

Collaborative learning in a three MOOCs course

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Abstract. Research on collaborative learning focuses on its effects on persistence and performance, on the "conditions" "under which collaborative learning is effective" and on the "interactions" that occur during collaboration. Here we study collaborative learning in a three MOOCs course on corporate finance, certified by a leading French business school. Through an online survey and interviews, we found that a significant portion of the course participants worked in groups. While the majority of them did so during all three MOOCs, some only worked in groups during one or two MOOCs or even only during the revision phase before the course final exam. In the majority of cases, group work was directed towards the preparation of intermediate evaluations (case studies). Most of the time, participants did not communicate on the course platform, but they used other tools such as WhatsApp, e-mails or videoconferences. Some of them also held physical meetings. With regard to the use of the forum, those who worked in groups during the three MOOCs used it more than the other participants.

Keywords: Collaborative learning, MOOCs, Group work, Forum.

1 Introduction

Collaborative learning has been a topic of interest for research for many years. The research focuses on the "effect" of collaborative learning on persistence [1] on performance, on the "conditions" "under which collaborative learning is efficient" but also on the "interactions" occurring during collaboration [2]. Regarding interactions, some studies focus on team work in a virtual environment [3, 4]. In this type of environment, asynchronous tools, such as the forum, are mainly used. However, people may face difficulties using this kind of tools: perception of dehumanized interactions; feelings of interacting with strangers due to the use of aliases; feelings of vulnerability and fear to get wrong [5]. Other ways of interacting outside the course platform are then considered: face-to-face meetings [6], exchanges by telephone or videoconference, or on social networks [7].

In this paper, we consider collaborative learning as a strategy adopted by participants during a three MOOCs course provided by a leading French business school. We aim to investigate whether or not people collaborate online or off-line on learning tasks and how they do so. This work is a part of a PHD research about strategies adopted by participants during the three MOOCs course studied here.

2 The three MOOCs course of a leading French business school

The course studied is provided by a leading French business school (which also provides MOOCs on Coursera) in partnership with a training institution. It is based on a corporate finance textbook written by one of the teacher of this school. The teacher himself leads the course. He is mainly assisted by two tutors: the first one provides technical and pedagogical support while the other provides didactic support. This didactic tutor also took the first edition of the course as a participant. The course provides a baseline set of knowledge for students, employees and employers in three key areas of Corporate Finance: Financial Analysis; Corporate Valuation; Investment & Funding Decisions. Each MOOC focuses on one of those three areas.

To be certified, all three MOOCs must be validated with a case study. Then, participants must take an exam in a physical center (Pearson VUE).

The course has been given six times already and a seventh edition is underway. The number of participants varies between 400 and 700. Most of them have a professional activity (about three quarters), but some are initial training students. We noticed that their number grew during the sixth and seventh editions of the course (22% and 17% respectively). A great majority of the participants live in France, but many others come from French speaking countries of Africa (Senegal, Cameroun, Ivory Coast, Morocco...). The other ones live in Europe, Asia, America and in the Middle East.

3 Data collection : Interviews and online survey

In order to get an overview of the course and of participants' motivations and behaviors we started by interviewing the two tutors. Both mentioned the establishment of working groups within the course. The didactic tutor shared with us his experience as both a participant and a tutor. Beyond these interviews, we had frequent exchanges with these two tutors, which improved our knowledge on the subjects mentioned above (evolution of the course, participants' behavior...).

Subsequently, we conducted semi-directive interviews with four former participants: an initial training student, a woman creating her own company, a man following the program as part of an employment protection plan and finally a former general manager (who was changing his job). All four of them worked in groups during at least one of the three MOOCs. Thus, we asked them about the creation of their group and the interactions they had with group members.

All the interviews have been transcribed. The software Nvivo is used to analyze them. The analysis is ongoing.

In order to have a company vision, we also conducted a non-directive interview with a training manager who had enrolled several collaborators in the course. As we were not allowed to record the interview this time, we only took notes during the conversation. A short report was written afterwards.

We also had the opportunity to participate in events where we met former participants with whom we had informal exchanges. Furthermore, during one of those

events, we had the chance to listen to the testimony of another training manager who enrolled several collaborators in the course.

