2022

Philosophical Underpinnings of Mathematics Teacher Educator's Work

Elizabeth Suazo-Flores

Signe E. Kastberg

Melva R. Grant

Olive Chapman

PHILOSOPHICAL UNDERPINNINGS OF MATHEMATICS TEACHER EDUCATORS' WORK

Elizabeth Suazo-Flores
Purdue University
esuazo@purdue.edu

Signe E. Kastberg
Purdue University
skastber@purdue.edu

Melva R. Grant
Old Dominion University
mgrant@odu.edu

Olive Chapman
Calgary University
chapman@ucalgary.ca

Mathematics teacher educators (MTEs) are turning research lens on themselves to explore their knowledge and practices and with that contribute knowledge to the field of mathematics teacher education. In this working group we build from our exploration of MTEs' work. MTEs will describe their work and their views of knowledge and being in their work as MTEs. We invite MTEs to join our working group and assert that MTEs' discussions of their work will provide opportunities for professional learning that reveals how their knowledge and identity inform their practice.

Keywords: Mathematics Teacher Educators, Philosophy, Practice, Qualitative Research.

Qualitative methodologies employed in the study of mathematics teacher education have empowered mathematics teacher educators (MTEs) to turn the research lens on themselves and gain nuanced perspectives. The goals of self-based methodology ([SBM], Chapman et al., 2020) include improving one's own practice, fueling ideas for others' practices and contributing to dialogues about the complex work of MTEs. Published findings from inquiry into MTE practice have illustrated how studies of self can complement findings from explorations of instructional activities and their impacts on mathematics teachers, leaders and learners as well as their environments and contexts (e.g., Grant, 2019; Grant & Ferguson, 2021; Kastberg et al., 2020). Mathematics education as a field benefits when the complexity of the work of MTEs is laid bare.

We aim to continue creating spaces at mathematics education conferences to support MTEs in the writing of articles of SBM studies (Suazo-Flores et al., 2018, 2019, 2020, 2021, 2022). Our focus at PME-NA 44 is the edition of a special issue for the *Philosophy of Mathematics Education Journal*. We learned that MTEs engaged in scholarly inquiry of their practices communicate their diverse ways of knowing, their views of what is real, and their perceptions of others' knowledge, such as the ways they discover or construct knowledge (Guba, 1990; Paul & Marfo, 2001; Stinson, 2020). Moreover, MTEs research pursuits may be constrained by disciplinary cultural norms, research training and/or editorial preferences. Such inquiry makes explicit MTE's role in conducting and reporting research (Guilfoyle et al., 2004), which creates trustworthiness in their reports (Grant & Lincoln, 2021).

The working group at PME-NA 44 will include the work of authors studying MTEs' lived experiences empirically, theoretically, and philosophically informed using SBM or some other intimate approach (Hamilton et al., 2016). This work contributes to the recognition and understanding of the complexity of mathematics teacher education. These papers delve into the "particularities and intricacies" of MTE's work as informed by emotional, social, relational, and organizational contexts (Hamilton et al., 2016). We want to use this working time as a meeting space to continue supporting each other in the writing of such articles.

Session Information

We have regularly met to continue creating professional development spaces to engage more MTEs in writing about their practice from their perspective (Suazo-Flores et al., 2018, 2019, 2020, 2021, 2022). At PME-NA 44, MTEs are invited to join our working group to learn about the philosophical underpinnings of SBM studies (Chapman et al., 2020). Working group activities will include on Day 1, engaging the audience in thinking about philosophical underpinnings involved when conducting research studies that focus on the self. On Day 2, we will invite MTEs to present their studies and to identify philosophy and trustworthiness/authenticity (Grant & Lincoln, 2021). On Day 3, we will develop action items and discuss new projects such as writing a proposal for ICME-15.

References

Chapman, O., Kastberg, S. E., Suazo-Flores, E., Cox, D., & Ward, J. (2020). Mathematics teacher educators' inquiry into their practice. In Beswick, K. & Chapman, O. (Eds.), *International Handbook of Mathematics Teacher Education.* 2nd Edition. Volume 2: The mathematics teacher educator as a developing professional (pp. 157-187). Brill-Sense Publishers.

