CHALLENGES IN THE CREATION OF AUDIOVISUAL CONTENT FOR A MOOC ABOUT POSTURAL AND TECHNOLOGICAL ADAPTATIONS IN PEDIATRICS


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Abstract

The design of this Massive Open Online Courses (MOOC) has been grounded on the competency-based learning model of the National Institute for the evaluation of Education Evaluation (INEE) in Spain. MOOC topics show the different pathological postural patterns and possible postural and technological adjustments that enable physical motor control. You will learn to design and build with the help of Low-Cost Philosophy. The last module will facilitate the game-based learning where individual adjustments will be made for people with functional diversity.

This study is focused on exploring teachers’ perspectives on difficulties in building and developing a health-related MOOC. The role of teachers in the assessment procedures of this course besides is considered.

METHODOLOGY: Qualitative research was performed with an eidetic phenomenological analysis through semi-structured in-depth interviews. The thematic categories have been defining upon assessment tools used in the MOOC, through the experiences and difficulties during the planning and design of this course.

RESULTS: development of MOOC has demonstrated to be a procedure of enriching collaborative learning, through which it has been possible to transmit knowledge of the different professionals.

The first difficulty that we have found was the develop schedule and course planning, because it is very difficult to achieve the dates when you rely on a large group of teachers. Collaborative work is very enriching, during the design of the course you become a facilitator of the content and you are filled with satisfaction when you achieve the expected outcome after many long months of work. However, such development has brought a number of challenges that the teachers have faced in the design of the audiovisual content.

The creation of the MOOC was a big challenge because it is a new format in which the theoretical main content of a course has been summarized into small didactic and short videos. Respondents mentioned as an impediment to reduce video time. Because it is essential that the content of the video keeps the interest and motivation of the participants. At the same time, loss of information should be avoided in this process and the import idea should be organized in order to not repeat the content in various modules. One of the main challenges in the MOOC is to reduce the number of dropout rate by providing content that is attractive and stimulating to the student.

During the qualitative research, teachers concluded that the assessment was dynamic, active and participatory. A mixed assessment will be used, through engagement with and participation in online discussion forums and to evaluate cumulative achievement at the end of each module. A preliminary assessment will be made before starting the course content. An assessment could be enhanced through learner analytics (LA), analysis of quantitative audience usage data generated by video-sharing platforms. Students make all cumulative assessments at the end of the modules will receive the certificate of completion of the course.

CONCLUSION: teachers agreed on the importance of generating discussion and exchange of knowledge among participants to enable and encourage creativity. The most common difficulty was to summarize the content of the video to achieve the motivation of the participant in MOOC.

Keywords: Collaborative learning, Pediatrics, MOOC.
1 INTRODUCTION

Massive Open Online Courses (MOOCs) are learning settings in which participants and course materials are distributed on the Web in open format [1], but they are more than just a meeting point, a place to connect students to teachers through a common theme [2]. They represent a teaching-learning process based on the Connectivist model [3], a constructivist approach for learning that is centered on the student, who is responsible for connecting and constructing knowledge in the context of groups and networks [4].

MOOCs are presented under a diversity of organization and design, which vary in many aspects, from the training process of the course to the things the students must do, how to evaluate them, the tasks to be carried out and the ways of designing the contents [5]. These courses are usually developed on specific platforms. Currently, the most important ones in Anglo-Saxon are Coursera, Udacity and EdX. The most remarkable ones of Spanish-speaking are MiriadaX and RedunX [6].

There are different categories of MOOC, two basic types called xMOOC and cMOOC stand out for their tendency [5]. First, xMOOC are traditional university courses in e-learning that adjust to the characteristics of MOOC platforms. The letter “x” means that it is a commercial MOOC and, therefore, is proposed in commercial or semi-commercial platforms [7]. This type of MOOC relies on students to obtain knowledge using the same traditional learning formats used by universities in their e-learning actions, the content is the most important aspect of this type of MOOC. Likewise, the realization of exam type exercises and video class have an important role in the presentation of contents. Lately, they are those who have a greater tendency in education, they have developed around a tenured professor and a basic curriculum [5], [7]. However, the problem of this type of MOOC is that the student does not get an individualized personal attention, because this is done in a massive way [5].

