How employment constrains participation in MOOCs?

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Motivation

- Investigating the influence of occupation on time management and engagement
- • High ratio of employed participants in MOOC (51% in this study)
- • Design insights for courses targeted to employed audience.

Engagement and Achievement

- Are employed participants more likely to engage in the course? YES
- Employed participants are more likely to engage in the course. Students are most likely to drop out ($\chi^2 = 29, p < .01$)
- Do employed participants have higher achievement level? YES
- Employed participants on average achieved a higher grade compared to students (70 vs. 63, $F[1, 810] = 3.8, p = 0.05$)

Timing Patterns

- Do employed participant have different weekly pattern of activity? YES
  - Employed participants are more active during weekend and least active on Friday.
  - Part-time participants are more active during weekdays.
  - All users have high activity level on Sunday and lecture release day (Monday)

- Do employed participants have different time distribution of activities? YES
  - Employed participants have activity peak on evening hours of working days (Monday-Thursday).
  - Activity peak time shifts to afternoon hours on weekends.
  - Part-time participants are more active during midday.
  - Students are most active group during night hours.

Dataset

- Three offerings of "Functional Programming Principles" by Coursera.
- Event types
  - Forum activity (view, post, vote)
  - Video play
- User categories
  - Full-time employed: 702
  - Full-time student: 110
  - Part-time activity: 66

Forum Participation

- Are employed participants more engaged in forum? NO
- Part-time participants are significantly more active in forum (87 vs. 51, $W$)
- Do employed participants write shorter/more messages? NO
- Part-time participants had significantly more and longer forum posts ($t = -2.21, df = 441, p = 0.02$)

Predicting Employment Status

- To what extent can we predict user’s employment status based on derived features?

<table>
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<tr>
<th>Model (CARET method)</th>
<th>Parameter(s)</th>
<th>Accuracy</th>
<th>$\kappa$</th>
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Implications

- Choose lecture release day depending on target audience.
- Choose activities convenient for commute time.
- Choose accurate timing for communication with users.
- Include temporal activity indicators in predictive models.

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