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ADDIEM – Process for Creating MOOC Courses

ADDIEM – Um Processo para Criação de Cursos MOOC

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Abstract

This article presents a model for the creation of MOOC courses, based on the ADDIE model, which adapts to the specificities of two MOOCs and the institution's conceptions, obtained or the ADDIEM model. In each stage, the objectives and artifacts generated are presented, as well as the models that support them. The process and its document models were evaluated by a commission and by teaching professionals. After adjustments, ADDIEM was then validated, subsequently, evaluated by teachers who used it to prepare courses. Results indicate that the model was well accepted and that it effectively supports teachers in the construction process. Although designed in the context of a institution, it can be used or adapted for other ones.

Palavras-chave: MOOC. ADDIEM. Course creation model.

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ADDIEM – Um Processo para Criação de Cursos MOOC

Resumo

Este artigo apresenta a proposta de um processo de criação de cursos MOOC, batizado como ADDIEM, que foi concebido a partir do modelo ADDIE e customizado para as especificidades dos MOOC e concepções de uma instituição pública. Para cada etapa do processo, foram definidos seus objetivos e artefatos gerados, bem como foram criados os modelos de documentos que servem de suporte. O processo e seus modelos de documento foram avaliados por uma comissão e por profissionais da área de ensino. Após ajustes, o ADDIEM foi, então, validado e, posteriormente, avaliado por professores que o utilizaram para elaboração de cursos. Resultados apontam que o modelo foi bem aceito e que efetivamente apoia os professores no processo de construção. Apesar de concebido no contexto de uma instituição, pode ser utilizado ou adaptado para outras.

***Keywords**: MOOC. ADDIEM. Modelo para criação de cursos.*

1. Introdução

People, more and more, need to acquire new knowledge and skills to keep up with today's world, where we have a very strong presence of technology and where changes occur very quickly. An alternative that has expanded greatly in recent years is distance education (DE), whose courses are more flexible in terms of time (hours of completion) and space (places of study). According to the 2018 DE Census (ABED, 2019), distance education courses in the country have been increasing year after year, but since 2016 this growth has been vertiginous, having increased from 3,734,887 enrollments in 2016 to 9,374,647 in 2018.

However, as much as a distance course is much more flexible than a face-to-face course, it still has some characteristics that can make access to knowledge difficult. For example, in general, they have classes with a limited number of students, have well-defined deadlines for the beginning, end and delivery of activities and, in many cases, face-to-face meetings are mandatory. These difficulties were present at the Federal Institute of Education, Science and Technology of Espírito Santo (Ifes), especially when it was necessary to carry out team training, as well as offer complementary courses to students.

Thus, in recent years, the offer of the so-called MOOCs or Massive Open Online Courses (in Portuguese: Cursos On-line, Abertos e Massivos) has greatly increased. Although there is no consensual definition, a MOOC is, in general, an open course (no prerequisites for participation), online (no face-to-face activities), and massive (offered to a large number of students). Thus, they can be seen as a great form of inclusion, since they are free, can be taken by anyone, anywhere and at their time, and they can use a huge range of tools and resources, allowing access, including, to students with some type of disability.

MOOCs can be offered with a view to continuous updating throughout life, learning new tools and technologies, training teams, preparing for exams and competitions, leveling up disciplines, dealing with specific content, teaching a new language, acquiring a new competence, among others.

Given its advantages and characteristics, several institutions around the world have created their MOOC providers. Considering the growing offer, it is important to define a model or process for building MOOC courses, and that this is practical for the teacher or instructor, since very bureaucratic models can

discourage, but that it is also a way to build quality courses.

In this way, the objective of this work was to present a model for creating MOOC courses, defined based on the ADDIE model of creating distance courses and on the characteristics of MOOCs adopted in the institution, arriving at ADDIEM, an acronym for Analysis, Design, Development, Implementation and Evaluation in MOOCs. The model developed was for a specific public educational institution, but it can also be used and/or adapted by other institutions.

2. Theoretical Reference

2.1. MOOC

Massive Open Online Courses, or MOOCs, are online courses that are different from more traditional distance courses. Its main characteristics are being open and massive, that is, available to anyone who has access to the internet, and being made available on a large scale. In general, they are short-lived and are on various platforms around the world (MATTAR, 2013).

According to Dal Forno and Knoll (2013, p.178), the term MOOC was used for the first time in 2008, by Dave Cormier, referring to George Siemens and Stephen Downes, in which, at the University of Manitoba, Canada, provided a fully online course on Connectivism and Connective Knowledge, with 2,200 enrollments worldwide. The Connectivism theme addressed in the course has even been considered by several authors as a pedagogical approach for MOOCs, although many do not consider it a new learning theory (MATTAR, 2013).

Siemens (2004, p.9) presents Connectivism as a model "in which learning is no longer an internal and individual activity", but which also takes place through connections with other people and other environments. According to Mattar (2013, p.29), it is a theory more suitable for the digital age, with MOOCs being one of the attempts to expand this theory to a large scale.