On the other hand, cMOOCs are the first ones that emerged [7]. This type of MOOC does not focus on the presentation of content, but rather tries to create discursive communities that create knowledge jointly [5]. The letter “c” represents a connectivist MOOC, it is based on network learning according to the connectivist theory, which describes how learning takes place in the digital age. Therefore, unlike xMOOCs, knowledge focuses on the connections that students are able to establish while participating in these learning environments, and through which learning is obtained. Consequently, if in the xMOOC the most significant thing was the content or the institutions, in the cMOOC what predominates is the fact that through the exchange of information and the participation in a joint teaching, people can obtain learning and knowledge [5], [7].

The most recent MOOC courses present a training where future health professionals interact through evaluations with virtual patients. Therefore, they facilitate case-based teaching and competency-based learning [8]. “Preventing Chronic Pain: A Human Systems Approach” is one of the most recent MOOC courses that has been created the last years [9]. This course was offered by the University of Minnesota and was developed for students and health care professionals. Do to the fact that chronic pain is the most common cause of work loss, opioid dependence and disability, this MOOC was created as a strategy to spread knowledge about this health condition. It was developed to support patients in implementing lifestyle changes and to blend clinical and scientific knowledge with creative, didactive and experimental teaching strategies, with the aim of preventing chronic pain and help participants to understand better this issue. This course had 4 major objectives included in 4 sections, with a total of 20 modules that would provide about 1 hour of instruction per week. This MOOC also included discussion forums, quizzes and homework essays at the end of the course to ask students to summarize the changes that they have been experinecing on their daily lifestyle to support preventing chronic pain [9].

In the same way, another recent MOOC that has been developed entitled “Dying2learn” provides an opportunity to explore personal or societal attitudes and beliefs about death and dying. This cMOOC consists on a 5-week MOOC with the objective of strengthening community awareness of death as a normal process. It provides course materials to promote discussion and reflection of this topic allowing participants to explore cultural representations, issues related to medical experiences and online experiences of death and dying [10]. Moreover, another MOOC entitled “Bridging the Dementia Divide” was developed. This course consisted of six units that covered all aspects of dementia care, including information about dementia with the purpose of changing attitudes and perceptions about dementia [11].

Currently, there is not MOOC in this field of physiotherapy. This paper shows our xMOOC topics which have the following subjects: the different pathological postural patterns and possible postural and technological adjustments that enable physical motor control. Further, you will learn to design and
build with the help of Low-Cost Philosophy. The last module will facilitate the game-based learning where individual adjustments will be made for people with functional diversity [12].

MOOCs have been developed quickly [8]. However, currently online learning evaluation methods do not accurately reflect learning outcomes, which only test and assignment scores. The design of this MOOC has been grounded on the competency-based learning model of the National Institute for the evaluation of Education Evaluation (INEE) in Spain. Competencies can be defined as “context-specific dispositions which are acquired and which are needed to cope successfully with domain-specific situations and tasks”[13]. In a very specific sense, competencies can be formulated as concrete learning outcomes [14].

This study is focused on exploring teachers’ perspectives on difficulties in building and developing a health-related MOOC. The role of teachers in the assessment procedures of this course besides is considered.

2 METHODOLOGY

It was carried out a key informant approach, a qualitative method that allows an open-ended and detailed exploration of a topic [15]. Besides, we performed an eidetic phenomenological analysis through semi-structured in-depth interviews.

Purposive sampling was used through the strategy of the “key informant” or “snowball” so that a subject with prior knowledge of the object and field of study favours orientation, anticipation and contextualization. The experts group consisted of 5 researchers. The principal investigator was responsible for ensuring the vision, mission and values of the research.

2.1 Thematic categories

The thematic categories of the present study with phenomenological method have been structured based on the consulted bibliography and the research objectives, incorporating the categories suggested after the analysis of the information of an open-ended and detailed exploration of a topic. The thematic categories have been the experiences and difficulties during the planning and design of this course. Moreover, the rubric’s items were defining upon assessment tools used in the MOOC. The experts group designed assessment tool according to key items, after analysing in-depth interviews.

2.2 Data analysis

The computer program ATLAS.ti was used to analyse the discourse obtained. The program allowed us to collect and organize its text along with the coding of the information obtained in the interview to the experts. The goal was to develop themes representing a synthesis in order to items rubric of the ideas generated by the team members [16]. We ensured rigor by using procedures to address the credibility, dependability and transferability of the findings [16].