Relying on these testimonies, we created an online survey, to collect some trends on the different research topics. Among these topics were group work and the use of synchronous and asynchronous communication tools (13 questions). This survey was created step by step with the help and feedback of the two tutors. Out of ten former participants contacted, seven tested the questionnaire.

Regarding the dissemination we used different broadcast channels: a post on the LinkedIn group of the course; e-mailings to all the former participants (around 2660 persons) in our name and on behalf of the training institution; contact on LinkedIn with the people registered in the course group.

The Excel and R software are used to analyze the data (427 complete answers).

4 First Results : Group work and forum use

Participants are encouraged to work in group during the course. Even though not all of them choose to follow this advice, nearly half of them do so (fig. 1. a). However, group work requires organization on the part of the participants. As a matter of facts, it may be difficult for people to take part in a working group while managing their professional and private life and attending the course in the meantime. Indeed, most of the course attendees have a professional activity. Consequently, some people we met explained that since they could not be sure of their schedule, they decided not to work in group.

While most of the former participants who worked in groups did so during the three MOOCs, others worked in groups only during one or two MOOCs or only during the revision period (fig. 1. b). For instance, a former participant explained that during his internship he had worked with one of his colleague on the first MOOC. Their collaboration ended when he returned to university since they were not taking the course at the same pace. In contrast, another man (49 years old, who was looking for a job during the course) told us he had worked alone during the first two MOOCs but with someone else during the third. We assume his choice to do some group work has been motivated by the fact he validated the second MOOC at catch-up.

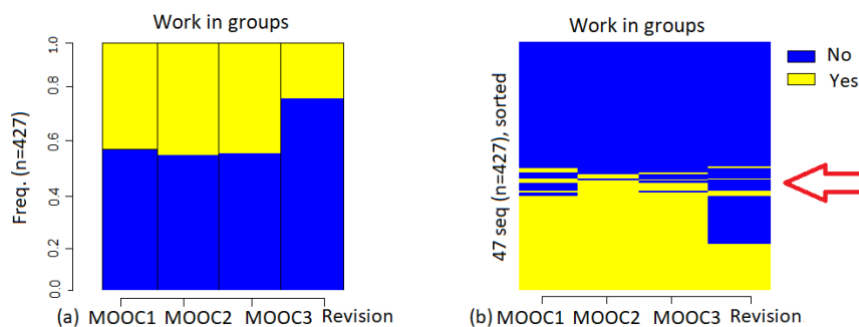


Fig. 1. (a) Proportions of people who worked or not in groups during each step of the course
(b) Path of each participant in the course regarding participation to group work

Many reasons for working in groups were discussed during the interviews: improving learning, achieving good results, maintaining motivation and perseverance, building a professional network or at least meeting people from different backgrounds.

In order to determine the reasons behind group work, we questioned former participants about the topics covered in their group, via the online survey. It appears that 94% of the people who worked in groups during the MOOCs prepared the case studies with their team, while the number of people who prepared the evaluation questionnaires (66%) and exercises (58%) and discussed the course content (72%) with their teammates is lower.

This high proportion of people who prepared the case studies in groups is probably due to the fact this exercise is a problem-based learning opportunity. It also ensures better results. Since the computer system informs for each question whether the answers given are right or wrong, 69% of the participants who worked in groups said they had already waited for another team member to answer a question on the platform before doing so. Hence, people capitalize on the group to obtain good results.

To prepare case studies, some people held face-to-face meetings. Some meetings were organized by participants themselves or by former participants in Africa. Others were organized by the training institution that delivers the course in partnership with the business school, on its premises. The training manager, we interviewed, told us his collaborators worked together each Friday afternoon, not only to prepare case studies. Then, Skype sessions were often organized by participants to discuss the case studies. Three of the five interviewees (including the didactic tutor) organized this type of session. During these sessions, participants compared their answers and discussed more fully when they did not all agree on an answer. A 43-year-old woman, former pharmacist who has converted to marketing and is now looking to expand her consulting business, explained that she had worked on the case studies with another woman in her group before the Skype sessions with the whole group. According to her, two other members of the group were doing the same thing. She justified this way to proceed by their gender, their age and the fact that they did not belong to the financial world. Another person we interviewed (a 55-year-old man, who was following the program as part of an employment protection plan) explained that he was only exchanging by email with his group. They agreed on a deadline by which all members were to send a file with all the justified answers and, if necessary, the calculations made. They then created a common file and discussed by email the issues on which they disagreed.

