MOOCs are More Social than You Believe

Authors

Jan Blom
jan.blom@epfl.ch

Himanshu Verma
himanshu.verma@epfl.ch

Nan Li
nan.li@epfl.ch

Afroditi Skevi
skevi_afroditi@hotmail.com

Pierre Dillenbourg
Pierre.Dillenbourg@epfl.ch

École Polytechnique
Fédérale de Lausanne
Center for Digital Education

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We report about two ongoing studies, which challenge the individualistic model of MOOC based learning. MOOC usage is embedded in the context of collocated study groups. The ability to pause a lecture and discuss its contents with peers creates learning opportunities. Learning by explaining has been proved effective through many empirical studies. We investigate the best way to configure these study groups with different tools.

1. Collocated MOOC Based Learning

Imagine a lecture theatre. A student stands up and interrupts the teacher: "Excuse me sir, could you pause for three minutes, while I discuss with my neighbor what you just said?" What can hardly occur in normal lectures, takes place spontaneously, when watching video recordings of these lectures. Participants in MOOC study groups are enthusiastic about the collaborative setup. This paper reports about ongoing research around collocated MOOC based learning.

The rapid uptake of MOOCs has taken both the academic community as well as media by surprise. As the number of students participating in MOOC courses has reached a truly massive scale, locally based subpopulations have become a reality in many parts of the world. This is partially explained by the scale of this form of online learning: as the most frequently attended MOOC courses can attract more than 100,000 students, geographic clusters are likely to emerge. A top-down force is also at play. An increasing number of universities include MOOC based learning as part of their ensemble of teaching methods. For instance, at the time of writing this paper, École Polytechnique Fédérale de Lausanne offered a total of four MOOCs for its students, reaching a total of 150,000 students from EPFL and beyond. Any EPFL MOOC is hence followed by two sets of students: between 50 and 300 'internal' students, who are on campus, and many more remote students, following the course online. In addition to obtaining the instructional content through weekly MOOC lectures, the internal students are required to attend exercise sessions and to engage in other forms of small scale interactions with the teaching staff. Here, we report about ongoing research in regard to the internal students, following online based tuition in a collocated fashion.

It is common to differentiate between cMOOCs and xMOOCs. The former type is associated with the connectivist learning theory (Siemens, 2005), according to which knowledge is distributed across the Web and people's engagement with it constitutes learning. Especially aggregation, relation, creation, and sharing are seen vital (Kop, 2011). xMOOCs, on the other hand, are based on a more individualistic model of learning: geographically distributed individual learners stream the instructional video and interact with the interlaced quizzes in a solo mode. Actually, xMOOCs have spontaneously evolved to become more social through

emergence of services such as MeetUp to facilitate physical meetings around MOOC courses, and through online forums allowing course attendees to exchange information. We went one step further by placing xMOOC usage in the context of weekly study groups for 4-5 of our internal students.

In the ongoing studies, a total of 12 groups of students watch the weekly MOOC episodes together and rehearse the material jointly. We have been observing the use of the collaborative MOOC systems in the time span of several weeks. Participants use text books and instructional video content in an individual manner as well as a shared note taking tool and do joint problem solving in respect to the interlaced quizzes. Observational techniques as well as log files captured by the system allow us to study both individual uses and team interactions. The figure below illustrates a scenario where the study group members watch MOOC video through a beamer. The video player is running on an iPad, which is placed on the table and controlled by all group members.
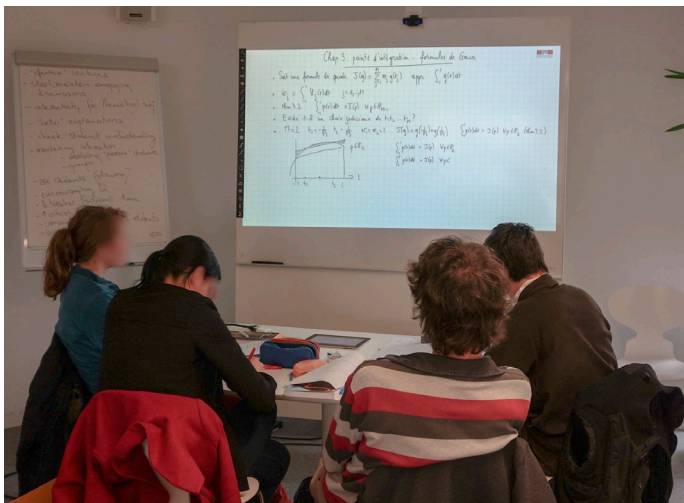

Figure 1: A group of students engaged in collaborative MOOC usage.

We investigate different collaborative conditions through innovating novel UI features for xMOOC based learning. But across all conditions, students are positive about this co-watching experience. The interim findings suggest that islands of collaboration emerge during the sessions. Even if the MOOC video is played back individualistically, as would be the case in some of the conditions, the students regularly pause the video to ask for clarifications from a peer. The interlaced quizzes are generally solved together, as a joint exercise. Interviews with the study groups have revealed that the students prefer this form of MOOC usage over the individual format because of

several reasons. The peers find support from one another for solving the tasks and furthermore, several students regard the social format as being natural because they are already used to the idea of engaging in study group practices.

Some students participating in the study-groups have also expressed a preference for a blended learning style. That is, the university courses could combine traditional lectures, which have the benefit of a physical presence of the professor, with collaborative MOOC study group sessions – both within the same course. The peer tutoring - in majority of the groups - seems to handle effectively both cognitive and regulation issues. Furthermore, for the less bold students, who usually hesitate to set a question to the professor, their group-mates most of the time facilitate their way to knowledge construction. If not, the conventional lecture will guarantee an answer to their question.

The students' enthusiasm is not a surprise for those who have been working in computer-supported collaborative learning (CSCL). Verbal interactions enhance learning. About two decades ago, the key principle of computer-based education was individualization, i.e., the adaptation of learning activities to the specific needs of each learner. However, since schools usually had more kids than computers, a common practice was to have students share a computer. In theory, this should have reduced learning gains, since the individualization principle was broken. Actually, the opposite occurred. The learners sitting in front of the same computer got engaged in rich verbal interactions, which increased learning gains. The 'loss' due to the lack of individual adaptation was more than compensated by the 'gains' due to verbal elaboration of educational materials. This led to the rise of CSCL. A similar situation is emerging today, in respect to MOOCs.

In addition to the effect of verbal interactions, these study groups provide the advantage of social facilitation: it is easier to sustain heavy effort associated with the course material in groups than individually - humans are social animals - and the MOOCs we are using at EPFL are highly demanding, requiring seven to ten working hours each week.

Of course, MOOCs are neither social nor individual, but both. Some students will prefer to work alone or may only follow MOOCs individually because of life constraints; other students will take advantage of team learning. Our point is that the distinction between cMOOCs and xMOOCs is too simple. The extent to which a MOOC is social or not depends less upon the

material produced than upon the way it is orchestrated on our campuses.

Let us make clear that this paper has been written in the middle of the experiments, based on first observations. The interim findings need to be confirmed by conducting analysis of the log files, the video recordings of team interactions and the questionnaires answers.

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Email: editorialteam@elearningeuropa.info
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