Are we all on the same Boat? Coordinating Stakeholders for the Design of MOOCs

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Abstract. One of the gaps that arises from the recent emergence of Massive Open Online Courses (MOOCs) is the lack of methodologies, tools and models for supporting the instructional design of these complex courses, which typically involve several stakeholders (e.g., teachers, audio visual technicians, institutional staff…). One of the few approaches addressing this gap so far is the MOOC Canvas, a framework for supporting the description and design of MOOCs. This paper presents a first approach towards a methodology that applies the MOOC Canvas as an instrument for coordinating the needs and interests of the different stakeholders involved in the preparation and enactment of MOOCs. Also, this paper provides insights about the use of this methodology with different stakeholders in three workshops. The results of the workshops show a positive perception of the methodology and of the use of the MOOC Canvas as the main instrumental support.

Keywords: MOOCs, instructional design, MOOC Canvas, stakeholders

1 Introduction

MOOCs (Massive Open Online Courses) have attracted much attention from the educational community thanks to initiatives such as edX, Coursera, FutureLearn or MiríadaX. Now, many teachers and institutions are facing the challenge of running MOOCs not to fall behind. Nevertheless, preparing and enacting a MOOC is much more complex than preparing and enacting a traditional (online) course, mainly because of two reasons: the need for adopting new technologies (including video-based technologies), and the massive number of participants that these courses can reach. MOOCs usually involve several stakeholders besides teachers, such as audio-visual technicians, institutional staff, library staff and system administrators, among others, who collaborate in the preparation and enactment of the MOOC. The large number of stakeholders in MOOCs requires extra coordination while the course is running, and especially, while designing the course.

Despite the particularities of MOOCs, and the large number of these courses available nowadays on the Web, only few works address their instructional design [1, 2, 3, 4, 5, 6]. Most of these works offer recommendations and/or best practices for designing and setting up MOOCs from the teachers' perspective. However, these works do

not consider in their proposals the need for coordination among the stakeholders that requires the instructional design of MOOCs.

This paper presents a methodology to guide and coordinate all the stakeholders in the instructional design of MOOCs. This methodology builds upon the MOOC Canvas [7], a framework for supporting the description and design of MOOCs inspired by the Business Model Canvas [8]. The MOOC Canvas is a visual, high-level representation of the MOOC that helps stakeholders discuss and reflect on eleven interrelated issues through a set of driving questions. The methodology has been tested with representatives of the main stakeholders involved in a MOOC in three workshops.

The remainder of this paper proceeds with a brief description of the MOOC Canvas in Section 2. Section 3 presents the methodology that builds upon the MOOC Canvas. Next, section 4 shows the main insights about the instructional design of MOOCs extracted from the three workshops, and Section 5 draws the conclusions and future lines derived from this work.

2 The MOOC Canvas

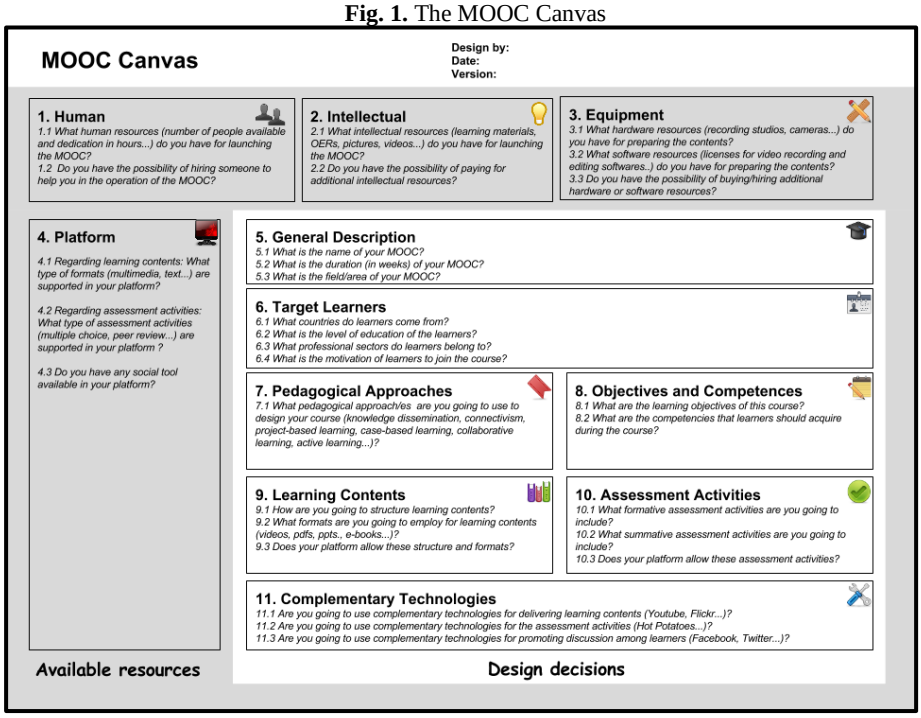
The MOOC Canvas[1] is a conceptual framework to support the description and design of MOOCs [7]. This framework offers a visual and understandable guidance during the instructional design stage of a MOOC, facilitating the coordination and discussion of the eleven most important issues conditioning its design (see Figure 1). These issues are organized into **available resources** (issues 1-4) and **design decisions** (issues 5-11). The MOOC Canvas should be completed following the issue numbers and reflecting on the driving questions associated to each issue.