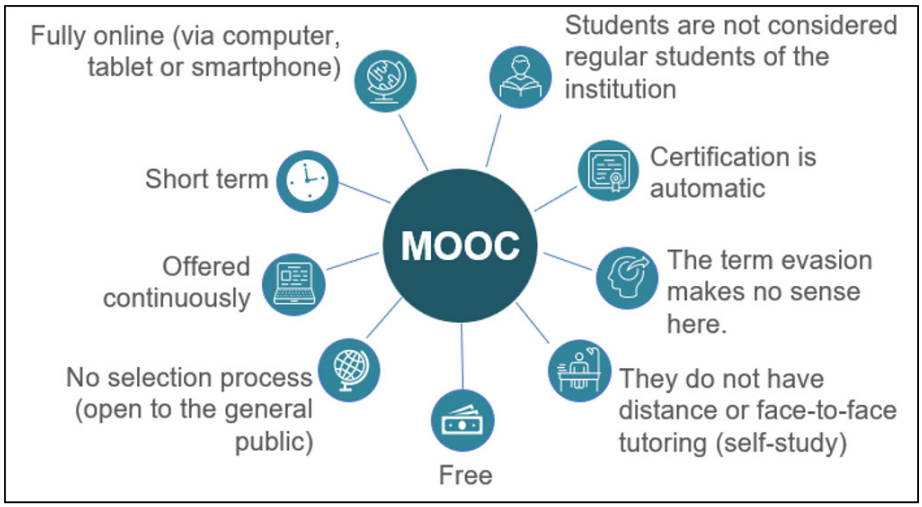
In recent years, several MOOC providers have been launched all over the world, whether by public or private educational institutions, companies, non-profit institutions, etc. Examples around the world are Udacity, edX, Udemy, Khan Academy and Coursera (US), Open2study (Australia), Alison (Ireland), Miríada (Spain), Future Learn (UK), Fun (France), Iversity (Germany)). In Brazil, some examples are Veduca (SP), TIMTec (SP), Lúmina (UFRS), Poca (UFSCar), Free and Open Courses (IFRS), Open Course Platform (Ifes), Eskada (Uema).

These providers often differ in the characteristics of MOOCs. One of the characteristics is the interactivity between people, in a perspective of collaborative learning, emerging categorizations such as that of Andrade (2016, p.105), of Connectivism-based MOOCs (cMOOC), based on the interaction between participants and of eXtended MOOCs (xMOOC), based on streaming content. Ribeiro and Catapan (2018, p.57) bring several other classifications.

Another feature that may vary is the presence of a teacher or tutor to mediate with students, solving doubts and monitoring the learning process. In most providers, courses are conducted by self-study. Whether they are free or paid or have the free or paid certification also varies.

In the context of this work, MOOCs are considered online courses, of short duration, open to the general public, without selective processes, free of charge, with automatic certification - after reaching the established criteria, and that do not have tutoring, being self-study. Figure 1 displays a summary of the features.

Figure 1: Main features of MOOC courses



Source: The authors (2019).

Regarding the construction of MOOC, model proposals have appeared in the literature. One of them is by Costa, Santos, Moura, Silva and Viana (2015, p.329, 332), which presents guides for MOOC designs at three levels and which exposes a mandatory interaction in specific forums, which, according to Mattar (2015, p.30), leads to a distinct aspect to the essence of MOOCs. Fassbinder, Barbosa and Magoulas (2017, p.03) present a research with some patterns for the production of MOOCs, highlighting inverted learning, which allows the teacher autonomy and the student self-management of knowledge. However, there is no detailing of the standards or description of their steps.

Murthy, Warriem, Sahasrabudhe, Iyerr (2018, p.02) describe the Learner Centric MOOC (LCM) containing four elements: "learning dialogues; learning by doing activities; interaction of the learning experience and trajectories of learning extension and orchestration dynamics". It is an interesting student-centered approach with an emphasis on activities; however, it does not describe other aspects of course design. Seidametova (2018, p.247) presents the quasi MOOCs and the four stages for their production: preparatory, organizational, management and launch. The model has an emphasis on templates that facilitate the creation by the teacher, but have a certain rigidity that can take away their autonomy, in addition to not having guidelines for monitoring and evaluating the production of the course. Finally, Yong and Li (2018, p.651-653) present an experience in the production of four MOOC courses, generating a model with four phases and sub-phases. The process seems very complete, but it requires a larger team and has a production complexity that can make the construction of MOOCs unfeasible in many institutions, especially with reduced teams.

Regarding the evaluation of MOOCs, some possibilities are addressed in the literature. We highlight the proposal by Souza, Morgado and Marinho (2019, p.04), which deals, among other things, with the "importance of expert analysis" and "empirical testing".

