ISBN: 978-989-8533-88-3 © 2019

THE DYNAMICS OF SUCCESSFUL TEAMS IN A MASSIVE OPEN ONLINE COURSE

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ABSTRACT

This paper explores the dynamics of teamwork in a team-based Massive Open Online Course. The purpose of the study is to discover patterns and characteristics of the students in teams that completed the course. Many studies have revealed that a very small percentage of students complete Massive Open Online Courses. The percentage is even smaller in MOOCs that involve peer-assessment. This study aims to give conscious advice for future MOOC students on how to complete a team-based peer-assessed MOOC by studying the dynamics of successful teams. A qualitative research method was utilized in the study. Data were collected from observing the MOOC platform and conducting interviews with successful team members and team leaders.

KEYWORDS

MOOC, Massive Open Online Course, Online learning, Team based learning, Collaborative learning, Qualitative Method

1. INTRODUCTION

Massive Open Online Courseware is an online phenomenon; which has been gaining popularity in recent years. MOOCs accommodate the connectivity of social networking, the facilitation of an acknowledged expert in a certain field of study, and a collection of free accessible online resources. The number of participants on a MOOC range from several hundred to thousand students who self-organize their engagement and participation by their learning goals, prior knowledge and participation and common interests (McAuley, Stewart, Siemens & Cormier, 2010).

MOOCs share some aspects of traditional courses such as predefined timeline and weekly topics and are facilitated by a knowledgeable expert (McAuley, Stewart, Siemens & Cormier, 2010). However, MOOCs in general, are free for everyone and only require Internet access to enroll. Moreover, they do not carry formal accreditation, although experts are expecting MOOCs to be provided for university credit in the near future (Pappano, 2012).

A survey was conducted on a MOOC provided by Dr. Agarwal from MIT; revealed interesting results. It discovered that 63 percent of students who completed Dr. Agarwal's course as well as a similar course on campus found that the MOOC was better comparatively, 36 percent found them comparable, and only 1 percent found it worse (Pappano, 2012). The U.S. Department of Education have expressed their opinion on this, in a recent study they concluded that students learning online performed, on average, better than those learning the same material through traditional face-to-face settings (Means, Toyama, Murphy, Bakia, & Jones, 2010).

1.1 Literature Review

Students engaging in MOOCs sometimes continue to use their central social platform to participate or they may use social media sites such as Facebook and Twitter to develop their discussions. Some create their own blogs and develop and maintain ties through these courses. What makes MOOCs so successful is the social aspect of it. Students negotiate with their peers, work on collaborative projects, and meet others who share their interests and skills. According to (McAuley et. al, 2010) "the network negotiated is just as important as the topic covered, if not more so. Participation in a MOOC is emergent, fragmented, diffuse, and diverse." In the

time of rising education costs and decreasing budgets and government funding, MOOCs have the potential to generate changes in both higher education and online education. Advanced online platforms such as Coursera, edX, and Udacity are already attracting millions of students from all around the world.

1.1.1 Team-based Learning

Team-based learning is an instructional strategy that encourages students to collaborate and work in groups to achieve the same goals (Brindley, Walti, & Blaschke, 2009). In a collaborative learning environment; students work together to construct their knowledge by incorporating new information and skills into a learning community. Collaboration is described as a "process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously processed or could have come to on their own. Collaboration creates a shared meaning about a process, a product, or event" (Schrage, 1990).

Team-based Learning is thought to enhance student's skills on problem solving, social interaction and communication, as well as, positive attitude toward learning, and critical thinking (Law, 2011).

1.1.2 Project-based Learning

Problem Based Learning or PBL is a model that is related to inquiry based learning and was developed by Piaget and Vygotsky respectively. PBL is a combination of cognitive and social constructivist theories and focuses on collaborative learning. It teaches students 'soft skills' as well as specific content and subject skills. Generally, PBL teaches students five skills: Solving real-life problems, efficient problem solving, independent learning, self-monitoring, and teamwork. It encourages life-long learning and does not test the skill; rather it assists in developing the skill.

1.2 Purpose of this Study

Students who enroll in MOOCs are often very diverse. They come from all around the world with different languages, backgrounds, age differences and levels of education. Hundreds to thousands of students enroll on these courses. The completion rate for MOOCs in general is usually less than 7 percent, as for MOOCs that involve peer assessment (which is the main method of assessment in the MOOC regarded in this study) it is estimated to be 4.8 percent, which is a far less completion rate than the automatic graded MOOCs (Parr, 2013). Due to the high percentage of dropouts, it is essential for students to understand how to build and maintain successful teams. This study will discover how successful groups are formed and what strategies are used to ensure successful completion of a MOOC that is taken for professional development.

