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MOOC design analysis – Constructive alignment, interactions, task complexity, formative assessment & feedback

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The poster presents our approach of analyzing the scalability of educational design in Massive Open Online Courses (MOOCs). This study takes place in the 1st year of this PhD project and will focus on the meso/course level of MOOCs.

Project Goals

- Getting insight into common & best practices of MOOC design elements
- Getting to know which educational methods, means for assessment, feedback and interaction possibilities are able to scale
- Improving MOOC design

Relevance

MOOCs hold the potential of providing education to the mass. However the challenge lies in supporting large numbers of students, providing them with feedback and (formative) assessment).

The educational design of MOOCs gets challenged by large numbers of students.

What are the possibilities of providing complex, interactive learning experiences rather than pure knowledge transfer?

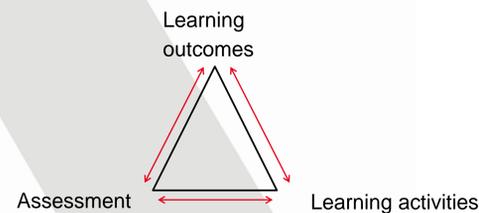
Method

- Theoretical background and problem statement are based on literature
- Case studies of MOOCs are done and based on design elements stated as relevant in the literature
- (as a start) 5 MOOCs were analysed, sample of different knowledge domains: Computer Science, Health & Medicine, Science, Education & Technology and Personal Development

Theoretical background

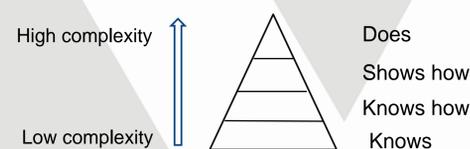
We focused on four educational design criteria:

1. Constructive alignment (Biggs, 2003)



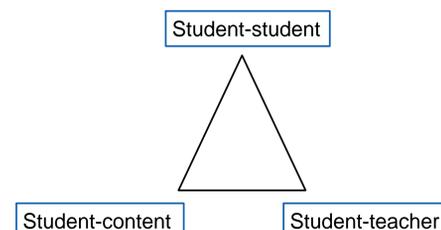
- Alignment between learning outcomes, assessment and learning activities ensures design quality

2. Task complexity (Miller, 1990)



- Are MOOCs able to offer learning activities and assessment at various complexity levels?
- At which complexity levels do MOOCs offer learning activities, formative assessment & feedback?

3. Interaction (Anderson, 2002)



- These three interaction types are analysed in MOOCs
- Due to large numbers of students, student-teacher interaction is limited
- How can the educational design & technology enable/enhance interactive learning at large scale?

4. Formative assessment & feedback (Hattie & Timperley, 2007)

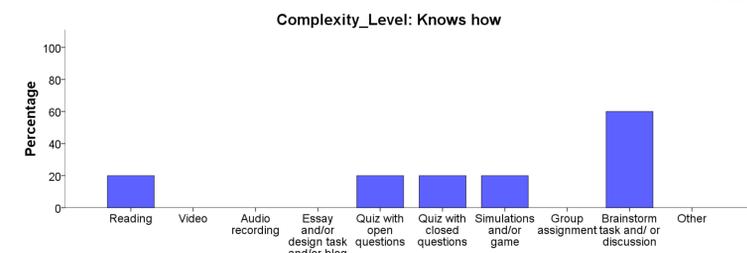
- Three types of feedback can be distinguished: feed-up, feedback, feedforward
- Feedback can be given by different agents, at different moments
- Formative assessment can be provided in several ways

Preliminary descriptive results

1. Constructive alignment

- Constructive alignment was found in two out of three MOOC designs
- Three MOOCs did not state learning goals

2. Task complexity



Extract of analysis:

- Most learning activities took place at the 'knows' and 'knows how' complexity level

3. Interaction

- Student-student interaction occurred in 3 out of 5 MOOCs (peer feedback, discussion forum)
- Student-content interaction occurred in 3 out of the 5 MOOCs (automated feedback, web tool simulation)
- Student-teacher interaction occurred in 2 out of 5 MOOCs (answering questions, giving examples)

4. Formative assessment & feedback

- Students received in all MOOCs formative feedback, mostly after the learning activities were completed
- Feedback was provided mostly by peers and by the learning system (automated response)
- Teachers did not provide any type of feedback in these MOOCs

Discussion

- We target a sample of 30 MOOCs in future analysis
- Scalable best practice elements of MOOC design will be examined in depth

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