MASSIVE OPEN ONLINE COURSES - PROMOTING ENGAGEMENT THROUGH MEANS OF GAMIFICATION

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Abstract

In recent years, Massive Open Online Courses (MOOCs) have been sought as one of the means to bridge the knowledge gap in the world we live in. Within MOOCs, the barriers of time, space, location, and accessibility have been overcome compared to traditional means of learning. MOOCs have taken the education community by storm with their unprecedented high student enrolment numbers. The adoption of well-reputed and well-known academic institutes like Stanford, MIT, Harvard and others persuaded many academic institutes worldwide to jump into this trend. However, when looking at the success of MOOCs, only completion rates were seen as the key success metric to this new pedagogical medium. But many recent academic studies have shown that completion rates are a misleading indicator of the success of a MOOC, due to the fact that learners have different aims and motivations. Some learners come with the aim of updating their professional knowledge to match the market needs, some come with the aim of socializing with like-minded people while others simply enjoy the pleasure of learning and expanding their knowledge on topics they did not know before. The need then arises to go beyond completion rates to gain a clear understanding of the obstacles, problems and issues facing students while learning within MOOCs.

An empirical and exploratory study based on service science was performed on the first and biggest Arabic MOOC platform named RWAQ. The aim of the study was to understand the customer value of the service and promote student engagement in the online learning environment represented by MOOCs to help answer the following questions: How to understand student engagement in MOOCs? How to promote student engagement within MOOCs using gamification? The study was based on service design and gamification methods. This made it possible to gain a fresh look at the learners' aims, motivations, and needs and resulted in proposing solutions to enhance student engagement. Moreover, creating a collaborative, learner-centric and purposeful learning experience was accomplished.

Keywords: Massive Open Online Course, MOOC, service, student engagement, gamification.

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1 INTRODUCTION

1.1 Introduction to MOOCs

A MOOC is a free online course that is open to everyone [1]. It has also been defined as "a non-defined pedagogical format to organize learning / teaching / training on a specific topic in an informal, online and collaborative way" [2]. The difference between MOOCs and other online offerings that provide educational content such as YouTube educational channels is that a MOOC focuses on a defined subject in a full and comprehensive way and creates a common medium of purpose for and between the participants.

MOOCs can be seen as an extension of current online distance education but with informality, student centrality, collaboration and minimal nature of risk / commitment.

Siemens [3] divided MOOCs into two groups: Connectivist MOOCs (cMOOC) and Well-financed MOOCs (xMOOC). In cMOOCs, people are connected with each other to form a knowledge network and learn from each other through established connections within the network. In xMOOCs, pre-efforts and money investment are used to deliver a certain type of content. They represent more thoroughly planned courses for the audience and are in a sense similar to normal academic offerings [3].

The rapid success of MOOCs can be addressed to the rise of global economic pressures, technological advances in connectivity and mobility together with the continuous need for education and periodic updating of knowledge by credible sources of information. Furthermore, the low cost of MOOCs compared to traditional means of education is also an important factor contributing to its massive success. For example in the U.S. tuition fees have increased by 72% since the year 2000, while student debt has gone from over $200 Million in 2003 to almost $1 Trillion in 2012 [4]. All of the above factors and many others suggest that MOOCs are here to stay, but the challenge is how to better adapt them to student needs and make them more productive.

1.2 Challenges related to MOOCs

MOOC completion rates can be as high as 20%, but on the average they tend to be 7% [5] [6]. Low completion rates have also been supported by a study done at Harvard and MIT, which highlighted that MOOCs had about a 4% course completion rate based on their research on 840,000 students [7]. Both cMOOCs and xMOOCs are reported to have a high dropout rate despite the differences in their methods and structures of learning [2].

However, completion rates are claimed to be misleading indicators of the success of MOOCs. This has been justified by various factors such as the absence of any commitments from the registrant side and the nature of enrolment in MOOCs, which is open for anyone, at any time, even after the course has started [8]. Despite the easiness of enrolment in a MOOC, the absence of teacher involvement, follow-up, exchange of ideas and a clear path of progression are all factors that contribute to lower MOOC completion rates [1]. However, according to a study conducted at the University of Pennsylvania, more than 80 % of the students who fill out post-form surveys in MOOCs say they met their primary learning objective [9].

