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Engagement in MOOCs Discussion Forums: Dimensions and Indicators

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Abstract: This poster aims to clarify the notion of engagement in MOOCs discussion forums as perceived by students. The analysis of the 11 semi-structured interviews conducted with MOOC students highlights three main findings. First, engagement in MOOCs forums as a construct with four dimensions (behavioral, affective, cognitive and social). Secondly, a clear distinction between these dimensions using the related indicators we identified. Finally, the dynamic aspect of engagement. These results provide a socially and contextually grounded definition of engagement in MOOCs forums. That ensures the development of reliable and essential tools for measuring it and observing its quality over time.

Background and issues of the project

This study is part of a larger project that focuses on the concept of students' engagement in the context of discussion forums in MOOCs (Massive Open Online Courses). Our interest in this topic is supported by several studies, which show that students who frequently interact with others in forums are those who are the most successful in MOOCs (e.g., Poellhuber & al., 2019). Thus, we assume that by encouraging students' engagement in MOOCs forums, it would be possible to improve completion rates, which vary between 5 and 10%. However, engagement is studied mainly as a general phenomenon in distance learning and MOOCs (Molinari & al., 2016) and there is still little knowledge of the specificity of engagement in MOOCs forums, which are characterized by low interactions and participation rates reaching 3% (Margaryan & al., 2015). Moreover, research focused only on a few forms of engagement such as behavioral engagement, generally with indicators that are not commonly shared by researchers. It is, therefore, necessary to define more clearly, what it means to be engaged and disengaged in a MOOC forum, to identify the different dimensions of engagement and associated indicators.

Theoretical framework

We refer to the work of Fredricks & al. (2016) who define engagement as a construct with four interdependent dimensions, influenced by the students' perceptions of themselves and their learning environment. First, the behavioral dimension refers to the directly observable manifestations of learners' engagement in terms of participation, presence of positive behavior and absence of disruptive behavior during learning activities. Behavioral indicators of engagement in MOOCs forums may be the number of questions and answers posted (Onah & al., 2014). Cognitive engagement is a dimension that refers to the quality of the learning processes and strategies that learners implement. This dimension can be assessed based on the use of learning and self-regulatory strategies and also on the mental time and effort to implement these strategies. In MOOCs forums, the use of management strategies such as justifying answers to questions with relevant resources have been widely used as indicators of cognitive engagement (Quentin & Condé, 2016). Third, we have affective engagement that refers to interest and value placed on learning tasks as well as to positive and negative emotions experienced when completing them. Research mainly used positive (e.g., altruism for Cheng, 2014) and negative emotions as indicators to explore emotional engagement in MOOCs. There are still few studies that focus on such type of engagement in MOOCs forums. Fourth, social engagement is the last dimension studied by Fredricks and colleagues. Based on Molinari & al. (2016), we assume that students are socially engaged when they jointly try to both maintain positive interpersonal relationships and build upon each other's contributions in a MOOC forum.

Method and data analysis

Based on this theoretical framework, our aim was to investigate the dimensions and indicators of students' engagement in MOOCs forums. To that end, we carried out 11 semi-structured individual interviews (45-60 minutes) with certified students of the MOOC "*Introduction aux droits de l'Homme"* proposed by the University of Geneva on Coursera. Participants, who volunteered to be part of our study, were gradually invited to take part in the interviews until we judged that (1) new participants would no longer add significant new data to the description of the studied phenomenon (theoretical saturation) and that (2) the topics obtained offered a sufficient explanatory framework with regard to the data collected (theoretical sufficiency). Only men agreed to participate in these in-depth interviews. An interview guide was developed based on that one used in Fredricks & al. (2016) and contained the following questions: (1) what does it mean for you to be engaged and disengaged in a MOOC

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forum?; (2) what do students do when they are engaged and disengaged in a forum?; (3) In your opinion, what influences engagement and disengagement in a forum? In the present paper, we report on the answers to the first two questions. There were two main steps in the analysis. First, we have appropriated the content of the answers by replaying the audio recordings, retaining the richest interviews, transcribing the selected interviews, choosing the units of analysis and drawing up a provisional coding manual. Second, the transcripts were coded and the codes were grouped into categories anchored in the conceptual framework of engagement and, finally, the results were interpreted. The results are the perceptions of adult respondents (8/11 over the age of 30) from 10 countries, postsecondary level and living in urban African (6/11), Latin American (3/11) and Haitian (2/11) areas.

Results and future work

The results show that indicators used by students to conceptualize engagement in MOOCs forums may be categorized into the four dimensions identified in the theoretical framework: behavioral, cognitive, affective and social. Behavioral indicators (e.g., asking questions and answering to questions from others; providing others with quick answers) allow for direct observations of engagement because they correspond to the traces left by students in the forums. Then, emotional indicators (e.g., being happy to participate in a forum; being interested in the topics of the discussions) relates to the interest and value placed by students on the forum discussions as well as the emotional intensity of the discussions. Besides this, three types of cognitive indicators are proposed. The first type refers to the use of learning strategies, in particular to organization and elaboration strategies (e.g., synthesizing discussions; arguing and clarifying answers to questions) while the second type refers to self-regulatory strategies including metacognitive (e.g., trying to understand one's mistakes during exchanges) and management strategies (e.g., doing further research on the topic addressed by the posted question). The third type of indicators refers to time needed to implement those cognitive strategies (e.g., dedicating enough time to participate in forum). Finally, social engagement is described, on the one hand, by relational indicators (e.g. commenting on the others' ideas and opinions with respect and empathy) in order to maintain positive relationships in discussion forums. On the other hand, by socio-cognitive indicators (e.g., combining one's own ideas with those of others to answer questions that seem difficult) related to the students' attempt to engage in high transactive social modes.

What about disengagement? Disengagement is described by indicators reflecting a lack of engagement at the behavioral (e.g., not asking and even answering questions), cognitive (e.g., not using the forum to understand a concept) and social (e.g., not discussing ideas with others, not helping others solve problems) levels. Students also provided indicators related to low quality or low level of engagement such as allocating little time to participation in the forum discussions, answering in a superficial way to questions, answering questions without seeking more information about the topic at hand or making comments that may offend the others. Moreover, emotions expressed to describe disengagement (e.g., fear, disinterest, dissatisfaction, frustration) are opposed to those given for emotional engagement. All these results suggest that engagement in MOOC forums is a dynamic phenomenon, as it can be absent, low or high among students, and also can fluctuate throughout the discussions.

In our future work, we will use the indicators we have identified to develop an assessment tool able to measure the fluctuation of students' engagement in MOOCs forums. We will also identify factors that may explain this fluctuation. Our project's results will help to identify those students who are most likely to disengage from MOOCs forums activities and to design more targeted pedagogical interventions to strengthen their engagement.

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