Should Your MOOC Forum Use a Reputation System?

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Outline

• Motivation and Background
• MOOC Forums, Reputation Systems
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• Experimental Setup
  • Randomized controlled study, MOOC integration
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  • MOOC Forums, Reputation Systems

• Experimental Setup
  • Randomized controlled study, MOOC integration

• Results
  • Better forum metrics, but no significant impact on student outcomes like grades
  • Forum use correlated with better student outcomes
MOOC Forums

• Dominant form of student interaction and support in MOOCs today
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• Dominant form of student interaction and support in MOOCs today
• Particularly in technical classes, used primarily for answering questions
• Administrative, particular quiz problems, concepts etc.
Reputation Systems

• Used by successful Q&A forums on the web
  • StackOverflow
  • Yahoo! Answers
Reputation Systems

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  • StackOverflow
  • Yahoo! Answers

• Students have a public numeric reputation

• Students receive points when others upvote their questions and/or responses
Experimental Setup

- Deployed in a single software engineering MOOC on edX
- Randomized controlled trial
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- Deployed in a single software engineering MOOC on edX
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  - Two independent forums
- Same software, different reputation features enabled
Experimental Setup

• Deployed in a single software engineering MOOC on edX
• Randomized controlled trial
• Two independent forums
• Same software, different reputation features enabled
• External website linked from edX
• Authenticated using edX OpenID
Results: Improved forum metrics

- Faster response times
- Mean of 59 min vs. 2hr20min
Results: Improved forum metrics

- Faster response times
  - Mean of 59 min vs. 2hr20min
- More responses per post
  - Mean of 3.5 vs. 2.4 responses
Results: No significant difference in student outcomes

- Grades
- Retention/Attrition
Results: No significant difference in student outcomes

- Grades
- Retention/Attrition
- Rovai’s Sense of Community
  - 20-question survey measuring how much student feels like “I belong to a community that I can trust and depend on”
Results: Forum use **correlated** with better student outcomes

- Grades

<table>
<thead>
<tr>
<th>Assessment</th>
<th># forum users, median</th>
<th># non-forum users, median</th>
<th>U</th>
<th>Significance</th>
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<tbody>
<tr>
<td>HW1</td>
<td>737</td>
<td>700</td>
<td>60099</td>
<td>( p &lt; 0.001 )</td>
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<tr>
<td>HW2</td>
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<td>300</td>
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</tbody>
</table>
Results: Forum use correlated with better student outcomes

- Grades
- Retention
  - Median 39 of 42 days, vs. 19 of 42
Results: Reputation System Decreases Appeals for Help

• Example of analysis based on post content
• Theory: no need to appeal for help if system rewards helpers
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• Looked for posts containing appeals for help
  • appreciate, help, anyone, anybody, somebody, someone, thank
  • Three independent raters rated as appeal for help or not ($\kappa = 0.80$)
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• Theory: no need to appeal for help if system rewards helpers
• Looked for posts containing appeals for help
  • appreciate, help, anyone, anybody, somebody, someone, thank
  • Three independent raters rated as appeal for help or not ($\kappa = 0.80$)
• More appeals for help in forum without reputation system
  • 7.3% of posts vs. 2.9%
  • 5.6% of users vs. 3.5%
Questions?