

# Participatory Meta-Research: Opportunities for Engaging Pre-Service Teachers in Educational Research

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As the body of research in the RUME community grows, synthesizing data across these studies becomes more important. This goal can be accomplished through *meta-research*, a method for aggregating studies in a field of research involving both meta-analysis and meta-synthesis. A *meta-analysis* consists of a systematic search, data extraction, and aggregation of quantitative data to explain phenomena in greater detail than individual studies alone (Cooper, 2017). *Meta-synthesis* is the qualitative partner to meta-analysis, and involves a “deliberate process of selecting studies with an emphasis on synthesizing, analyzing, and interpreting across the selected studies” (Thunder & Berry, 2016). Qualitative data is then extracted from the articles, appraised for quality, and then analyzed using any of the traditional qualitative techniques. The results of a meta-synthesis can highlight gaps in a given field, look for themes across studies, and condense swaths of research, making it more useful for practitioners (Erwin et al., 2011).

*Participatory synthesis* (Wimpenny & Savin-Baden, 2012) takes the perspective that by engaging various participants in the process of meta-research, a study can “ensure all voices are heard”, present the “possibility of reciprocal learning”, and “progress knowledge within a field” (p.697). For educational research, this presents a great opportunity for pre-service teachers. By participating in meta-research, a pre-service teacher can be exposed to research and interventions that might be relevant to their future classrooms. At the same time, the results of the research can be made richer by incorporating their viewpoints into topics they view as relevant and knowledge they consider useful for the classroom. In addition, if the team is diverse, it presents the opportunity to make the work more equitable by incorporating decisions from a diverse range of viewpoints.

This poster has two purposes. First, we will describe some of the latest techniques of meta-analysis and meta-synthesis through the lens of a current project (Sharpe et al., in prep) looking at algebraic teaching interventions for grades K-12. This includes illustrating the use of cutting-edge software for conducting a meta-synthesis such as Covidence and Raayan and looking at a new technique for extracting qualitative data from an article using artificial intelligence. Second, we will describe some of the challenges and opportunities that have resulted from this process to highlight how pre-service teachers and researchers could benefit. This includes discussions about the definition of an algebraic teaching intervention for screening, a look at some of the interventions that were discovered during search/screening that might be applicable for teaching, and a discussion about what information from an article would be useful for a practicing educator. Our hope is that this poster and the resulting discussion will encourage others to engage in meta-research and consider pre-service teachers as undergraduate researchers for such projects.

## References

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