Grant, M. R. (2019). An autoethnography: So, you want to attract and retain diverse faculty???. *Taboo, 18*(1), 126-140.

Grant, M., & Ferguson, S. (2021). Virtual microteaching, simulation technology & curricula: A recipe for improving prospective elementary mathematics teachers' confidence and preparedness. *Journal of Technology and Teacher Education, 29*(2), 137-164. Waynesville, NC USA: Society for Information Technology & Teacher Education. https://www.learntechlib.org/p/218262

Grant, M. & Lincoln, Y. (2021). A conversation about rethinking criteria for qualitative and interpretive research: Quality as trustworthiness. *Journal of Urban Mathematics Education, 14*(2), 1-15.

Guba, E. (1990). The paradigm dialog. Sage Publications.

Guilfoyle, K., Hamilton, M. L., Pinnegar, S., & Placier, P. (2004). The epistemological dimensions and dynamics of professional dialogue in self-study. In J.J. Loughran, M.L. Hamilton, V.K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 1109-1167). Springer. https://doi.org/10.1007/978-1-4020-6545-3_28

Hamilton M.L., Pinnegar S., Davey R. (2016) Intimate scholarship: An examination of identity and inquiry in the work of teacher educators. In Loughran J., Hamilton M. (eds) *International handbook of teacher education*. Springer. https://doi.org/10.1007/978-981-10-0369-1_6

Kastberg, S. E., Lischka, A. E., & Hillman, S. L. (2020). Characterizing mathematics teacher educators' written feedback to prospective teachers. *Journal of Mathematics Teacher Education, 23*. 131-152. Retrieved from https://doi.org/10.1007/s10857-018-9414-6

Paul, J. & Marfo, K. (2001). Preparation of educational researchers in philosophical foundations of inquiry. *Review of Educational Research, 71*(4), 525-547.

Stinson, D. (2020). Philosophical considerations always already entangled in mathematics education research, In Bicudo et al. (Eds.), *Mathematics Teaching Research Journal, Special Issue on Philosophy of Mathematics Education*, *12*(2), 8-23.

Suazo-Flores, E., Kastberg, S., & Grant, M. (2022). *Mathematics teacher educators' professional development on self-based methodologies [working group].* Association of Mathematics Teacher Educators, Las Vegas, Nevada.

Suazo-Flores, E., Kastberg, S., Grant, M., Ward. J., Richardson, S. E., & Chapman, O. (2021). Using self-based methodologies to unpack mathematics teacher educators' work. In D. Olanoff, K., Johnson, & S.M., Spitzer (Eds.). *Proceedings of the forty-third annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1907-1910). Philadelphia, PA. http://www.pmena.org/pmenaproceedings/PMENA%2043%202021%20Proceedings.pdf

Suazo-Flores, E., Ward. J., Richardson, S. E., Grant, M., Cox, D., Kastberg, S., & Chapman, O. (2020). Mathematics teacher educators using self-based methodologies. In Sacristan, A.I., Cortes-Zavala, J.C. & Ruiz-Arias, P.M. (Eds.) *Proceedings of the 42nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 19181). Cinvestav / AMIUTEM / PME-NA. https://doi.org/10.51272/pmena.42.2020

Suazo-Flores, E., Kastberg, S. E., Cox, D., E., Ward, J., Chapman, O., & Grant, M. (2019). Mathematics teacher

educators' exploring self-based methodologies. In Otten, S., de Araujo, Z., Candela, A., Munter, C., & Haines, C. (Eds.) *Proceedings of the 41st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. University of Missouri. http://www.pmena.org/pmenaproceedings/PMENA%2041%202019%20Proceedings.pdf

Suazo-Flores, E., Kastberg, E., Ward, J., Cox, D., & Chapman, O. (2018). Mathematics teacher educators' inquiry into their practice: Unpacking methodologies for professional and personal growth. In Hodges, T. E., Roy, G.J., & Tyminski, A. M. (Eds.) *Proceedings of the 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1469-1477). University of South Carolina & Clemson University. http://www.pmena.org/pmenaproceedings/PMENA%2040%202018%20Proceedings.pdf