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

Method
Identified initial theme from top words
Examined top 100 responses
Updated themes with new aspects
Checked if the theme agreed with response

Example
Question
What was your favorite part of the course and why?

Learner Response
“My favorite part of the course is the interactive and discussion section. It was great to share ideas and exchange knowledge with people of various tribes and culture who share a common passion.”

Topic Words

Theme
Enjoyed peer and mentor interaction and review

Data

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<thead>
<tr>
<th>Study Area</th>
<th>Number of Courses</th>
<th>Number of Responses</th>
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<tbody>
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Comparison of Questions for STEM MOOCS

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<tr>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
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</thead>
<tbody>
<tr>
<td>Teaching Practices</td>
<td>Real Life Examples</td>
<td>Difficulty &amp; Accuracy of Course</td>
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<tr>
<td>Assessment</td>
<td>Course Content</td>
<td>Peer &amp; Mentor Interaction around Assessment</td>
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<td>When Prompted</td>
<td>Peer and Mentor Interaction</td>
<td>Length &amp; Time Commitment of Course</td>
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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

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