates and processes flexible enough to accommodate less linear methodologies or, if not, can we create a flexible preregistration process that is conducive to less linear methodologies or more impromptu methods? It is important that the flexibility, adaptability, and sensitivity of qualitative research--which are core strengths of qualitative methods--not be hindered in preregistration. Instead, the preregistration process should act as a systematic starting point from which authors can detail the entire study process as it evolves (Haven et al., 2020).

Open Science Practices: Registered Reports

Registered reports apply the core principles of preregistration to the formal peer review process (Cook et al., 2021). There are two stages of peer review for a registered report. In Stage 1, authors submit an introduction and prospective methods section to a journal for peer review before beginning the study. Reviewers at Stage 1 provide feedback on the importance of the proposed research questions and the rigor of the proposed methods. After review and potentially one or more rounds of revision, the Stage 1 submission is either rejected or granted an in-principle acceptance. If granted an in-principle acceptance, authors resubmit the manuscript after completing the study for the Stage 2 review. In the Stage 2 review, reviewers evaluate whether (a) the approved Stage 1 study plans were followed (and, if not, whether a sufficient was rationale provided for any modifications), and (b) findings are appropriately reported and discussed. Registered reports may be beneficial in increasing the rigor of qualitative

research as reviewers evaluate and provide input on the methods prior to the researchers conducting the study. See Karhulahti (2021) for an example of a qualitative study that has undergone the registered report process.





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Whereas the guiding epistemology in quantitative research typically is objectivism and methods are designed to minimize bias, in qualitative research this is not the goal and the underlying epistemologies (e.g., social constructivism) tend to acknowledge the important role a researcher's positionality plays in the research process. This can lead to multiple considerations in the implementation of registered reports in qualitative scholarship. First, how do we acknowledge the positionality of reviewers in the process of designing our research? In the same way the researcher's positionality impacts the types of questions they ask, the ways in which they design the study, and the interpretations they draw, a reviewer's positionality will influence the recommendations they make and the expectations reviewers place upon the researchers. This could potentially lead to epistemological incoherence if reviewers ask authors to adjust a study's method in ways that are not aligned with the authors' epistemologies. For example, reviewers could ask authors to include a deductive interview coding procedure when the study's undergirding epistemology requires an inductive coding process. To help address this, the registered report process for qualitative research could allow for researchers to decline suggestions that are epistemologically incoherent (see Lauterbach et al., 2021 for discussion of epistemological coherence in special education qualitative research). We recommend that reviewers share their positionality and reflexivity in relation to the reviews they provide to address this concern. Second, qualitative registered

reports may require additional flexibility in implementing the proposed study plan. Many qualitative methods, such as hermeneutic phenomenology, which uses conversational interviewing, necessitate inductive decision-making, which cannot be fully stipulated in a Stage 1 submission before the study is begun. To address this, we suggest authors might include a decision tree or decision-making plan for how they will make design and study adjustments when conducting the study. We also suggest that editors and reviewers acknowledge this caveat in the Stage 1 and Stage 2 review processes.

REGISTERED REPORTS: STAGE 1

- <u>Authors</u> Submit an introduction and prospective methods section to a journal for peer review *before* beginning the study.
- <u>Reviewers</u> Provide feedback on the importance of the proposed research questions and the rigor of the proposed methods.
- After review and revision, the Stage 1 submission is either rejected or granted an in-principle acceptance.

REGISTERED REPORTS: STAGE 2

- <u>Authors</u> After in-principle acceptance, resubmit the manuscript after completing the study.
- <u>Reviewers</u> Evaluate whether:
 - a) The Stage 1 study plans that received approval were adhered to, and in cases where deviations occurred, a satisfactory rationale was provided for any changes made.
 - b) Findings are appropriately reported and discussed.

SUGGESTIONS FOR QUALITATIVE REGISTERED REPORTS

- <u>Authors</u> Include a decision tree or decision-making plan for how they will make design and study adjustments.
- <u>Reviewers</u> Share their positionality and reflexivity in relation to the reviews they provide.

