

Catalyzing Departmental Change: A Literature Review of Barriers, Drivers, and Framing

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Despite an abundance of research applauding the use of evidence-based instructional methods in STEM courses, the majority of math undergraduates are still taught using traditional lecture-based methods (Sonnert et al., 2015; Stains et al., 2018). As such, a deeper cultural shift may be required for these novel instructional methods to be embraced outside the educational research community. As academic departments play a pivotal role in influencing teaching quality, one natural entry point for enacting instructional change is to focus on departmental teaching culture (Henderson et al., 2011; Corbo et al., 2016; Couch et al., 2024). While the implementation of change efforts is an individualized process for each department, value can still be found in identifying key factors that have the potential to impact the change process. Through this exploratory literature review, we seek to answer the following question: what are potential barriers and drivers to departmental teaching culture change and what strategies could be used to encourage embracement of departmental change?

To answer our question, we conducted an exploratory analysis of literature via a keyword search of (*departmental*) *cultural change*. In particular, identified *barriers to change* include: lack of professional knowledge (Corbo et al., 2016), lack of time and resources (Reinholz & Apkarian, 2018), fear of the unknown (Gaubatz & Ensminger, 2017), satisfaction with the status quo (Gaubatz & Ensminger, 2017), lack of autonomy (Gaubatz & Ensminger, 2017), and resistance to external leaders (Gagliardi et al., 1986). Possible *drivers for change* are: lack of conflict between current values and the values associated with change (Gagliardi et al., 1986), celebration of positive outcomes throughout the change process (Couch et al., 2024), reinforcement of change as an ongoing iterative process (Gagliardi et al., 1986), a commitment to diversity and inclusion (Quan et al., 2019), and the leveraging of departmental leaders as agents of change (Kunst & Mesoudi, 2023). Finally, *change should be framed* as follows: change is at the departmental level (Gagliardi et al., 1986), change is student centered (Quan et al., 2019), everyone is a collaborator in change efforts (Quan et al., 2019), change will have positive outcomes (Kunst & Mesoudi, 2023), and change efforts are data driven (Quan et al., 2019).

Our poster will present a literature-informed action plan for RUME researchers and mathematics faculty who seek to promote cultural change with respect to teaching. For example, current departmental values must be identified to ensure they are not in conflict with the proposed change; any conflicts must be reconciled. Current departmental needs must also be identified in order to be leveraged as positive outcomes of change. In addition, departmental leaders should be identified to be leveraged as agents of change; this includes both department administrators such as chairs as well as peer leaders deemed as influential by their peers.

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