A Bird's-Eye View of Learner Preferences in STEM MOOCs Using Topic Modeling

Abigail Gentry†† Gaurav Nanda†, Kerrie A. Douglas†

††School of Materials Engineering †School of Engineering Education, Purdue University

PURDUE UNIVERSITY

The Problem

There is little understanding of Massive Open Online Courses (MOOCs) learners and their preferences in different subject areas. Do different subject areas involve different learning styles and associated challenges?

Research Purpose

Understand learners' likes and dislikes by analyzing open ended post-course surveys from STEM MOOCs

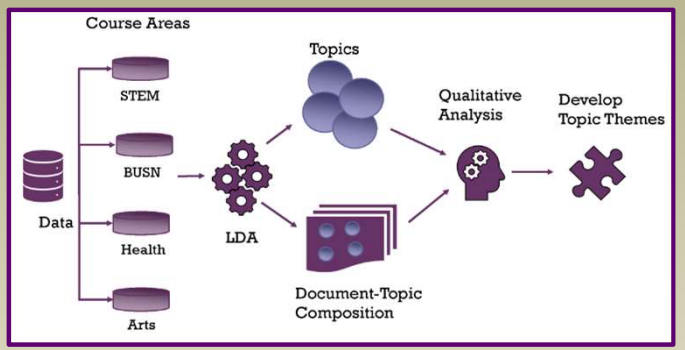
Approach

- Analyzed open-ended learner feedback for three post-survey questions:
  - Which part of the course you liked most and why?
  - Which part of the course you disliked most and why?
  - How could the course be improved?
- Post-course survey data was provided by FutureLearn
- Used Latent Dirichlet Allocation (LDA) topic modeling and qualitative analysis

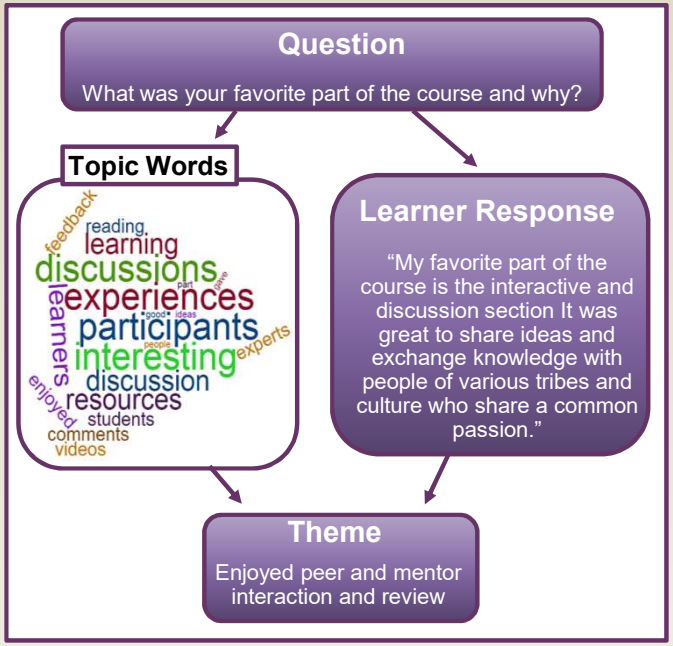
Data

Study Area	Number of Courses	Number of Responses
STEM	**110**	**8100**
Arts	193	51000
Business and Law	147	16600
Health	125	42260

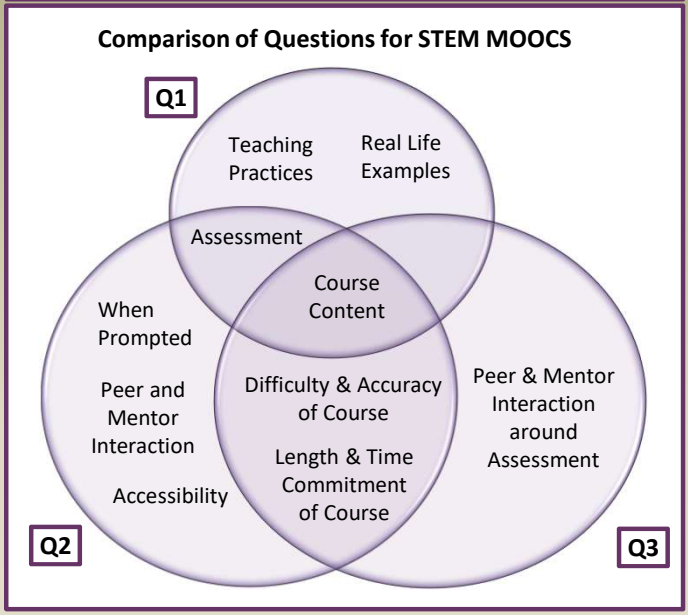
Method



Example



Results



*Interior Labels are themes

Conclusions & Implications

- Our study identified STEM MOOC learners' likes and dislikes using LDA topic modeling and qualitative analysis
- Learners enjoyed course content such as real life examples and course assessment
- Learners wanted improvement on the peer and mentor interaction both around content and assessment
- Findings from this study can be used by MOOC platforms and educators to improve learning experience

National Science Foundation This work was made possible by the U.S. National Science Foundation (NSF) (PRIME #1544259). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of NSF.

FutureLearn The authors would like to thank FutureLearn for the data.