The models surveyed, even though they brought good initiatives to their contexts, did not fully meet our purpose, since they were either not aligned with our MOOC conceptions; or they were complex for the teacher to produce, without a large support team; or did they not cover all the steps necessary to build a MOOC, such as evaluation; or did not bring a clear definition and models that allowed replication and/or adaptation in other contexts. However, they helped us in the process of designing our process.

2.2. ADDIE Model

In the literature, a model that has been widely adopted by many institutions for the construction of distance learning courses is the ADDIE, an acronym for Analysis, Design, Development, Implementation and Evaluation, which in Portuguese can be translated as Analysis, Design (or Project), Development, Implementation and Evaluation. Filatro (2008) points out that in this model there are two divisions: conception, where analysis, design and development are inserted, and execution, where implementation and evaluation are.

In the Analysis phase, the problem is identified by evaluating the context and target audience for which the course will be produced. At this point, objectives and relevant characteristics are defined, as well as available resources, deadlines, etc. Here is where you will get an overview of the course.

In the Drawing, the contents to be worked on are mapped. There is a structuring of the learning goals and it is time to detail each module and what resources will be present (videos, links, books, texts, etc.).

In Development, all projected materials must be produced (textual materials, video classes, activities, etc.). This phase is one of the most important and should be linked to the learning objectives of the course.

Implementation comprises the configuration of the environment where the materials produced in the previous step will be made available. For Filatro (2008), it is important to have the support of a technician when structuring the platform.

Finally, the last step is the Assessment, in which the course is evaluated by potential students and subject matter experts. Here errors are found and points for improvement are found both in the technical and pedagogical aspects.

The ADDIE model brings steps that we were able to base ourselves on and that were fundamental to structure the steps of the model for MOOCs and for our reality – the ADDIEM.

3. Methodology

This work, in terms of its nature, is characterized as applied research, which, according to Schwartzman (1979, p.1), is “one that has a visible practical result in economic terms or of another utility that is not knowledge itself.”. The research site where the work was applied is a federal public educational institution.

In this work, a literature review was initially carried out on MOOCs and their construction models, as well as on the ADDIE model, in the Google Schollar databases, Capes Periodicals Portal, Pearson Virtual Library, Open University Repository and arxiv.org Cornell University. Twenty-five works were cataloged, of which eight most relevant to this work were analyzed in greater depth.

In parallel, one of the authors of this work chaired a commission that aimed to implement MOOCs in her institution, the research site, composed of specialists from different sectors and functions: educational design professionals, information technology, academic secretariat, management and professors. In this committee, the MOOC concept that would be adopted was defined, given the characteristics of the institution and its DE processes, whose summary was presented in the previous section, as well as the necessary regulations for the functioning of the MOOCs and the institutional provider.

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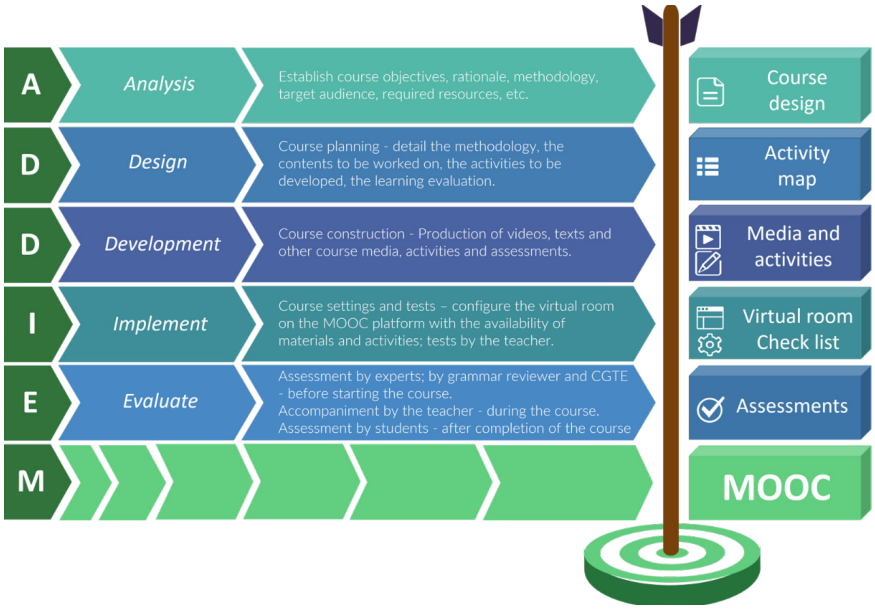
The ADDIEM model was then used to create MOOCs in the institution, which has been happening since mid-2019. It is important to note that the first professors to build their MOOCs did so with the partially built ADDIEM model and without some models. of documents.

