How Do Mixed Teaching Teams Influence Learning in IT MOOCs?

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The Aspects of Gender in IT MOOCs

"Even though the hard sciences and education overall have become more welcoming toward females, social biases against women’s ‘abilities’ in the STEM fields continue to exist and negatively affect their professional development and their judgement of others" [Reis]

Could new formats of further education be a chance for those underrepresented groups?

+ Promising mix of structure & flexibility
+ No entrance criteria
+ Gender seems to go in the background
  - Female instructors & participants are still a minority in IT MOOCs

→ Identification of influencing factors to facilitate female contribution & attendance in digitally supported learning
Mixed Teaching Teams as a Success Factor of IT MOOCs?

In what way do mixed teaching teams influence IT MOOCs in regard to

- the proportion of female learners?
- participation in the discussion forum?
- success rates?

→ Comparison of 2 identical MOOCs about blockchain with a mixed teaching team & a male teacher

Chart 3

Mixed Teaching Teams in IT MOOCs
Catrina John
Hypotheses

In MOOCs with at least one female instructor...

**H1** more women participate,

**H2** a higher proportion of women participate more intensively in the discussion forum,

**H3** a higher proportion of women complete the MOOC

... than in courses with only male facilitators.

**Focus:** participants enrolled in both iterations of the MOOC with different teaching team constellations
Related Work: Collaborative Teaching

- Appreciates different abilities
- Depends on teachers’ positive social interaction
- Time consuming
- Self-selected teaching teams: shared responsibility, ≠ higher quality
- Effective cooperation in gender-mixed teams
- Heterogeneous teams in tenure: less supportive

Impact of mixed teaching teams on learning quality & outcomes in a massive open online learning context scarcely analyzed
Data & Research Methodology

2 MOOCs on blockchain with 14,000+ enrollments:
1. Male professor & female research associate  
2. Male teacher

Descriptive & multivariate research methods
Analysis of participants’ learning data & outcomes (ANOVA)
Accompanying survey data
Results & Findings
Female learners &
the gender of the teaching team

Against our expectation

17% (1,500) women in the course taught by a mixed teaching
< 21% (956) women in the course taught by a male teacher
21% (337) female first-time attendees in the course held by
the mixed teaching team < 23% female first-time participants
(91) in the course of the male teacher

→ Facilitators’ gender ≠ a guarantee for a high amount &
proportion of female participants
→ Different activation potentials for male & female learners
Communication in the discussion forum by gender

Women post fewer questions, answers & comments than men
Under a male teacher women open on average less discussion threads than men
Women profit from the relative anonymity & additional time to formulate answers
Success rates by gender of the teaching team & the participants

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mixed teaching team</th>
<th></th>
<th>Male teacher</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male participants</td>
<td>Female</td>
<td>Male participants</td>
</tr>
<tr>
<td>Items visited</td>
<td>55</td>
<td>&lt; 57%</td>
<td>66</td>
<td>&lt; 73%</td>
</tr>
<tr>
<td>Completed</td>
<td>36</td>
<td>&lt; 40%</td>
<td>38</td>
<td>&lt; 48%</td>
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<tr>
<td>Points</td>
<td>23</td>
<td>&lt; 26%</td>
<td>25</td>
<td>&lt; 31%</td>
</tr>
<tr>
<td>Record of Achievement</td>
<td>25</td>
<td>&lt; 27%</td>
<td>31</td>
<td>&lt; 38%</td>
</tr>
<tr>
<td>Top 5, top 10 &amp; top 20%</td>
<td>5</td>
<td>&lt; 6%</td>
<td>7</td>
<td>&lt; 9%</td>
</tr>
</tbody>
</table>

Chart 10
Participation & success of 1,434 learners enrolled in both courses (83% men, 16% women)

Mixed teaching team

- Participants’ willingness to communicate (sig.), especially for female learners to open discussion threads
- Items visited: 65 > 56% (sig.)
- Points received: 45 > 35% (sig.)
Learners’ active participation & achievement by gender of the teaching team ($N=1,414$)
Participants’ evaluations of courses with different teaching team constellations (N=1,844)

Quality of content

<table>
<thead>
<tr>
<th>Quality</th>
<th>Mixed teaching team (female participants)</th>
<th>Mixed teaching team (male participants)</th>
<th>Male teacher (female participants)</th>
<th>Male teacher (male participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Good</td>
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<td></td>
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<tr>
<td>Undecided</td>
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<tr>
<td>Bad</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Very bad</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Percentage of participants

0 10 20 30 40 50 60
Discussion, Conclusion & Future Work

Heterogeneous teaching teams: fundamental for inclusive further education

Mixed teaching teams: positive effects on active participation & learning outcomes & reduce differences between female & male participants in online courses

Limitations

- Self-appointed sample
- Voluntary socio-demographic profile information

Future research

Behavior of the teaching team by gender