Open Science Practices: Open Data

Open data is when researchers make their raw, but curated, data openly available to others through a data repository (e.g., The Qualitative Data Repository, https://qdr.syr.edu). Open data also typically include metadata, including a codebook or data dictionary that lists important information about the data (e.g., audit trail, codes, contextualizing information about the participants). This allows others to understand and reuse the data appropriately. Making qualitative data open has the potential to increase the transparency, trustworthiness, and rigor of qualitative studies because providing the actual data used in the analysis, qualitative researchers can clarify the linkages between data and the claims presented in the research report (Trainor & Graue, 2014).

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However, there are unique epistemological, methodological, legal, and ethical issues related to the reuse of qualitative data (Chauvette et al., 2019). Specifically, explicating the potential harm to participants, the appropriateness of particular methodologies for secondary analysis (e.g., interpretive phenomenological analysis), and the role of research reflexivity and epistemology may make secondary data analysis using qualitative data challenging (Chauvette et al., 2019). Further, the quantity of data qualitative researchers work with is often large and complex. For example, a researcher who engages in prolonged engagement in the field, as is often seen in ethnography, may have thousands of pages of interview transcription, field notes, artifacts, etc.



Because it is unlikely that a reader will (a) consider the data in its entirety and (b)approach the data in the exact manner as the original researcher, open data has the potential to cloud the linkage between data and interpretation. Moreover, due to the large quantity of data, an important step in many qualitative analyses is data condensation, a process of selecting, focusing, simplifying, abstracting, and/or transforming the data. As such, researchers' interpretations may not correspond with all data, thus potentially obscuring the linkage between data and analysis. As with quantitative research, qualitative analysis is done through the lens of the researcher, with the researchers' positionality (including their epistemology) playing an important role in the interpretation of data. Therefore, it is critical that individuals reading or reusing the data consider their own epistemological perspective and understand that their interpretation of the data may not correspond with that of the researcher.



Open Science Practices: Open Materials

Open materials, or materials sharing, is when a researcher posts study materials alongside their published article as supplemental material on a journal's website or in a data repository (e.g., figshare, https://figshare.com; Open Science Framework. https://osf.io/), a common practice in many qualitative methods journals. By sharing materials, authors allow others to reuse, adapt, and redistribute their work in specific ways based on the copyright license authors select. Qualitative researchers can share many kinds of study materials such as observation and interview protocols, coding manuals, reflexivity, and positionality statements, and audit trails. Open materials may have particular benefit in increasing the impact and transparency of qualitative scholarship. For example, I (the second author) published the interview protocols, which included semistructured, think aloud, and stimulated recall interviews, from a hermeneutic phenomenological study (Lauterbach, 2018). I chose to share the interview protocols as I lacked models for developing an interview protocol beyond semistructured interview formats and wanted to provide models for other researchers. The shared interview protocols were then used by the first author to develop the interview protocols for her dissertation study.

One potential issue that may arise with open materials is that qualitative materials should be developed within a particular methodological and epistemological framing (Koro-Ljunberg et al., 2009).



For example, interview protocols with a hermeneutic phenomenological grounding will likely address participants' histories and experiences with a phenomenon, and their interpretations or the meaning they make from those experiences (Seidman, 2006); whereas interviews with a narrative grounding will likely focus on detailed biographies or tightly bound stories (Reissman, 2008). Thus, if other researchers use shared materials from a previous study, it is important they understand the epistemology and methods of that study and consider how they aligns or are inconsistent with their own study, as this coherence is essential to conducting rigorous qualitative research (Lauterbach et al., 2021).