MOOC benefits should also be looked in relation to the overall value offered to the students instead of the limited point of view of the completion of the course. Some students may consider it valuable to learn about a new topic, some may appreciate participating in discussion forums and share the wisdom of the crowds, while others actually aim to obtain the course credits and eventual certificate e.g. for boosting their academic career and professional life.

It seems evident that better means of evaluating the success of MOOCs are required. They should enable a more comprehensive view of the different aspects of MOOCs including the value offered to the students. The development of MOOCs from the students' point of view requires understanding of the student experience, their needs, aims, expectations and behaviour. In general, enhancing customer engagement helps to elevate services to be more satisfactory and fulfilling, and increase the customer value of services.

This paper concentrates on student engagement within MOOCs. It is based on a study on service science and service dominant logic perspective performed in 2013/2014 on the first and biggest Arabic MOOC platform named RWAQ.

2 LITERATURE

2.1 Service science approach to MOOCs

Services are defined as the application of competencies of one entity with the aim of supporting and benefiting another while service science is the study of service systems and co-creation of value [10].

In service science value has two general meanings, namely value-in-exchange and value-in-use. Value-in-exchange is based on the so-called goods-dominant-logic (GDL), the traditional way of seeing value, implying that value is created by the service provider and exchanged with customers in the market for money. Value-in-use is part of the services-dominant-logic (SDL). According to this new perspective of value, the producer and the consumer are not distinct from each other. Value is always co-created by both partners via joint efforts, integration of resources and applications of competencies [10].

According to recent studies, customers are considered as the actual value creators and the role of the service providers is to facilitate value creation [11]. There is no difference between goods and services from the customers' consumption perception, as they are the ones who create the value for themselves in the consumption process. The differences come from the provider's side. In the case of goods, the provider is a passive value facilitator whereas the provider of services is an active value

facilitator and has a chance to interface with the customer process. Finally, the value-in-exchange does not have any meaning unless the customer creates the value-in-use after the exchange. [11.]

Looking at MOOCs from the service science perspective, MOOCs can be seen as services where the value is created by students, teachers and between the students themselves, and where education is co-created by the interaction, sharing and collaboration between all parties within the online MOOC context.

Three-core generic values of services can been identified: access, care and response [12]. In this sense, MOOCs are services that provide people with access to quality education, MOOCs respond to learners' knowledge needs and both the contents and teachers assist students in filling the knowledge gap while learning. Efficient online education requires interaction between students and instructors, prompt cooperation and collaboration between students, regular feedback but also understanding of the diversity of students when designing the services [13].

Based on the service-dominant logic, the value of services is the value-in-use. The value of services is co-created by the service provider and the customer through joint efforts, integration of resources and applications of competencies [14]. Value co-creation is the processes where the subjects (customers) and the object (brand, service) come together to realize the co-created value. The co-created value is the outcome or the result of the co-creation process, the result of interactions or joint activities between different actors (customer and service provider) in the service context. The co-created value can extend from being value co-created from human-to-human interactions, to include human-to-inanimate object interactions, such as the brand [15]. The co-created value can further be divided into utilitarian and hedonic components. The utilitarian co-created value represents the functional value that has no sensory effect on the customer, only the benefited utility. The hedonic co-created value, on the other hand, creates sensory outcomes that affect the customer. [15.]

2.2 Promoting engagement by gamification

Customer engagement is defined as repeated interactions that customers have with a brand. These interactions can strengthen emotional, psychological and physical investment in the brand [16]. Engagement describes behavior that extends from personal level to society level, where the subject of engagement continues to affect the surrounding society by advocating, supporting, influencing or mobilizing other subjects. Customer engagement can be considered multi-dimensional and voluntary. It creates an interactive relationship between the subject of engagement (customer) and the object of engagement (brand, service), where different dimensions, e.g. emotional, cognitive, behavioural and societal, are affected by engagement. [17.]

Games and game thinking might be useful in current online educational environments in enhancing student engagement and ameliorating learning outcomes [18].

Gamification is defined as "the use of game elements and game-design techniques in non-game contexts" [19] and further as "the use of game mechanics and experience design to digitally engage and motivate people to achieve their goals" [20]. Social bonding is one of the reasons people play games, where they communicate, collaborate and compete [21]. Social interaction is one of the aspects that game design can support and facilitate. Gamification could be used to enhance the sociability of services [22].