The following research question guided the study: What are the strategies, characteristics and dynamics of a successful team on a Massive Open Online Course?

2. RESEARCH METHODS

The researcher performed the study on a MOOC platform offered by Stanford University. Dr. Amin Saberi and his PhD student Farnaz Ronaghi created a project called Venture Lab to offer Stanford courses for free to the public. Venture Lab has officially re-branded and re-launched as NovoEd. The platform offers many MOOC for free and focuses on collaboration and project-based and team-based learning. The platform offers many courses to the general public as well as some private courses available only to Stanford students. The NovoEd platform in general is the focus of this study. 'Technology Entrepreneurship' a course that is available to the public, is observed in more detail.

The 37,000 students (from 150 countries) initially enrolled in this course offered some information about themselves: their country, language, background, skills, etc. The platform provides information about the students and teams on the course, including assignment submissions, latest activity, team name, team rank, team members and endorsements, which are testimonials from other students that have collaborated on a project on the platform. Using this information I searched for highly achieving teams that worked together to complete the course.

The participants were four teams that have completed the 'Technology Entrepreneurship' course. Five students from these teams were interviewed. Four of them were team leaders and one student was a team member. They were all highly achieving students that have completed the online course and some have participated in other successful teams on other MOOCs. Table 1 provides more information about the participants in this study.

Table 1. Participants' Information

Team #	Psudonym	Job Title	Role in team	Gender	Major	Country	Participated in Interview
Team 1	Bob	Lecturer	Team leader	Male	Marketing	Pakistan	Yes
Team 1	Clare	IT Student	Active member	Female	Information Technology	India	Yes
Team 2	Kyle	Entrepreneur	Team leader	Male	Computer Science	United States	Yes
Team 2	Jack	Web Designer	Active member	Male	Computer Science	United States	No
Team 3	Mark	Software Engineer	Team leader	Male	Computer Science	Pakistan	Yes
Team 3	Mary	Teenager	Active member	Female	High School	China	No
Team 4	Joseph	Graduate Student	Team leader	Male	Mechatronics Engineering	Pakistan	Yes

The students were contacted through the platform messaging service as well as email. Some students were contacted on Facebook and LinkedIn and requested to participate in the study. The interviews were semi-structured. Three of the interviews were conducted virtually via Zoom, one was by email and one interview was done using the Skype chatting service. The Zoom interviews lasted approximately one hour and were all video recorded. The Skype interview also lasted approximately one hour and included many follow up questions.

The interview questions were as follows:

Q1: How did you find out about this course?
Q2: What were your reasons or incentives for taking the course?
Q3: How did you choose your team members? What was your strategy?
Q4: There are many teams that drop out, but your teams are successful what are the tips or advice that you can give other teams to be successful?
Q5: How many people were in your team at the start? and how many finished?
Q6: How many MOOCs have you taken? How many have you finished? How many MOOCs have you taken that involve teamwork and how many of them have you finished?
Q8: What was positive or negative about the course?
Q9: What was positive or negative about your team?
Q10: What are some things that you wish the team would have done better?

A qualitative research method was utilized in this study. Qualitative data are "detailed descriptions of situations, events, people, interactions, and observed behaviors; direct quotations from people about their experiences, attitudes, beliefs, and thoughts; and excerpts or entire passages from documents, correspondence, records, and case histories" (Merriam & Simpson, 1995). It focuses on the 'significance, meaning, impact, individual or collective interpretation of events' (Wragg, 2012). To obtain a better understanding of the events and happenings on the course and to give a more accurate description, two different qualitative data collection methods were used for this study including: observation and interviews.

The research question was answered by; systematically searching and organizing the interview transcripts, observation fieldnotes, and other materials gathered. A thematic analysis was conducted to code and analyze the data. The purpose of this analytical method was to synthesize data as a whole and to decide how much data supported emerging themes (Bogdan and Biklen, 2007).

3. FINDINGS

All participants' responses to interviews and field notes gathered to study their behavior were categorized into three characteristics and included competence, experience and skill, determination and intrinsic motivation. All of the interview participants demonstrated their passion for knowledge, their high ambition, and set high standards for themselves and their teams. None of the students was taking the course for credit.

