

ITERATIVE (RE)VISIONING: AN IMPROVEMENT SCIENCE APPROACH TO ONLINE PROFESSIONAL DEVELOPMENT DESIGN AND IMPLEMENTATION

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Introduction

The proposed poster presentation is situated within a larger project, a four-year NSF/DRK-12 research grant focused on developing middle-school mathematics teachers' formative assessment strategies. A central component of the project involves design and delivery of a multi-year professional development (PD) program for participating teachers. In Year 3 of the project, an online platform was developed to provide a flexible, accessible environment for delivery of synchronous PD and formative assessment resources. Improvement Science was adopted as a framework to guide implementation, testing, and revision of the platform to address the emerging needs of participating teachers as well as the broader research goals of the project. This poster presents a summary key design and implementation issues addressed.

Design Framework

Improvement Science (IS) produces knowledge that informs the use of practice in real, practical, and varied settings (Bryk et. al., 2016). It utilizes tools of disciplined inquiry that are user- and implementation- focused. Most importantly, it provides a nimble cycle of design-implement-test-revise that privileges the realities of education settings. Several main principles drive IS: the first set focuses on problem definition, analysis, and specification; the next set focuses on iterative prototyping and testing; the last principle focuses on organizing networks to drive sustainability.

Results

Challenges associated with implementation of the platform design included teacher responsiveness and attrition, logistical issues, and interface interactions in the online environment. Specifically, Table 1 presents a few of the curricular, pedagogical, and technological problems we will unpack along with the specific prototypes developed, evidence collected, and revisions implemented to address them. We also discuss lessons learned using an IS approach to design and the overall impact of the approach on outcomes related to teachers' formative assessment practices.

Table 1: Problems, Data, and Adjustments of the Online PD

Issue	Evidence	Revision
Reflection fatigue	Contribution patterns	Reduce session length
Reflection takes longer than anticipated	Unable to complete full cycle in time allotted	Assign as homework; re-tool as multi-year cycles of PD
Responsive and concurrent display of teacher comments	Teacher feedback; Facilitator feedback	Streamlining the submission and display process
Inequitable participation and communication	Teacher feedback	Scaffold online interactions with in-person opportunities

References

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