The evaluation of the ADDIEM model, including its document models, was initially carried out by the institutional committee and other specialists. The model was also presented to the institution's managers and other professionals, who were also able to make their contribution. Based on the feedback provided, adjustments were made. Subsequently, professors who built their MOOCs were invited to respond to a brief survey on the adopted model, which was analyzed quantitatively and qualitatively. 26 responded to the survey and a discussion about the evaluation is in section 5.

4. The ADDIEM model

Since the ADDIE model is internationally known in the construction of distance courses, it was decided to use it as a starting point to define a model for MOOCs, but making the necessary adjustments and constructions both to what is specific to MOOCs and to to the characteristics of the institution. In addition, the necessary document models were prepared in the stages. ADDIEM is shown in Figure 2.

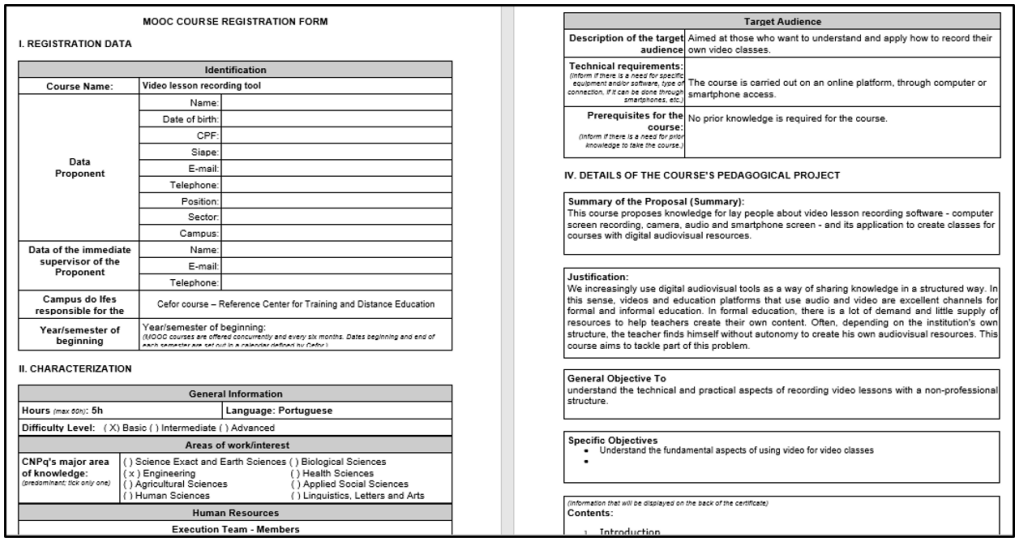
Figure 2: The ADDIEM model



Source: the authors (2019)

The Analysis phase is the moment to establish the course objectives, the justification, the methodology, the target audience, the language, the necessary resources, the team, the forms of support, the prerequisites, the results expected, the assessment of learning, among others. It is at this stage that the course project will be elaborated (Figure 3).

Figure 3: Parts of the MOOC Design Model



MOOC COURSE REGISTRATION FORM

I. REGISTRATION DATA

Identification		
Course Name:	Video lesson recording tool	
Data Proponent	Name:	
	Date of birth:	
	CPF:	
	Siape:	
	E-mail:	
	Telephone:	
	Position:	
	Sector:	
	Campus:	
Data of the immediate supervisor of the Proponent	Name:	
	E-mail:	
	Telephone:	
Campus do Ifes responsible for the	Cefor course – Reference Center for Training and Distance Education	
Year/semester of beginning	Year/semester of beginning: (IMOOC courses are offered concurrently and every six months. Dates beginning and end of each semester are set out in a calendar defined by Cefor.)	

II. CHARACTERIZATION

General Information	
Hours (max 60h): 5h	Language: Portuguese
Difficulty Level: (X) Basic ( ) Intermediate ( ) Advanced	

Areas of work/interest	
CNPq's major area of knowledge: (predominant tick only one)	( ) Science Exact and Earth Sciences ( ) Biological Sciences (x) Engineering ( ) Health Sciences ( ) Agricultural Sciences ( ) Applied Social Sciences ( ) Human Sciences ( ) Linguistics, Letters and Arts

Human Resources
Execution Team - Members

Target Audience	
Description of the target audience	Aimed at those who want to understand and apply how to record their own video classes.
Technical requirements: (Inform if there is a need for specific equipment and/or software, type of connection, if it can be done through smartphones, etc.)	The course is carried out on an online platform, through computer or smartphone access.
Prerequisites for the course: (Inform if there is a need for prior knowledge to take the course.)	No prior knowledge is required for the course.

IV. DETAILS OF THE COURSE'S PEDAGOGICAL PROJECT

Summary of the Proposal (Summary):
This course proposes knowledge for lay people about video lesson recording software - computer screen recording, camera, audio and smartphone screen - and its application to create classes for courses with digital audiovisual resources.

