

ELEMENTARY SCHOOL MATHEMATICS EDUCATORS' INTERACTIONS WITH A PROFESSIONAL LEARNING WEBSITE*

* The VLC, with > 68,000 registered members



 [#2301272: Examining Elementary Mathematics Teachers' Behaviors and Learning with an Online Professional Development Platform](#)

Step 1: Analyses of Trace Data

What we did:	We analyzed trace data to detect use patterns from educators who visited the VLC.
What we found:	Two main approaches to using the VLC: 1) PD users, and 2) Resource-intensive users.
Additionally:	The two main approaches to using the VLC also represented educators with different backgrounds. PD users were relatively passive in their use of the VLC, did not find math enjoyable, and were less experienced than those who did not use the PD modules.
Products:	Bosch et al., 2024 ; Lee et al., 2026 ; Reyes-Denis et al., in press

Step 2: Survey of VLC Users

What we did:	Targeting users from the trace data profiles, and adding 1 more profile based on sequential pattern mining, we conducted a survey of 246 educators to see how they described what supported their learning from the VLC.
What we found, with trace data + survey results:	1) Being an <i>explorer</i> (visiting multiple sections of the VLC) was positively associated with self-reported perceived improvements in their instructional practice. 2) Being a proactive <i>resource-seeker</i> was related to positive teaching attitudes. 3) Educators with higher levels of reported anxiety were significantly more likely to remain within a single section of VLC rather than navigate across multiple sections.
What we found within the survey:	1) Using latent class analysis, we found two profiles: Explorers and Resource-Only Users. The Explorers demonstrated deeper noticing than Resource-Only Users on student thinking and mathematical content. 2) We examined how self-efficacy, collaboration context, and school context predicted elementary educators' perceptions of the usefulness of the VLC. Educators who visited the VLC with colleagues and those in low-paying schools were approximately twice as likely to find the platform useful for their learning. Self-efficacy had no significant effect on perceived usefulness.
Products:	Jeng et al., 2026 ; Jeng et al., under review; Jeng et al., in prep.; Lee et al., under review; Lee et al., in prep

Step 3: Interviews

What we did:	We interviewed 29 of the surveyed educators to solicit detailed responses about their perceptions of learning from the VLC and what could improve that learning.
What we found:	TBD (qualitative analyses currently are underway).

Step 4: Intervention

What we did:	We designed an experiment with 281 participants randomly assigned to 1 of 4 conditions. The conditions were developed from analyses using sequential pattern mining and analyses of survey responses, and mimicked different ways educators interacted with the platform (<i>Business-As-Usual Control</i> , <i>Guided Tour</i> , <i>Scavenger Hunt</i> , and <i>Watch These Videos</i>).
Planned analyses:	We will address two research questions: 1) Do the different intervention conditions yield different outcomes, specifically: a) different levels of math anxiety, and b) different levels of reflection about a classroom vignette? 2) How do background factors (including teaching at an under-resourced school, years of teaching, etc.) moderate different levels of reflection about a classroom vignette?

Challenges

#1:	Our IRB underwent a change in leadership, and took several months to approve our interview study, delaying data collection.
#2:	Recruitment of participants took longer than anticipated, despite compensation ranging from \$50–\$75 (depending on the study).

PIs and co-PIs: Michelle Perry, PhD; Joseph Robinson Cimpian, PhD; Cheryl Moran, MA; Meg Bates, PhD; Nigel Bosch, PhD; Sarah Burns, MS
Other Researchers: Hana Kearfott, MA; Amos Jeng, PhD; HaeJin Lee, PhD; Kate Curry, PhD; Tiffany Denis-Reyes, MS; Yucheng Bao, MA

 mperry@illinois.edu