There was an emerging pattern with Bob, Mark and Joseph, which was not apparent amongst the others in the study. Firstly, they were all team leaders and all from Pakistan. They all displayed a unique passion for collaborative learning and an immense interest in MOOCs. Their purpose for signing up for 'Technology Entrepreneurship' was purely due to curiosity and interest; as well as a desire to work and learn in a collaborative environment. They all finished more than 6 MOOCs with Bob and Joseph mentoring 2 MOOCs on NovoEd. Interestingly, they were very driven by the social aspects of this course. Mark states, "I like to work with people I don't like to work on my own". They all collaborated with a very diverse range of team members on the course.

Both Bob and Mark expressed that when they started taking MOOCs, they led their teams. However after their first couple courses they started to join other teams and contributed as team members instead of taking charge and managing the team. All of these team leaders expressed their appreciation for the diversity on the course. Mark states, "It's like living in a global village". These MOOC students seemed to really enjoy the social aspects of the MOOC, which seems to motivate them to take more courses. Mark explained that he signed up for many Coursera courses but he did not complete any of them "I didn't like them because I felt like I'm on my own taking lectures", "I don't like that way of learning".

Kyle, the team leader in Team 2 signed up for the course because he was aspiring to expand his IT consultancy business. This course gave him the knowledge in Business and Entrepreneurship that he believed would help him succeed in his career. He met his team member Jack on the platform and they both contributed greatly to the project. In their team they started with six students and four finished. Kyle, the team leader states "I sent an email to my team members after the first set of no-show meetings and lack of cooperation and got a follow up email from every member stating that they were in and on the team for the long haul and they would be present at the next meeting but two of them did not show" "One of them was auditing the course" Kyle said. When asked when this happened he said "about halfway through the course". Those two members were then dropped from the team due to their lack of cooperation. Kyle has contributed the most to the course projects and was satisfied with Jack's contribution. " I knew there was at least one other person with me on this course. He was as he said he was in it for the long haul". He was not pleased however with the other students' commitment to the course.

In team 3, 15 people were on the team at the beginning and only 8 finished the course together. Starting with a large team as Mark explains is a clever plan to decrease the workload for the students on the team, and his plan appears to work as many members on his team complete the MOOC. However, Mark expressed, that having a team that is too large is not always recommended because it makes it very difficult to come up with a good time for meetings. The difference in time zones makes it nearly impossible for everyone to attend a meeting. His team decided to record their virtual meetings for the members that could not attend so they could watch them later. The students that were not able to attend still contributed to the projects.

3.1 Strategies for choosing Team Members

Kyle's strategy for choosing members was to make a list of active students that have the skillset that he was looking for and invite them to join the team. He looked for students that live in the United States and not abroad. The reason for this is to manage the time zones, as he explains "I did not want to have someone waking up at the middle of the night to attend a meeting".

Bob, Mark and Joseph's strategy was to make the team as diverse as possible. "I had five different countries on my team" Mark explained, "The international exposure of working with these people was very beneficial" "Also we get different points of views when we're working with people from different countries".

3.2 Implications for K-12 Education

Another important factor in choosing team members according to Mark and Bob is age. Interestingly, they have contrasting views as to the right age of the participants on the team. Bob expressed that most of the students that drop out are young people. He clarifies that 'senior members' or members that are older in age are more likely to succeed and complete the course. Mark's experience was very different. The student that contributed the most to his projects was Mary, a high school student in her mid teens. He explained, "She had video editing skills that nobody else had. She had done some work on animation and did some animation work for us. She had a lot of time on her hands so she was very active in the course". Mark collaborated with her on many projects on other MOOCs. He reveals that there were many teenagers on the courses that he had taken.

MOOCs seem to be making a difference in the amount and quality of education that the younger generation will gain. It is already happening. The opportunities that MOOCs provide for high school students are highlighted by Mary's experience on NovoEd. Mark describes this experience:

> "For example 'Mary' participated in Crack it, a competition organized by an advertising society in Pakistan. So I know 'Mary' from NovoEd and I asked her are you interested in participating in this competition and she participated with me in Crack it. I was here in Karachi and she was working with me in her home in Hong Kong."

Even if they do not win in the competition, the amount of knowledge and information that this high school student is exposed to and the opportunities that are opened up for her are truly empowering. Mark discusses another project that the two of them were working on together:

> "She was working with me on a business plan for a mobile app. The only way that she could contribute to the business plan was because of the other courses that she took on NovoEd 'Decision Thinking' and 'Crash Course on Creativity'. These courses prepared her to contribute to the business plan and participate in these competitions where most of the people who were participating were graduates. Some of these teenagers are taking MOOCs very seriously and they are adding a lot to it."

