Towards a Model of Learning Engineering: The Pilot Process in the Air University Global College of PME

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Rob Nyland, Ph.D. Learning Architect, Air University Global College of PME
10,581 Active Students

150+ Monthly Seminars

216 Global Instructors

104 Online Courses

75 Faculty & Staff
Maxwell AFB, AL

7 Active Programs

104 Online Courses

75 Faculty & Staff
Maxwell AFB, AL

7 Active Programs

75 Faculty & Staff
Maxwell AFB, AL

7 Active Programs

10,581 Active Students

5,321 CY 2021 Grads

PME...anytime, anywhere!
Challenges in Designing Effective Learning

• Decisions in learning design/online learning are frequently made using anecdotes or unscientific sources of information.

• Instructional design processes typically lack tight feedback loops that can enable the scaling of effective practice.

• Educational environments often lack the scale that is needed to extract statistical significance.
Potential Solution

What is needed is a more....

• Interdisciplinary
• Scientific
• Data-driven
• Human-centered approach to designing learning experiences

In other words...learning engineering!
“Improvement in post-secondary education will require converting teaching from a solo sport to a community-based research activity” - Herbert Simon, 1986

“Learning Engineering is a process and practice that applies the learning sciences using human-centered engineering design methodologies and data-informed decision making to support learners and their development.” – IEEE ICICLE (emphasis added)

“Engineering is the application of creativity and science to solve problems, and learning engineering is the application of the learning sciences to creatively solve problems for learners and learning.” – Barr, Darge, Goodell & Redd (2022), Learning Engineering Toolkit
The Learning Engineering Process

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In 2021, the Global College of PME created a process for the piloting of innovative strategies/technologies.

The intent was to test and refine strategies that could be scaled across our programs.
Ongoing and Future Work

• Operationalization of pilot process into a more standardized format
• Develop organizational expertise in the listed domains of learning engineering
• Modification of instructional design processes with an eye towards alignment with learning engineering
• Close the gap in instrumentation: Shift away from use of custom surveys and towards feature engineering in our learning tools
Questions?
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