

What Might We Learn About Leadership From Those Outside of RUME?

Natasha M. Speer
The University of Maine

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Improving the teaching and learning of undergraduate mathematics shares many features with other substantial challenges society faces. Those other challenges include addressing climate change, reducing poverty, and others things that have been described as “wicked problems” (Head, 2019; Ritchey, 2013). These kinds of challenges are complex, subject to the ever-changing influences of society, and often viewed or defined differently by the (often numerous) groups of stakeholders. As a result, wicked problems can never be definitively “solved” and instead the goal is making progress in addressing the issues (Schmida, 2020).

Some scholars from non-education sectors have found that progress on wicked problems can be enhanced with use of particular types of leadership (Manville, 2016). These leadership practices reflect what is known about the nature of wicked problems and the approaches that supported groups to make progress on such problems. Given that one objective of the RUME community is to positively influence the teaching and learning of undergraduate mathematics, and given the wickedness of that challenge, we might want to consider what we could learn from those who have provided some insights into leadership for wicked challenges.

Recommendations include ensuring representation and authentic engagement from all stakeholder groups. It can be tempting to involve only a small group in your efforts but we are cautioned that “Those left out won’t contribute their valuable knowledge, and may even sabotage the solution” (Manville, 2016, p. 5). Work in RUME includes examples of projects where collaboration between those with research expertise and those with practice-based expertise has generated powerful outcomes. For such collaborations to be of value, there must be trust among those working on the challenge. Thus building (and sustaining) trust needs to be a priority, followed by facilitating the group to some (perhaps short-term) successes to enhance trust and build capacity to take on more difficult aspects of the challenge. Those who work on challenges with long histories (e.g., enhancing equitable access to learning opportunities, designing effective professional learning for instructors) are well-aware of the ever-shifting nature of these wicked problems. Progress takes time and therefore building “on-going, adaptive learning into the process” (Manville, 2016, p. 8) is key. Data-informed processes of the sort found in design experiments and other forms of research can help build “sustainable capacity for inquiry and adaptation in light of new information and issues that inevitably arise” (Manville, 2016, p. 8).

Some of these leadership practices are evident in our change efforts. Others may not yet be part of how RUME leaders have approached our various challenges. This poster illustrates what implementation of leadership practices for wicked problems can entail in undergraduate teaching and learning change efforts. To understand the utility of these practices, the community could undertake several types of research. A meta-analysis of studies of change efforts could reveal which of the leadership practices have been utilized and to what effect. Those findings could then inform studies of new efforts to build leadership capacity and skill in key practices so those could be examined explicitly in various change efforts taken up by our community.

Participants in the poster session will be invited to share their experiences with these leadership practices and contribute to draft ideas for research studies designed to investigate the ways such practices shape change efforts in undergraduate mathematics education.

References

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