3.3 Mentors

The only team that had mentors for their team was team 3. Mark reveals that they have contributed very little to their work because mentors themselves are very busy people. He explains his impression of mentors and students contribution "From my observation everyone is active on the first week of the course. You can't judge how good your team is from the first week. But once the first week has passed once you submit your first assignment. Afterwards people start becoming inactive and after the third week you're on your own."

3.4 Certification

Many people enroll on MOOCs for the certification. The certificate for 'Crash Course on Creativity' another Stanford MOOC was observed and the following was imprinted on it:

> "Please note: Some online courses may draw on material from courses taught on campus but they are not equivalent to on-campus courses. This statement does not affirm that this student was enrolled as a student at Stanford University in any way. It does not confer a Stanford University grade, course credit, or degree; and it does not verify the identity of the student".

The participants were asked about their views about this Mark responded, "when you have a certificate that states that it is from the teacher and not from the university and that they have not confirmed your identity. This certificate is null and void". Mark recommends taking these classes to learn something new but not for the certification.

4. DISCUSSION

Most of the students that participated in the interview seemed to enjoy their experience with team-based MOOCs. Kyle seemed frustrated with the lack of contribution from some of his team members, however he expressed a determination to complete as many MOOCs as he needs to achieve his purpose.

All of the team leaders in this study had a systematic plan in place for dealing with inactive team members. Their strategy for dealing with inactive team members was surprisingly similar. They all recommended removing inactive team members if they did not cooperate or respond to emails. Mark recommends starting with a large team, around 8 or 9 members, so if the team loses 3-4 members, the workload would still be manageable as there would be at least four active members.

The way in which the course is designed replicates a real life experience, which requires collaboration, teamwork, submitting projects in a timely manner and communicating effectively with a very diverse range of people. One of the things that became instantly apparent while observing the course was the professionalism of the team leaders in the teams that finished the MOOC. The team members' dedication and commitment to the course was also evident. They all appeared to be highly motivated students that were following personal interests and driven by intrinsic motivation. Their management and collaboration skills are exceptional and replicate what is needed to manage a successful project in real life.

Some of the students were working professionals who were interested in a career change and saw this as an opportunity to search for their interest. Many others had graduate degrees in Engineering, Business, Economics and so forth. There was also an interesting trend of serial MOOC takers. Some students enrolled on every free MOOC available on NovoEd. These courses are equivalent to senior and graduate level Stanford courses. Although they are not accredited as such, they still require as much work and effort as many campus university level courses.

4.1 Strategies and Recommendations

Based on the experiences of successful MOOC students, the following guidelines have been accumulated. These guidelines are constructed from the observations and interviews of successful team members' experiences.

1- Leading a team involves much more work and effort in the project. If a student does not have enough time to dedicate to a MOOC, then join a team as a member instead of starting a new team.
2- Search for the teams that are open and ensure that you know the limit on the team size. This is so as not to waste time on contacting teams that have reached the limit and are not able to add any more students.
3- Search the journals. Usually if a team has many recent journal entries and there are multiple members contributing to the journals then they are likely to be an active team.
4- Contact three or four teams, it is more likely to get an answer.
5- Make sure the workload is manageable. Do not take too many courses and then end up not finishing any of them.
6- Be prepared for every kind of person. Keep in mind that the platform is open and free and although most people are serious and have good intentions, some do not.
7- The courses are relevant if the student's purpose is to learn something new or meet new people with diverse skills. However, the courses are not accredited and the certification is useless.

5. CONCLUSION

MOOCs have enabled people to follow their interests and learn from the best universities in the world. The subjects are as diverse as playing music, telling stories, entrepreneurship, mathematics, computer science and languages. The diversity of its students and the social aspects of these courses as well as the quality of education provided have intrigued academics and researchers.

This study followed four successful MOOC teams and studied their characteristics, dynamics and strategies for successfully completing a Massive Open Online Course. The researcher performed the study on a MOOC platform offered by Stanford University. The researcher conducted observations and interviews with successful team members and team leaders. The findings of this study revealed that all of the members in successful teams showed signs of competence, experience and skill, determination and intrinsic motivation. All of the interview participants demonstrated their passion for knowledge, their high ambition, and set high standards for themselves and their teams. None of the students was taking MOOCs for credit. Participants reported that the certificates were useless to them but they appreciated the knowledge they accumulated from these courses.

ACKNOWLEDGEMENT

The researcher would like to acknowledge the participants who cooperated and participated in this study.

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