ABSTRACT

AKOĞLU, KEMAL. Blending Online Coursework and Small Learning Communities to Examine Professional Growth in Teaching Statistics: A Phenomenological Case Study. (Under the direction of Dr. Hollylynne Lee).

The Teaching Statistics Through Data Investigations professional development course is a Massive Open Online Course (MOOC) designed to strengthen participants' ability to use a statistical investigation cycle to teach statistics and help students explore data using technology tools and make evidence-based claims. The case of interest for this research are 63 MOOC participants who also participated in one of nine professional learning teams (PLTs) during 2016-2017. This is a phenomenological study describing and explaining the lived experiences of 63 PLT participants' MOOC and PLT engagements, and the impacts of those lived experiences in participants' perspectives about and practices in teaching statistics. The hypothesis is that a blended professional development experience could impact practices and perspectives related to teaching statistics. PLTs met several times, either face-to-face or virtually, to discuss their course experiences and teaching practices. This study will describe the phenomena of simultaneously participating in MOOC and PLT, and report results on how this blended professional development experience impacted participants' professional growth in teaching statistics.

Understanding how such a blended professional development experience can impact professional growth in teaching statistics is important, so that perhaps others can implement such a model to make more wide-scale changes in teaching statistics.

Data was collected from sources of PLT participants' MOOC and PLT engagements, such as MOOC forum discussions, MOOC surveys, PLT meeting summaries, PLT surveys, and PLT interviews. Most of the data collected and analyzed for this research was qualitative and coded using both a priori codes and open coding to identify the strongest shared lived

experiences and impacts on practice. Quantitative data was analyzed using statistical tests to measure significance in growth of confidence to teach statistics, and descriptive statistics with data logs and end-of-course surveys used to confirm or refute qualitative data-based claims.

Participants' lived experiences in the MOOC and PLT were found to be related to essential impacts in teachers' perspectives about and practices in teaching statistics. For example, by learning about and applying SASI framework, learning about and engaging with real and messy data, learning about and engaging with technology, sharing about personal practices, and encouraging each other to progress, participants gained confidence in teaching statistics. Also, by observing practices from videos, sharing about personal practices, and unpacking various MOOC materials during their PLT meetings, participants developed a commitment to continue learning skills to teach statistics.

Results from the study indicate that a blended approach to professional development is an effective way to increase statistics educators' confidence to teach statistics; improve their knowledge, beliefs, and perspectives about statistics education; and to help them better understand students' approaches to statistical investigations. Results also suggest a positive impact in teaching practices of statistics teachers, however, there is not enough direct evidence to strongly support this claim.