Beyond the case studies preparation, one interviewee (a 55-year-old man, who was leaving a position as general manager of a large group, during the course) stated that his group organized Skype sessions every Sunday evening to discuss the course content and possibly clarify some points. They also exchanged by e-mail. The woman mentioned above explained that in her group, in addition to sending emails, they also used a WhatsApp group. This tool was mainly used to check in with teammates, but also to ask questions occasionally. In this group some, but not all, consulted the forum. Thus, when a question asked on the WhatsApp group had been discussed on the forum, some members of the group redirected the person who asked it to the forum. On the other hand, if the question had not been discussed on the forum and no

one knew how to answer it, one of the team members went on his own on the forum to ask it.

This point made us wonder about the use of the forum depending on whether people worked in groups during the course or not. Our hypothesis was that people who worked in groups were less likely to use the forum than others. Indeed, with the exception of the didactic tutor, the interviewees who worked in groups told us that they had almost never written on the forum, even though some of them consulted it from time to time. The didactic tutor, as a former participant, admitted that he had probably asked more questions in his group than on the forum, although he often answered questions from his peers on the forum.

To investigate the use of the forum, we decided to distinguish the participants according to the number of MOOCs during which they worked in groups. Then, we considered both the consultation and the participation in the forum.

Table 1. Frequency of forum consultation based on the number of MOOCs in which people worked in groups

Group work	Never	Once a month	Several time in a month	Once a week	Several time in a week
None (N=216)	18%	8%	25%	20%	30%
One or two MOOC(s) (N=47)	17%	13%	19%	23%	28%
The three MOOCs (N=164)	16%	8%	14%	16%	46%

Table 2. Number of messages written on the forum according to the number of MOOCs in which people worked in groups

Group work	None	1 or 2	Less than 10	More than 10
None (N=216)	34%	36%	21%	9%
One or two MOOC(s) (N=47)	40%	34%	19%	6%
The three MOOCs (N=164)	31%	29%	21%	18%

When we analyze the two tables, we see that our hypothesis is not verified. Indeed, people who worked in groups during the three MOOCs are more numerous than the ones who did not work in groups to consult the forum several times in a week. The same observation applies to the writing of more than ten messages on the forum. In contrast, people who did not work in groups are more numerous than the ones who worked in groups during the three MOOCs to consult the forum several times by month. The same observation applies to the writing of only one or two messages. It was probably the message in which people introduce themselves or messages related to technical problems. People who worked in groups for one or two MOOCs seemed more indecisive about using the forum.

These results lead us to think the people who worked in groups during the three MOOCs were generally very involved in the course, which could explain why they used the forum more than the other participants. However, this does not necessarily

tell us how the forum was used. Was it on an individual basis or to meet the group's needs?

5 Work perspective

The first results showed that some people worked in groups only during some parts of the course. The first interviews and some meetings have given us some clues to understand this practice. To work in groups, we noticed, some face to face meeting sessions were organized, among others by former course participants. We can believe that a certain community related to this course exists. It also appeared to us that different synchronous and asynchronous tools were used by some participants to exchange outside the platform. This does not mean that they did not use the tools of the platform of which the forum is a part. Indeed, in our sample, those who worked in groups during the three MOOCs used the forum more than the others. In addition, some indecision about the use of the forum appeared for those who had worked in groups during only one or two MOOC(s). During the remainder of our research, the forum's role and its use will have to be reconsidered. In order to better understand all the results and to go further, we plan to adopt a comprehensive approach in the coming months by conducting interviews with selected individuals, based on their responses to the survey. In addition, we plan to conduct a content analysis on the three MOOCs forum to better understand how this tool was used.

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