

DLHS Research Snapshot

Andrew Krumm, PhD, Develops Future Data Scientists

“While the use of algorithms has increased in the classroom and at the bedside, where the math really gets hard is in translating data products into improved processes.”

The Problem: Using data to drive behavior change in complex organizations requires informaticians, improvement scientists, and implementation scientists. Krumm is working to develop future data scientists, researchers and practitioners who can wrangle and analyze data to support continuous improvement in health and education systems.

KEY WORDS

Quality Improvement
Learning Analytics
Educational Data Science

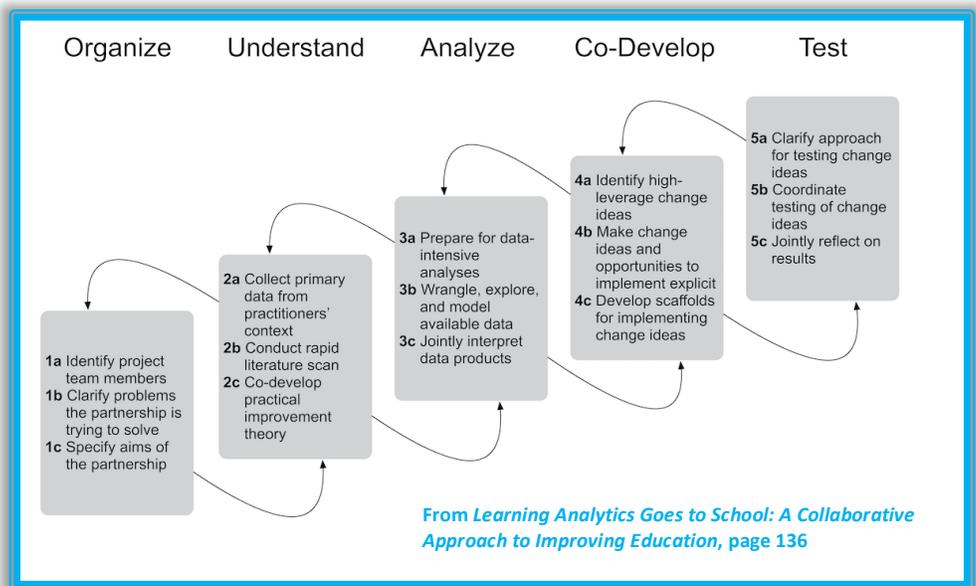
The Promise: Krumm is using his background in learning analytics and quality improvement to graduate healthcare professionals (e.g., general surgeons) who are “practice ready on day one” by supporting the development of a continuously improving medical education system that adapts to the needs of trainees and educators within the complex healthcare U.S. environment. In this future state, data scientists will help bring together diverse coalitions of learners, instructors, and organizational leaders to learn and improve health care delivery.

The Project: Krumm and colleagues are working to build on the successes of [SIMPL](#) to generate data products (e.g., program-wide dashboards and trainee-focused visualizations) that are based in the fundamentals of measurement science. These data products and accompanying supports are intended to help program directors better support trainees and to help trainees further develop their self-directed learning skills.

His team is also helping members of SIMPL develop quality improvement skills in order to further develop each collaborative members’ capacity to learn from, and take principled action based on jointly developed data products jointly.

Learning Health System

in Action: Krumm’s work addresses the role of the data scientist, the informatician, in *doing* the work of improvement. Each part of the learning cycle, an integral component of learning health systems, can be enhanced by capable researchers who are armed with best practices from data science, quality improvement, and implementation science.



The Bottom Line: Collaborating with learners and instructors in using data can create more equitable and effective learning environments.