The **available resources** refer to the key resources available for setting up and running the MOOC. These resources include: (1) *Human* resources, which are the people that can commit to take part in the MOOC (considering all the potential stakeholders); (2) *Intellectual* resources, which are the existing learning contents and other related materials that can be reused (or adapted) to build the MOOC; (3) *Equipment* resources, which are the hardware and software resources available for generating the MOOC contents; and the (4) *Platform* in which the MOOC will be deployed, and the features this platform offers. Since teachers may be aware of some, but not all of the available resources, this part of the MOOC Canvas should be completed in coordination with other stakeholders. Particularly, teachers need to coordinate with institutional staff to agree on the available human resources; with library staff to determine the available intellectual resources; with audio visual technicians to know the available equipment resources; and with system administrators to know the (remote or locally hosted) platform in which the MOOC will be deployed, and the features this platform offers. This part of the MOOC Canvas must be completed before starting making design decisions about the MOOC, since such decisions will be strongly constrained by the available resources [7].

The **design decisions** refer to the main decisions teachers should make when designing a MOOC, taking into consideration the constraints imposed by the available resources, as previously established. These design decisions include: (5) the *General*

[1]MOOC Canvas Website: http://www.mooccanvas.com

Fig. 1. The MOOC Canvas



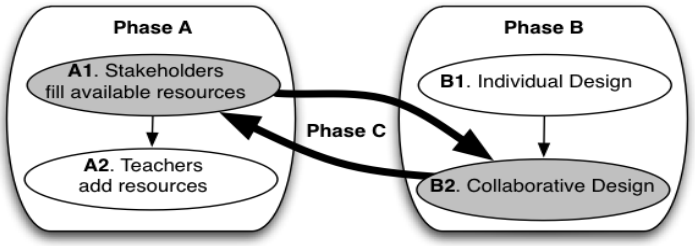
Description of the MOOC (name, duration, area); (6) the *Target Learners* that are expected as the potential audience; (7) the *Pedagogical Approaches*, didactics or concrete teaching methods to be used during the MOOC enactment; (8) the *Objectives and Competences* that are expected to be acquired by the participants; (9) the *Learning Contents* that will be provided and their delivery formats; (10) the *Assessment Activities* that will be included in the MOOC (either formative and summative); and (11) the *Complementary Technologies* that are not directly provided by the selected MOOC platform, but that are still needed to meet the remaining design decisions. A MOOC can be delivered by several teachers and so, design decisions should be discussed and agreed among them, sometimes even with the support of other education experts in instructional design. The MOOC Canvas represents a useful tool for capturing and understanding at a glance the overall design decisions taken.

3 A methodology for the instructional design of MOOCs

This methodology builds upon the MOOC Canvas (as the main instrumental support) and includes three phases (A, B and C), each of which involves several steps (see Figure 2). Phase A is for setting the available resources, Phase B is for making the design decisions, and Phase C iterates on specific steps of Phases A and B. The same version of a MOOC Canvas is the instrument shared among all the stakeholders along the three phases for coordination purposes.

The first step in Phase A (A1) is that the different stakeholders partially fill in the available resources, according to the information they have. Typically, but depending

Fig. 2. Methodology for the instructional design of MOOCs



on each organization, institutional staff fill in issue 1 (*Human*); library staff fill in issue 2 (*Intellectual*); audio visual technicians fill in issue 3 (*Equipment*); systems administrators fill in issue 4 (*Platform*). In the second step (A2), the teachers individually add to the MOOC Canvas the resources they can provide (e.g., time commitment, existing materials, etc.).

In the first step of Phase B (B1), teachers individually design the course they want to deliver taking into account the available resources. In a second step (B2) all the teachers participating in the MOOC meet together (face-to-face or online) for discussing and agreeing on the design decisions (issues 5-11), based on their individual designs and the available resources. An education expert in instructional design may support this step (if possible). A first full version of the MOOC Canvas is obtained at the end of this second step.

In Phase C, all the stakeholders will iterate over the second step of Phase B (B2) and the first step of Phase A (A1) to produce new versions of the MOOC Canvas. These new versions will capture the need for new resources that may be detected during teachers' group discussions (i.e., more manpower, new equipment, etc.) (B2). These needs will be communicated to the corresponding stakeholders, who will check the MOOC Canvas to find out if these needs are properly justified. If so, and if the resources can be acquired, the stakeholders will add them to the MOOC Canvas (A1). Otherwise, teachers should meet together again to find alternatives to their design decisions (B2). This third phase is repeated iteratively until reaching an agreement on a final MOOC Canvas. The final MOOC Canvas can be kept by the institution to assess the quality of the instructional design of the MOOC and verify its fulfilment.