Justification:
We increasingly use digital audiovisual tools as a way of sharing knowledge in a structured way. In this sense, videos and education platforms that use audio and video are excellent channels for formal and informal education. In formal education, there is a lot of demand and little supply of resources to help teachers create their own content. Often, depending on the institution's own structure, the teacher finds himself without autonomy to create his own audiovisual resources. This course aims to tackle part of this problem.

General Objective To
understand the technical and practical aspects of recording video lessons with a non-professional structure.

Specific Objectives
- Understand the fundamental aspects of using video for video classes
-

(Information that will be displayed on the back of the certificate)
Contents:
1 Introduction

Source: Prepared by the commission for the creation of IFES MOOC courses (2019).

Figure 3 displays parts of the defined MOOC project template. For example, it was partially completed for a course. The complete model can be found at https://bit.ly/modelProjCurso.

Then comes the Design phase, which has as its main focus the planning of the course. In this phase, it is time to detail the methodology, the contents to be worked on, the activities to be developed and the learning evaluation. At this point, the activity map will be prepared. Figure 4 shows the partially populated activity map template for the project course shown earlier.

Figure 4: Activity Map Template for MOOCs

ACTIVITY MAP						
Course		Video recording tool				
Teacher						
Start year/semester:		2019/2				
Workload:		5h				
Menu:		This course proposes knowledge for laypeople about video lessons recording software - computer screen recording, camera, audio and smartphone screen - and its application to create lessons for courses with digital audiovisual resources.				
N.	Topic	Description/Objectives	Contents	Activity and Resource	Note	
1	Introduction	Overview about the course, about recording video lessons and about the OBS software	One-person army: is it possible to record video lessons alone?	Video: welcome to the course and message from the teacher about the process of recording video lessons, in part motivational.		
			NOTE: Open Broadcaster Software: a free and open source software for broadcasting and recording audio and video.	Video: demonstration of the main features of the Open Broadcaster Software (OBS) software.		
2	Initial Tips	Understand the key elements that make it possible to record a good video lesson, such as: lighting, audio relevance, preparation, etc.	Lighting, position and superfluous elements	Video: tips on lighting, position and how to avoid superfluous elements.		
			All attention to the audio	Video: Reinforce the relevance of audio in specific video.		
			Don't be so demanding with yourself	Video: suggestions for students to experiment without limiting themselves too much.		
			Preparation is 80% of the work	Video: tips on site preparation and proper recording of video lessons.		
3	Technical Content	Understand techniques for using software that allow recording a good video lesson.	Audio and video sources	Video lesson: recording of the computer screen covering the audio and video sources in OBS.		
			Combining camera and computer screen	Video lesson: recording of the computer screen demonstrating the combination between camera and screen in OBS.		
			How to adjust your audio in OBS	Video lesson: recording of the computer screen demonstrating how to adjust the audio in OBS.		
			Using Scenes for Interesting Transitions	Video lesson: recording of the computer screen on the use of scenes to organize the work in OBS.		

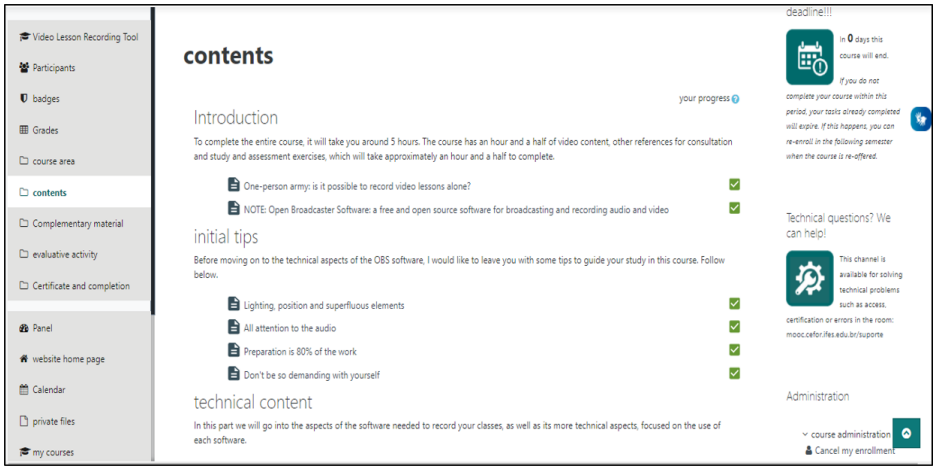
Source: Prepared by the commission for the creation of IFES MOOC courses (2019).

As can be seen, the activity map model proposed here is leaner than the models that some institutions use to plan distance learning courses. This simplification occurred for two reasons. First, due to resistance for years on the part of teachers to fill in very detailed models. Second, because we aim for the map to give the teacher an overview of the course, including in structural terms. Thus, for example, the topics on the map will become topics in the virtual room, as well as the defined contents will be those worked on in each topic. The activity map template is available at https://bit.ly/MapaAtividades.