Game design aims to provoke behaviours, where the feedback works as an extrinsic trigger, the player's motivation to play as an intrinsic trigger, game scaffolding as a way to match the ability and finally game motivations like accomplishment, competition, social image, autonomy and creativity [23] as a way to fuel the players' behavioural interactions. Hence, one can conclude that gamification at a broader level can be used as means to enhance emotional, cognitive, behavioural and societal aspects of services by making them more motivational, challenging, doable and socially enabled.

Looking at online education and MOOCs specifically, many of the issues that affect the students are related to one or more of the engagement dimensions. Additionally, MOOCs are enabled by digital interactions, which can be enhanced easily by applying game tools in the digital context. Therefore, gamification and the thinking behind it can be seen as means to promote different engagement within MOOCs.

3 STUDY

3.1 About the case organisation

RWAQ (www.rwaq.org), which means “hallway” in English, is the first Arabic MOOC platform. It was established in 2013 and has managed to gain more than 200,000 registered students at the time of writing. The platform exclusively provides Arabic based content, where different MOOC topics like Literature, Medicine, Engineering, Economics, History and many more are provided.

Based on the study done on the RWAQ community, learners have different motivations for why they join RWAQ courses. Participants raised such reasons for joining as learning for professional and career advancement, exploring new topics, gaining a certificate and, last but not least, meeting like-minded people.

3.2 About the study

The goal was to enhance the adoption of the case organization’s offerings and to improve the overall brand value of the platform. The aim of the study was to understand and promote student engagement in the online learning environment represented by MOOCs.

The research questions were:

1) How to understand student engagement in MOOCs?

2) How to promote student engagement within MOOCs using gamification?

3) What kind of gamification elements could be used for promoting student engagement?

The study was based on services sciences, the service logic perspective and used service design methods and tools [24] [25]. The process began with the understanding phase where information was collected and analysed on customers and stakeholders. In the next phase, planning, sense-making of the collected data was done to define the project direction and to plan the next steps and set up the service development phase. In the design phase, solutions to the identified problems were generated with the help and participation of the different stakeholders. In the final steps the best solutions were filtered and finalised.

An online survey was sent to students to gather information on enrolment frequency and completion rates. Student feedback was also collected with the help of open-ended questions. Altogether 206 students answered the survey.

The results related to study completion were in line with results from previous studies. Students have different goals and aims other than gaining the final completion certificate. Nearly two-thirds of the students explicitly confirmed that motivation is an issue that is affected when they are studying in MOOCs.

For gaining a deeper understanding on the MOOC context and its engagement issues, six thematic interviews were conducted with different stakeholders, co-founders (2), students (2), teachers (2). The interviews were recorded and transcribed. An inductive analysis of the data was done by finding relevant information/patterns that were related to engagement within MOOCs, adding codes to categorize, grouping codes to sub-themes and finally grouping the findings into major themes.

Netnography in the form of participating in various courses and observing the discussions between students and teachers was practiced. This enabled the building of a holistic view of the MOOC service environment, and the provision of intimate insight on the interactions during the service processes. This helped in understanding the students’ journey and the steps taken by the students within the MOOC service context. Moreover, netnography helped in creating empathy with students and in the interpretation of the collected feedback.

On the basis of the results from the understanding phase student personas were created. Personas enabled to understand the MOOC services and the customers/students from different perspectives and map the students’ service expectations [25]. The following personas were created:

- ❏ Expert: looking to dive deeper into his/her area of expertise or in a certain and specific topic.
- ❏ Knowledge Surfer: someone who is in pursuit of new knowledge and driven by exploration.
- ❏ Group Learner: someone who wants to learn from the power of group work and interaction.

❑ Advocator: someone who is passionate about learning and wants to take it to the next level where everyone can benefit from it.

A customer-journey-map was created for each persona to help to understand the general steps taken by each persona within the MOOC experience and the frustration points that affect engagement for each persona. Additionally, a context-map was created based on the data collected from student interviews and from the student surveys, where the main entities as well as their related interactions in the MOOC service were identified.

Workshops using various service design methods with stakeholders were organised for tackling the challenges and creating solutions based on gamification.

