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Instructional Design of MOOCs: Developing an Interactive Constructor for Creating eLearning Videos

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Abstract: In this proposal, we describe the doctoral research on developing an interactive constructor for creating learner-centric educational videos in MOOCs. The literature review and informal interviews with the MOOC creators, indicate that such a tool will help teachers to create effective educational videos for MOOCs. The development of the new constructor will be based on the review of existing constructors, teachers' feedback about challenges in using them, and well-researched instructional design principles and theories. The interactive constructor will include feedback, self-review, prompts, etc. to scaffold the teachers to create engaging video scripts for MOOCs.

Keywords: Instructional design of MOOCs, interactive video constructor.

1. Rationale

A massive open online course (MOOC), as the name suggests, is offered online and provides open access to the learners (Kaplan & Haenlein, 2016). Our teachers are well aware of and many of them practice the principles of interactive teaching in their classrooms. However, when it comes to online asynchronous teaching and creating MOOCs, there are not many resources available for the teachers to help create engaging videos. Also, the available resources do not provide much needed scaffolding and feedback to the teachers. Therefore, the researcher proposes to design an interactive constructor to be used by the teachers while creating their videos. This will be an improvement over the existing constructors, both pedagogical and technological, to include feedback, self-review, prompts, interactivity, media, examples, simulations and demonstrations etc. The design of the new constructor will be based on the well-researched design and instructional design principles. Most importantly, teachers' inputs during this research will play a significant part in the development of the new constructor.

This research will continue personal interest and will be based upon the researcher's work experience in Instructional Design, particularly within the area of designing and developing e-content resources.

1.1 Statement of the Problem

Although there are instructional design (ID) models available for the teachers to create educational videos, most of them are just descriptive models. Some models provide constructors but they are not interactive and do not provide feedback. An interactive constructor could help teachers to create learner-centric educational videos in MOOCs.

1.2 Objectives of the Study

At baseline, the primary aim of this study is to identify the ways to improve designing of educational videos and help teachers in creating those. In addition, this research will also try to identify the

challenges in designing learner-centric educational videos and try to come up with an interactive constructor for creating videos to standardize Instructional Design for educational video creation.

2. Review of Literature

When it comes to Instructional Design for MOOCs, there has not been much research that will guide instructors in creating MOOCs. So far, very few research studies have focused on theoretical models of MOOC design (Ichimura & Suzuki, 2017).

De Waard (2013) created a MOOC Guide. Out of the total 10 sections in the guide, 5 are dedicated for Instructional Design of the MOOCs. Conole's (2014) Learning Design Framework comprises 12 dimensions. These dimension focus on the educational characteristics of MOOCs.

Grover et al., (2013) devised a taxonomy where they categorized the MOOC design in two main structures. While Conole (2014) and Grover et al., (2013) talk about educational elements of MOOCs, Alario-Hoyos et al., (2014) talk about the other things related to the design of MOOCs such as logistics, finance, and technology. This is the first ever systematic approach in creating a design tool but still it fails to offer the scaffolding often required by MOOC creators.

To address the concerns of not having any learner-centric model, Murthy et al., (2018) proposed a Learner-Centric MOOC Model (LCM). This well-developed model consists of guidelines for MOOC creators to help them design and develop MOOCs that are focused on learners. Compared to the earlier models, the authors of the LCM model go one step further and provide much needed constructors for the instructors to use while creating their MOOCs. However, these constructors are MS PowerPoint-based and thus have several technological limitations when it comes to providing the necessary scaffolding to the instructors who are not familiar with instructional design. For instance, no prompts are possible in PowerPoint to tell the instructors if they got it correct or not, examples are not included for instructors to compare their script, no scope for writing production notes, no instruction on writing measurable objectives, and finally no hand holding/scaffolding offered for the instructors while writing their script.

3. Research Gaps

As indicated by the literature, there is a need to create an interactive tool/constructor that will help teachers to create effective educational videos / Learning Dialogues (LeDs) for MOOCs.

4. Research Questions

1. What is the usability of the available constructors when creating educational videos?
2. What are the main pedagogical obstacles and challenges faced by teachers when creating educational videos?
3. Compared to using other modes such as documents/slides, in what way will the new interactive constructor help teachers to overcome the challenges and obstacles faced by them when creating educational videos?

5. Scope and Limitations

This research study will mainly focus on designing videos using an interactive constructor and will not cover the other aspects of creating a MOOC such as creating assessments, quizzes, discussion forums and other reading materials.

6. Hypotheses

- H1: Interactive constructor will facilitate application of learner-centric approaches in the process of creating educational videos.
- H2: Interactive constructor will improve teachers' interest in creating educational videos.

7. Research Methodology

This research study is intended to develop an interactive constructor to help teachers in creating learner-centric videos for MOOCs. The first step would involve conducting a pre-survey and semi-structured interviews. This will be done to identify the main pedagogical obstacles and challenges faced by teachers when creating educational videos. This step will highlight the shortcomings in the existing constructor.

The design of the interactive constructor will be based on well-researched instructional design theories and models. The plan is to develop an HTML5 based interactive constructor. This will be an improvement over available constructors, both pedagogical and technological to include feedback, self-review, prompts, interactivity, media, examples, simulations and demonstrations etc.

A fieldwork experiment will be conducted to confirm the effectiveness of the interactive constructor. To serve this purpose, the newly developed constructor will be given to the participants of the study to use. Later, a questionnaire instrument will be administered and semi-structured interviews will be conducted. The aim is to answer the third research question in section 4 stated as; 'Compared to using other modes such as documents/slides, in what way will the new interactive constructor help teachers to overcome the challenges and obstacles faced by them?

7.1 Sample Selection

For the pre survey and post survey, the participants will be enrolled using Non-probability (Purposive) sampling. The Population would be all the teachers who have taken the Designing Learner Centric MOOCs Course. Until March 2021, more than 15000 teachers across India in 6 batches have taken this online course on SWAYAM and IITBombayX platforms. Sample would be all the teachers who have enrolled for the certification exam of this course and passed it.

7.2 Tool (Selection of survey instrument)

For the quantitative method, online and offline questionnaires will be used to gather data during the research. For the qualitative method, semi-structured interviews will be used.

7.3 Data Collection and Analysis

- **Collection**: This research will include both quantitative and qualitative methods to collect data.
- **Analysis**: After all the research data is collected, specific statistical tests would be run using statistical analysis software. Some of these tests would be descriptive statistical tests and tests of statistical significance such as ANOVA, regression analysis, and reliability analysis. A qualitative data analysis software will be used to analyze the qualitative data.

8. Drawing Conclusion

In this final stage of the study, outcomes and findings (both positive and negative) about the new constructor will be presented and appropriate conclusions will be drawn.

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