Once the course has been planned, it is time to produce it. In the Development phase, the production of video lessons, texts and other media that will be used in the course is carried out. It is also time to create activities and assessments. This is the most time-consuming step in the production of a MOOC.

Figure 5 shows part of the virtual room of a MOOC, after the teacher has inserted the created contents. As you can see, when comparing with Figure 4, there is a direct correlation between what is in the virtual room and what was planned in the activity map.

Figure 5. Part of a MOOC's virtual room



Source: Prepared by the authors, based on IFES, 2019.

In the Implementation (Implement), the virtual room settings are performed in the MOOCs provider, where materials and activities are inserted. In the institution of this research, the platform used by the MOOCs provider is Moodle. Also in this phase, tests are carried out by the teacher, including to verify that the students have access to the contents and activities in the desired way. Finally, the teacher performs a checklist, using the defined model, available at https://bit.ly/checklistMooc .

Figure 6 presents part of it.

Figure 6: Part of the teacher checklist

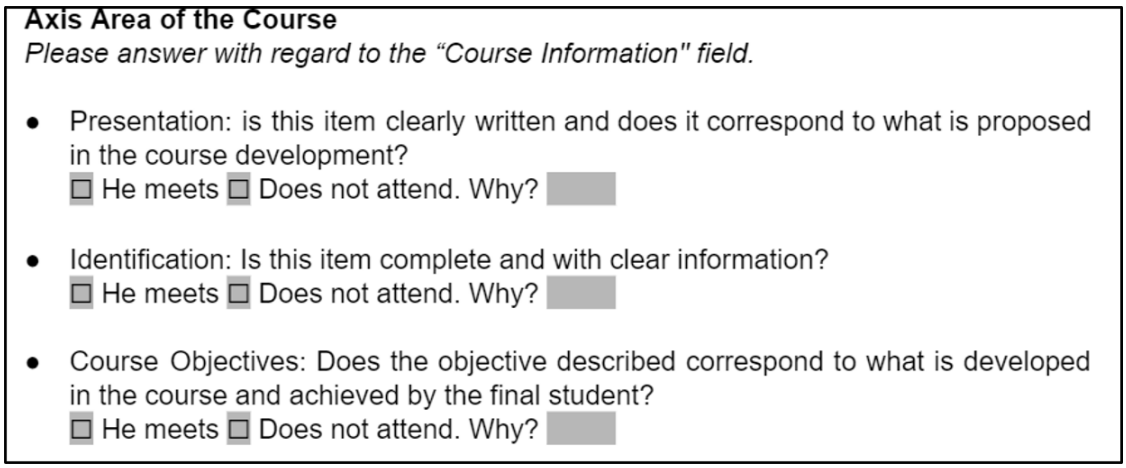
Course Content Topics		
4	Videos	Check that the videos in the room are embedded in pages and that the links are not broken.
5	Evaluative Questionnaires	Enter each Quiz > click on the "Sprocket" icon and then "Edit Settings" In "General" > "Description" - check if it appears: what the questionnaire is about, its value and that there are 2 attempts. In "Duration" > "Close the questionnaire" - check if the course's end date and time is 23:59, ie, December 31 of the year the course was launched. Under "Note" > "Allowed attempts" - it should say 2. In "Restrict Access" - Check if restrictions have been set for access to the questionnaire, if applicable. Under "Completion of activity in the course" - Check that "Show activity as completed when conditions are met" is checked and that the option "Student must receive a grade to complete this activity" is checked.
6	Other Mandatory Activities	In "General" > "Description" - check if there is: what the activity is about and what should be done. In "Duration" - check if the course's end date and time are 23:59, that is, December 31 of the year the course was launched. Under "Completion of activity in the course" - Check that "Show activity as completed when conditions are met" is checked and that the most appropriate option for the activity in question is checked.
7	Resources	Check that all room features are correct and functional. Check if the fonts and colors used are standardized. Make sure the images are properly sized and clear. Check that accessibility recommendations are being followed.
8	Completion of Activity in the Course	On each resource or activity > Under "Completion of Activity in Course" For essential course resources and activities: Ensure that "Show activity as complete when conditions are met" or "Students can manually mark activity complete" is checked. For optional course resources and activities, such as labels and supplemental materials: Ensure that "Do not indicate completion of activity" is checked.

Source: Prepared by the commission for the creation of IFES MOOC courses (2019).

At this point, the first version of the course will be finished and the Evaluation phase will begin. Specialists in the field and, if desired, people with the target audience profile are indicated to evaluate the course.

They will take the course as students and fill out an evaluation form, indicating possible improvements. Figure 7 presents part of the evaluation form. The model can be found at https://bit.ly/avaliacaoEspec.

Figure 7: Part of the expert assessment form


Axis Area of the Course

Please answer with regard to the "Course Information" field.