Conclusion

Open science reforms have the potential to benefit special education qualitative scholarship by increasing its rigor, transparency, and trustworthiness. Yet, further discussion is needed to understand the nuanced epistemological, methodological, legal, and ethical considerations that exist. We suggest qualitative researchers continue this dialogue to articulate how preregistration, registered reports, open data, and open materials can be used while still retaining the flexibility, adaptability, and sensitivity of qualitative research.

R E F E R E N C E S

- Adelson, J. L., Barton, E., Bradshaw, C., Bryant, B., Bryant, D., Cook, B. G., ... Troia, G. A. (2019, February 18). A roadmap for transparent research in special education and related disciplines. <u>https://doi.org/10.35542/osf.io/sqfy3</u>
- Chauvette, A., Schick-Makaroff, K., & Molzahn, A. E. (2019). Open Data in Qualitative Research. *International Journal of Qualitative Methods*. https://doi.org/10.1177/1609406918823863
- Cook, B. G., Lloyd, J. W., Mellor, D., Nosek, B. A., & Therrien, W. J. (2018). Promoting open science to increase the trustworthiness of evidence in special education. *Exceptional Children*, 85(1), 104–118. https://doi.org/10.1177/0014402918793138
- Cook, B. G., Maggin, D. M., & Robertson, R. E. (2021). Registered reports in special education: Introduction to the special series. *Remedial and Special Education*. Advance online publication. https://10.1177/0741932521996459
- Gehlbach, H., & Robinson, C. D. (2018). Mitigating illusory results through preregistration in education. *Journal of Research on Educational Effectiveness*, 11(2), 296– 315. https://doi.org/10.1080/19345747.2017.1387950
- Haven, T. L., Errington, T. M., Gleditsch, K. S., van Grootel, L., Jacobs, A. M., Kern, F. G., Piñeiro, R., Rosenblatt, F., & Mokkink, L. B. (2020). Preregistering qualitative research: A delphi study. *International Journal of Qualitative Methods*. <u>https://doi.org/10.1177/1609406920976417</u>
- Karhulahti, V. (2021, September 24). Phenomenological Strands for Gaming Disorder and Esports Play: A Qualitative Registered Report. <u>https://doi.org/10.17605/OSF.IO/A2RWG</u>
- Koro-Ljungberg, M., Yendol-Hoppey, D., Jude Smith, J., & Hayes, S. B. (2009). (E)pistemological awareness, instantiation of methods, and uninformed methodological ambiguity in qualitative research projects. *Educational Researcher*, 38(9), 687-699. <u>https://doi.org/10.3102/0013189X09351980</u>

- Lauterbach, A. A. (2018). Hermeneutic phenomenological interviewing: Going beyond semi-structured formats to help participants revisit experience. *The Qualitative Report, 23*(11), 2883-2898. https://doi.org/10.46743/2160-3715/2018.3464
- Lauterbach, A. A., Bettini, E., Morris Matthews, H., Rossetti, Z., & Hughes, O. E. (In Press). Beyond exploratory: How varied qualitative methodologies can inform and advance the field of special education. In William Therrien, David Lee, and Daniel M. Maggin (Eds.) Handbook of Special Education Vol. 2: Methods, Design, and Analysis in Special Education Research. Methods, Design, and Analysis in Special Education Research. Routledge.
- Nosek, B. A., Beck, E. D., Campbell, L., Flake, J. K., Hardwicke, T. E., Mellor, D. T., . . . Vazire, S. (2019). Preregistration is hard, and worthwhile. *Trends in Cognitive Sciences*, 23(10), 815–818. <u>https://doi.org/10.1016/j.tics.2019.07.009</u>
- Reissman, C. K. (2008). Narrative methods for the human sciences. Sage.
- Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences.* Teachers College Press.
- Spradley, J. P. (1979). *The ethnographic interview*. Waveland Press.
- Trainor, A. A., & Graue, E. (2014). Evaluating rigor in qualitative methodology and research dissemination. *Remedial and Special Education*, *35*(5), 267–274. <u>https://doi.org/10.1177/0741932514528100</u>

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