3 RESULTS

Development of MOOC has demonstrated to be a procedure of enriching collaborative learning, through which it has been possible to transmit knowledge of the different professionals. The daily work of these professionals has contributed to a more nuanced understanding of how is the direct work with children with developmental and environmental difficulties, helping to improve the physical therapy of these children.

3.1 Professor’s Difficulty and Challenges

The themes arising from the qualitative analysis of the first difficulty that we have found was the develop schedule and course planning, because it is very difficult to achieve the dates when you rely on a large group of teachers. Collaborative work is very enriching, during the design of the course you become a facilitator of the content and you are filled with satisfaction when you achieve the expected outcome after many long months of work. However, such development has brought a number of challenges that the teachers have faced in the design of the audio-visual content.

The creation of the MOOC was a big challenge because it is a new format in which the theoretical main content of a course has been summarized into small didactic and short videos. Respondents
mentioned as an impediment to reduce video time. Because it is essential that the content of the video keeps the interest and motivation of the participants. At the same time, loss of information should be avoided in this process and the import idea should be organized in order to not repeat the content in various modules. One of the main challenges in the MOOC is to reduce the number of dropout rate by providing content that is attractive and stimulating to the student.

Furthermore, technical content should be adapted to the level and knowledge of different professional profiles, and patients find the content visual, simple, exciting and accessible. The use of language was also a big challenge, because this should be adapted to any public and not only at interprofessional level. Finally, note that the content development, their structure, and the technological adaptation and subsequent edition, involved the investment of long working hours, in addition to the high cost of some of the technological tools used. It was empowering to provide small brushstrokes of a professional that day by day works directly with the child. Furthermore, the clinical practice can help improve the therapy of children with developmental and environmental difficulties.

During the qualitative research, teachers concluded that the assessment was dynamic, active and participatory. A mixed assessment will be used, through engagement with and participation in online discussion forums and to evaluate cumulative achievement at the end of each module. A preliminary assessment will be made before starting the course content. An assessment could be enhanced through learner analytics (LA), analysis of quantitative audience usage data generated by video-sharing platforms. Moreover, all participants will do up a rubric for assessing an online course. Finally, students who make all cumulative assessments at the end of the modules, they will receive the certificate of completion of the course.

### 3.2 Rubric for Assessing an online Course

A rubric, which includes all the most important sections of this MOOC, has been created in order to carry out a self-assessment about organization, knowledge and encouragement on Discussion Boards during the MOOC. Students must respond to the items of the rubric that is developed as Table 1. Assessing a Massive Online Course Rubric.

The rubric consists on 11 items that develop the skills that students must achieve at the end of the course. These competences have attitudinal, conceptual and procedural character based on the objective that students should achieve. Depending on the level of knowledge and learning skills, students will obtain a score of 0 to 3 points for each competence. The “0” represents the minimum acceptable knowledge and “3” the highest level of skills acquired. The final score will contain from 0 point to a maximum of 33 points at the end of the self-assessment.

**Table 1. Assessing a Massive Online Course Rubric.**

<table>
<thead>
<tr>
<th>Category</th>
<th>Needs improvement (0)</th>
<th>Basic (1)</th>
<th>Good (2)</th>
<th>Excellent (3)</th>
<th>SCORE</th>
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<tbody>
<tr>
<td>1. Knowledge about disability</td>
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<td>2. Identifying the differences between different pathological posture schemes</td>
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<td>3. To know what a support product is</td>
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<td>4. Make a postural adaptation</td>
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<td>5. Concept of Virtual Reality</td>
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<td>6. Philosophy of low-cost.</td>
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<td>7. Technological devices of low-cost postural intervention</td>
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<td>8. The importance of adapted games</td>
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<td>9. Assessment critical thinking</td>
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<td>10. Organization</td>
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<td>11. Professor provides Feedback/Encouragement on Discussion Boards</td>
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</table>

TOTAL SCORE
4 CONCLUSIONS

Teachers agreed on the importance of generating discussion and exchange of knowledge among participants to enable and encourage creativity. The importance of facilitating activities that generate a competency-based learning, so they can extrapolate their theoretical learning to practical daily learning. The most common difficulty was to summarize the content of the video to achieve the motivation of the participant in MOOC.

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REFERENCES