- Presentation: is this item clearly written and does it correspond to what is proposed in the course development?
  ☐ He meets ☐ Does not attend. Why?
- Identification: Is this item complete and with clear information?
  ☐ He meets ☐ Does not attend. Why?
- Course Objectives: Does the objective described correspond to what is developed in the course and achieved by the final student?
  ☐ He meets ☐ Does not attend. Why?

Source: Prepared by the commission for the creation of IFES MOOC courses (2019).

With the experts' assessments in hand, the teacher/instructor makes the necessary adjustments and sends it to a Portuguese (or course language) reviewer.

Then, a technical evaluation is carried out by a team specialized in technology and educational design. After this, the last adjustments are carried out, if necessary. The technical evaluation model is available at https://bit.ly/avaliacaoTecnica.

It is important to remember that the present work deals with a public institution and that the process model was designed especially with courses offered within the regular working hours of those involved. However, if there are other resources, such as partnerships, government projects or in the case of private institutions, a technical team can be hired for language revision and for specialists.

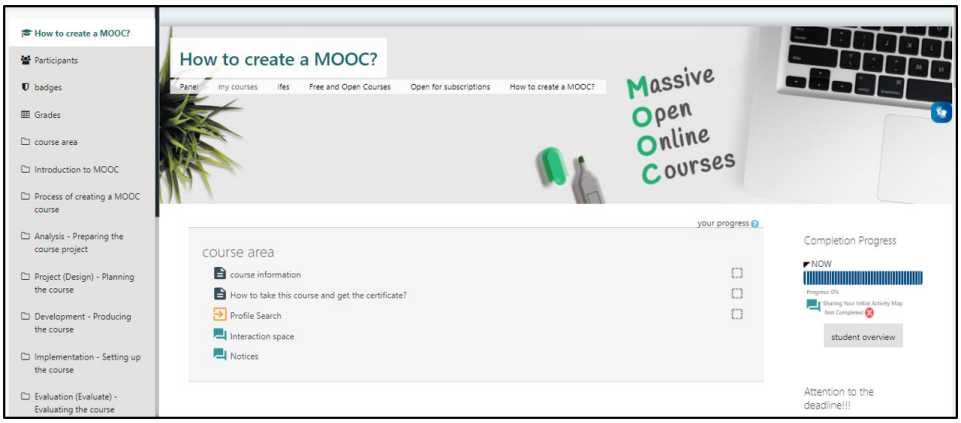
After this first evaluation step, the MOOC is ready to go live. However, this phase remains with two other activities.

In the first semester of the course, especially, the teacher/instructor monitors the course, checking posts in forums, activities carried out by students and calls from the support system, in order to identify possible needs for adjustments and improvements. It is worth mentioning that the support system filters and attends to most cases, usually related to access issues or general doubts. The specific ones that are sent to the teacher are related to problems regarding the content or activities of the course. Remembering that the MOOCs discussed here do not have mediation (tutoring); thus, they need to be constructed in a way that the student can perform them autonomously.

Another important instrument of analysis are the assessments completed by the students as soon as they finish the course. This instrument helps the teacher to better identify based on the students' point of view. The questions available on this form can be viewed at https://bit.ly/avaliacaoAluno.

Finally, it is important to highlight that, in addition to making the ADDIEM model and its document models available, in 2020, a MOOC was prepared by the authors to guide teachers regarding the construction process. Figure 8 shows a part of the course.

Figure 8: Part of the virtual room of the course "How to create a MOOC"



Source: Prepared by the commission for the creation of IFES MOOC courses (2019).

5. Assessment of the ADDIEM model

5.1. Evaluation by the MOOC committee and other professionals

During the process of elaborating the ADDIEM model, both the process model itself and its document models were evaluated by the group of experts from the institution's MOOCs commission and also by professionals outside the commission, from the teaching area. The model was also presented to managers and other professionals at the institution, who were able to collaborate. Based on the feedback provided, adjustments were made. The adjustment needs arising from the feedbacks were summarized in creating new fields in document templates and adapting existing fields.

The evaluation of the ADDIEM model was also carried out by MOOC professors, who were using it to create their courses simultaneously with the construction of the process. The main feedbacks from teachers were regarding the need to create new document models. One of them was the checklist, by the teacher of the Implementation phase, which did not exist in the initial version, as teachers wanted a quick and practical way to verify that their course was configured correctly, before submitting it for evaluation. The other document models suggested were due to the institution's formal process, which began to require, for example, some terms of consent. The formal process also began to require, as of 2020, that MOOC proponents present the certificate of the course "How to create a MOOC?", that is, they should know the process before proposing a new course.

It is important to note that the necessary adjustments were made and new models created, so that the process and document models presented here in this article are already validated.

5.2. Evaluation by teachers

Periodically, we ask the institution's MOOC professors to complete a web survey about the defined and used creation process – the ADDIEM. So far, we have had the response of 26 teachers. It is worth emphasizing that some responded right at the beginning, when the process was still under construction and the production of the courses took place at the same time. Others responded after the process was completed, and still others after having taken the course "How to create a MOOC?".