3.3 Results

The study came out with four student archetypes or personas [Expert] [Knowledge surfer] [Group learner] [Advocator], all with different aims, needs, attitudes, expectations and interactions. They all should be deliberately facilitated by MOOC providers. Completion is not the main goal for all of the personas. This opens the door to look at the design of the MOOCs through different lenses to help support different student expectations and needs.

Gamification can be used as a means to achieve and enhance student engagement. In this regard, gamification can be used to enhance different engagement dimensions, emotional, cognitive, behavioural and societal. Three gamification concepts for enhancement of student engagement were created.

❑ **Student learning groups**

The case organization will support the social and group functions to help facilitate study groups within the platform itself. Moreover, the platform will support creating student learning groups where students can find other students based on location proximity. Additionally, any student can create a group and assign it to a certain city, where others can look it up and request to join it. As a result, student motivation for learning will increase by both increasing the emotional aspect of student engagement and also societal engagement due to social interactions.

❑ **Student badges of achievement**

Achievement design will be used as means to support students' sense of progression and achievement. By integrating achievement design with content design, teachers can mark different achievement levels in their courses (with the needed completion logic and possible rewards) to help the student get better progression feedback throughout the course. This can create the sense of differentiation and competition among students while studying. Such value proposition could possibly result in increasing the emotional aspect of the MOOC service experience, which yield students' increased emotional engagement and the overall value perceived from the MOOC service.

❑ **Information filtering using social Hashtags**

A suggestion was made to create and communicate a unified hashtag, such as #AskRWAQ for anyone who wants to ask a question of a course or supplement the course offering with additional information. This solution will build on existing social media literacy of the students and provide a way for students to have a mobile ready option for information discovery, since all the social media platforms have mobile apps ready with hashtags filtering capabilities. Such solutions can strengthen both the behavioural and societal engagement within the RWAQ platform

4 SUMMARY AND CONCLUSIONS

Students, teachers, and the learning content were identified as the three main entities in the MOOC platform, where different interactions enable and facilitate the overall service. In this manner, positive or negative interactions can impact the perceived service value. For example, looking at interactions between the student and teacher entities, reducing the teacher feedback and support to the students reduces the overall value outcomes of MOOCs, and the inverse is true. As another example, improving the content discoverability enhances the service experience of students within MOOCs.

Engagement has multidimensional aspects, where emotional, cognitive, behavioural and societal dimensions of engagement all contribute to enhance service value. Engagement is strongly related to the value of the MOOC. In this sense, it's a two-way relationship, where more student engagement

means more value perceived from the MOOC, and more value from the service means more student engagement. For example, enabling group interactions increases the social engagement within a MOOC. On the other hand, the visibility and the credibility of the educational artifacts (certificates) to the outside world may affect the perception of the value of the MOOC and hence, create social engagement.

Both the theory and the practice have shown the importance of engagement when it comes to services, their value and their overall experience. Engagement plays a vital role when it comes to enhancing the overall perceived value of service, as engagement helps to increase customer satisfaction and commitment, create positive customer relationships and create trust between customers and service providers. That told, within online education services and in specific MOOCs, student engagement is an issue that is affecting the overall value perceived out of MOOCs, due to many reasons like limited teacher interactions, absence of clear progression paths, poor educational content design and the lack of student commitment compared to traditional means of education. Many of these issues have already been highlighted in previously studies concerned with MOOCs success. This study was in line with previous results confirming misalignment between MOOCs and the different needs, aims, and motivations students have.

Traditionally, success in MOOCs is measured by the same success criteria as traditional educational systems, which are completion rates. In this sense, completion rates have been sought as the ultimate and unified criteria for success.

Engagement is an important element and should be considered when designing for long and lasting service experiences. This study suggests that enhancing student engagement can improve the overall MOOC service experience. This is of course with the assumption that the success of MOOCs should not be measured by completion rates as such, but with what students perceive as value out of the MOOCs and their experiences.

Gamification was suggested as the solution to address the different engagement issues. Three concepts driven by using gamification were suggested to the case organization. Gamification can enhance the different dimensions of engagement and help in making MOOCs more fun, motivational, behaviourally designed, and socially aware. Gamification is more than game design: it can be seen as a blend of design disciplines including game, behavioural, challenge, social design that come together to help achieve certain business objectives.

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