4 Application of the methodology with different stakeholders

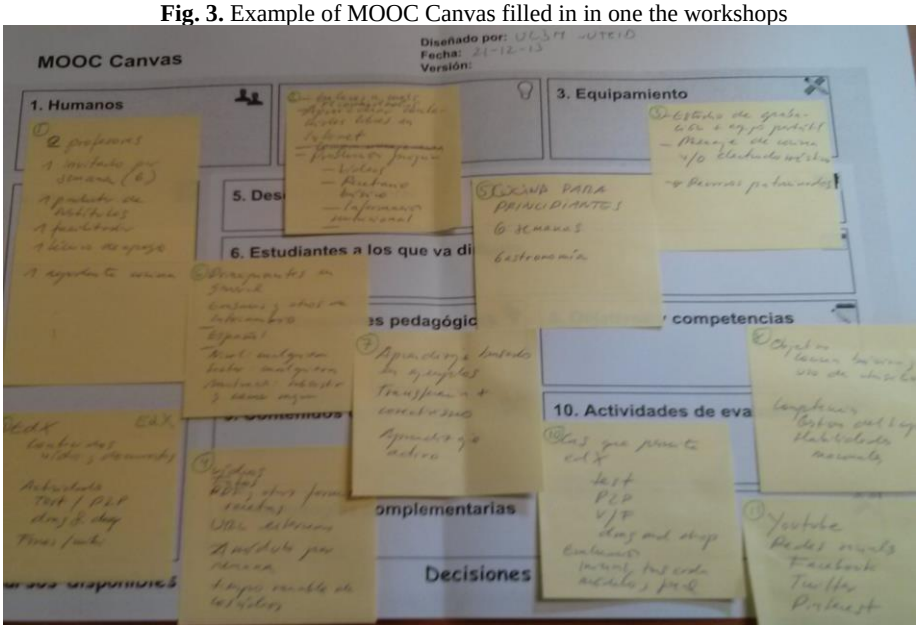
This methodology has been tested with different stakeholders (n=27) in three workshops. The first workshop was conducted in June 2013 with the participation of 9 educators, experts on instructional design, from the Universidad de Cádiz (Spain). The second workshop was conducted in December 2013 and involved 8 participants from the Universidad Carlos III de Madrid (Spain) with different roles: library staff, audio-visual technicians and systems administrators. The third workshop was conducted in January 2014 and involved 10 participants, experts on instructional design, from the SRI International, a nonprofit, independent research and innovation center

based on Northern California (USA). During these three workshops, participants worked in small group (3-5 people) on a MOOC Canvas using pen and paper to design a MOOC of their choice following Phases A and B. Participants could also follow Phase C to iterate on steps A1 and B2 in order to refine the MOOC Canvas. The *Platform* (and its characteristics) was set in advance by the workshop organizers as the resource available, but the participants completed the remaining issues. See more details about the WS in [7].

The outcomes of these workshops were a voluntary anonymous questionnaire filled out by 20 of the 27 participants, and the MOOC Canvas generated collaboratively in small groups. The questionnaires revealed a complete agreement among all the participants that *the MOOC Canvas is a good discussion tool in the instructional design of MOOCs.* This is a significant result since the samples of people in these three workshops involved different stakeholders expected to participate in different phases of the methodology. The experts on instructional design gave positive feedback about the order and structure in the design of the MOOC, as well as on the resulting MOOC Canvas for visually representing the overall instructional design. The remaining stakeholders gave positive comments to the organization of the design, and its value for thinking and reflecting before making decisions. The time required to fill in the MOOC Canvas (and by extension to follow the methodology) was the main negative comment. Also, participants highlighted that this methodology requires start working together on the MOOC design as soon as possible, which is not always possible.

Figure 3 presents an example MOOC Canvas generated by both audio-visual technicians and systems administrators in the second workshop. The workshop organizers established that this MOOC should be deployed in edX, which is a platform these technical staff were familiar with, but there were no additional restrictions about the remaining available resources. With this activity, these stakeholders, who are not used

Fig. 3. Example of MOOC Canvas filled in in one the workshops



to take into account the pedagogical issues underlying MOOCs, could step into the shoes of teachers making design decisions. This is a way to facilitate the coordination and understanding between teachers and these other stakeholders.

5 Conclusions and future work

This paper has presented a methodology built upon the MOOC Canvas to facilitate the coordination among the different stakeholders that participate in the preparation and enactment of MOOCs during their design. This methodology has been tested in three workshops with 27 stakeholders, who performed the complete cycle of the methodology. Results show a positive perception of the methodology and of the use of the MOOC Canvas as the main instrumental support.

Future lines of work include: a) using the methodology in other courses and with other stakeholders to refine it and improve the MOOC Canvas, and b) promoting the institutional adoption of this methodology in our University, combining it with other MOOC design best practices and recommendations [6]. Finally, since the MOOC Canvas is currently a Google Drawing document, we are already working on developing a software application for sharing the different versions of the MOOC Canvas and facilitating the remote coordination among the different stakeholders when designing MOOCs.

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