Of the 26 teachers, 20 (70%) responded that they had never produced a MOOC and six had already produced it on other platforms. 13 teachers (50%) took the course "How to create a MOOC?". The others

produced their MOOCs before it was released.

When asked about the most relevant aspects in the construction of their MOOC, regarding the ADDIEM model and its document models, the most highlighted were: "The activity map helped my planning" (77%); "The process helped me to understand and follow the necessary steps" (73%); "The evaluations carried out were important to improve my course" (73%); "The process is easy to understand and well explained" (73%); "The course project guided my first steps in planning" (69%); As can be seen, fundamental aspects were highlighted in the model, with emphasis on planning and evaluation activities and models, which refer to the quality of the course they developed. Although most teachers have cited the importance of using the activity map, one teacher, however, mentioned not liking to use it: "As I consider the creation of a course something organic and creative, I cannot stick to the activity map to plan it. I think the map hampers my creativity." It is worth noting that, although encouraged, the activity map is optional in ADDIEM.

When asked if they considered that, following the defined process, the teacher was capable of designing a MOOC course from beginning to end, we had 24 teachers (92%) who answered "yes", two answered "partially" and none answered "no". An important highlight here is that the two teachers who responded "partially" created their MOOCs early on, before the process and their document templates had been completed. In this way, we have that all (100%) teachers who followed the finalized process consider that it fully attends.

Finally, we left a space for the teacher to speak freely, make suggestions or even mention the difference between building a MOOC before and after the finalized process, for those who were in this situation. Not all responded, but among the respondents, the most outstanding points were: the importance of the process and the document models created (cited by 14 professors). A professor reinforced the importance of systematic planning: "The process helped me to understand the phases of creation and development of a course and the need to plan the course in a more systematic way". Another teacher mentioned the help for media construction: "The finalized process helped me to see clearly the stages of construction of a MOOC course and the documents that were defined in this last stage were essential to direct the preparation of media for my course" . One teacher highlighted that the model guides, but does not hinder: "The model gives us how to do it, helping the creation and propagation of any teaching methodology". Four teachers also cited the importance of the course "How to create a MOOC?" as a guide to the construction process. Other teachers reinforced the evaluation and the search for quality: "The importance of the Checklist and the evaluation of experts help a lot in improving the process of building a MOOC"; "The quality requirement for the course and the necessary steps to meet this required quality became clearer. With the clear process, everyone wins". Two teachers who took their courses while the process was not yet concluded mentioned that additional clarifications were needed with the technical team. However, this was not mentioned by the other teachers.

5.3. Evaluation of participants of the course "How to create a MOOC?"

At the time of this analysis, 219 people had completed the course "How to create a MOOC?" and thus carried out its evaluation. 75 (34%) were taking a MOOC for the first time, and 16 (7%) had never taken a distance course. 49 (22%) were civil servants, 64 (29%) were students of the institution, and 106 (48%) were external public. Most study and work (131 = 60%), have postgraduate degrees (147 = 67%) and deal well with technologies (200 = 91%). However, six cited barely being able to perform activities without assistance. About why they took the course, 128 (58%) mentioned that it was a subject they needed to learn.

In the question "How do you rate this course?", 156 answered "Very good", 53 answered "Good", seven answered "Fair" and three answered "Poor" or "Very Bad". Thus, we have 209 (95%) who consider the course very good or good - which is quite significant. As for expectations in the course, 212 (97%) answered that the course "met" or "exceeded expectations", and of these, 54 (25%) answered that it "exceeded",

and seven people (3%) answered that the course did not meet expectations. Finally, when we asked what grade you would give the course, from 1 to 10, grade 10 was predominant (138 = 63%), with the average grade being 9.3.

Conclusion

The objective of this article was to present the process developed for the elaboration of MOOC courses of the Federal Institute of Espírito Santo - Ifes, the ADDIEM model, as well as the document models needed in its phases. The process and models were evaluated and adjustments were made to reach the final result presented here.

Both through experience with the process, through the evaluation of peers and other specialists, as well as through the feedbacks from teachers, we realized that ADDIEM has served well in helping to build MOOCs and there has been no resistance or great difficulty by teachers, especially after the process. be completely defined. In addition, the course "How to create a MOOC?" has been very important in helping to understand each phase of the process, which was evidenced in its excellent assessment.

It is important again to emphasize that the definitions presented here are within the context of a public institution that considers MOOCs as online courses, of short duration, open, free and without tutoring. However, the process and models developed are general enough to be used or adapted for use in other institutions.

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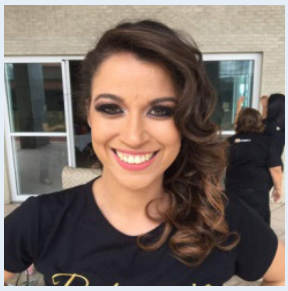

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