SEVEN PEDAGOGICAL DESIGN POINTS FOR USE OF VIDEOS IN XMOOC PLATFORMS ADAPTED FOR SOCIAL LEARNING

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Abstract

This paper addresses a puzzle in the research literature on use of videos in Massive Open Online Courses (MOOCs); Although they play an important role, there is little research exploring the pedagogical design principles behind use of videos, specially, how they relate to the constraints and possibilities of a platform's pedagogy. In fact, current research demonstrates other interests which are reflected in emerging research streams. For example, a learning analytic approach measures video performance; studies map pedagogical video styles; and there is development of proprietary software for management of videos. In this regard, there seems to be a gap in the research. We find few conceptual papers outlining the pedagogical design principles for video and what role videos play in relation to common instructional strategies. There is need for conceptual papers describing the pedagogical design principles for how to effectively devise use of videos, moreover, what role videos play in the MOOC design work. Therefore, the goal of this paper is to outline seven pedagogical design points for use of videos in MOOCs. These were adapted to fit a MOOC platform's pedagogy, social learning. They emerged when adapting research from a sociological study into a MOOC that run on FutureLearn, which explored how a teacher used digital technologies in foreign-language training at a Norwegian high school.

Keywords: MOOC, video, online course design, social learning.

INTRODUCTION

Current MOOC research on use of videos seems dominated by a learning analytic approach, meaning research contributions evaluating video performance. In contrast, the same research is silent when explaining what role videos play in relation to a MOOC platform's pedagogy. For example, the British MOOC provider FutureLearn has emphasis on social learning, meaning that storytelling, conversations, and celebration of the learner's progress are endorsed as core values that structure online learning processes [1]. FutureLearn's pedagogy is rooted in a synthesis between cognitive and socio-cultural learning theories [2, 3]. Moreover, it presumes an instructional strategy based on an idea that if learners engage into discussion forums, a knowledge production process emerges. Obviously, such a pedagogy represents constraints and possibilities for course design work. MOOC designers are challenged to thoroughly arrange course contents on a very detailed level and structure for that various modalities stand in relation to each other as part of an overall course design, a factor that goes for use of videos too. In other words, for videos to be pedagogically effective, they should not be designed in isolation but as part of a greater instructional design work strategy. In this regard, the main objective of this paper is to outline seven pedagogical design points for use of videos adapted for a MOOC pedagogy emphasizing social learning. These emerged when a sociological study, which explored the use of digital technologies among a teacher in a Norwegian high school, was adapted into a MOOC that run on FutureLearn. To illustrate the above argument, the paper performs an analysis in two parts. First, a brief review of relevant research on use of videos in MOOCs is performed. Second, the seven pedagogical design points for use of videos in MOOCs are outlined.

PART I: RELEVANT RESEARCH ON USE OF VIDEOS IN MOOC

When MOOC course designers or educators start planning for making a MOOC, we can in most cases assume that they use some basic pedagogical principles from instructional learning design. For example, the course design work consists of setting meaningful learning outcomes, structure course and learning content in an effective way, design interesting learning activities, create assessment criteria, etc. In addition, the MOOC course design is often performed by applying standard online course formats. These can be embedded in the platform used for organizing a MOOC. It is not uncommon that course design workers use the xMOOC course formats as template. xMOOC mimics the traditional lecture centric approach used in teaching on campus. Learners acquire the predefined knowledge by completing learning activities, conducting self-tests, and assessment and are awarded certificates.

In contrast, the research literature on use of videos in MOOCs, does not adequately describe what and which role instructional learning design principles play in creating the objectives behind the use of videos. Instead, the very same research is focused more on understanding the *output* of video performances than understanding the design practices, activities, and processes, leading up to the end-product they in the first-place measure. This aspect is foremost reflected in three emerging research streams on videos which are outlined below.

First, studies use a quantitative learning analytic approach to assess video performances in MOOCs as researchers map user patterns and learner engagement. For example, Guo et.al argue in a classic paper that different videos styles in MOOC has different outcome on student engagement. Based on a data sample of 6.9 million video sessions, they show that short videos and videos with instructor involvement are more accepted than traditional formats used in video lecturing. Research establishes that learners watch videos at fast speed meaning that one has precise data on where students dropout from video watching, a topic examined in a case study by Kim et.al [4]. They analyze click-level interaction (playing, pausing, replaying, and quitting patterns) and uncover that long videos, tutorials, and re-watching have high drop-out rates. Mamgain [5] carried out a survey where they asked learners about various video features embedded in Coursera and edX. The survey showed that learners prefer short videos over in-built video-quiz features. Brinton et.al [6] and Brinton et.al [7] apply clickstream data from video-watching which are used to build algorithms that can predict student behavior in use of videos which lay the foundation for customizing assignments in new ways. Later, research has demonstrated that the ways students engage with videos reveal general learning paths of students in MOOCs [8]. Li et.al [9] collected data on how students watch video lectures and find that students in fact adopt new video user patterns which are fitted to personal learning strategies and perceived difficulty of learning content in videos. Bonafini et.al [10] completed an interesting study where they calculated that video watching and participation in discussion forums increase the probability of completing a MOOC. In contrast, we see the tendencies that videos become more interactive and are embedded with quizzes, a matter that was subject in a study by Kovacs [11]. Kovacs demonstrates that learners engage heavily with in-video quizzes and 74% of the users who start watching a video will engage in a following in-video quiz. Later, researchers have turned to eye-tracking technologies to establish user patterns and outcome on student performance. Sharma et.al [12-14] used this particular technology to determine that various gaze patterns influence the attention of the student having larger implication on overall engagement in MOOCs. The research find that students who watch videos and at the same time engage with other learners have better learning outcome than students who only engage with video material.

Second, we can observe a research stream that explores the development of proprietary software and beta versions for video management in MOOCs. The research stream evolves due to the fact that different video management systems are developed and thereafter tested and researched. For example, researchers have designed video recommender systems [15, 16], but also specific tools for learning analytic research. A great challenge in video learning analytic, however, is the tendency that MOOC platforms only deliver aggregated behaviors of learners, meaning that one has little detailed knowledge about video watching patterns. For that reason, Chen et.al [17] developed a visualization system for clickstream analysis, PeakVizor, which can assist instructors and researchers to analyze the 'peaks' or the video segments in videos. VisMOOC, designed by Shi et.al [18], is a similar visual analytic system which can be used to obtain data on particular learning behavior. Other studies attempt to develop video software that facilitates for collaborative activities in videos. Monedero-Moya et.al [19] designed two assessment tools for annotation in videos, Collaborative Annotation Tool and Open Video Annotation. In a similar study, Xu et.al [20] designed another annotation system that allows learners to explore and locate content of interest efficiently. Research also explores ways to make video lecture into smaller file-sizes as a regular challenge with videos are large computer files [21].

Third, we can also detect a third research stream that centers on the various pedagogical video styles used in MOOCs [22, 23]. For example, for a longer time talking head videos have been a dominating video style, but the mass-production of learning videos have led to a diversity in how videos are made and what educational purpose they serve in MOOCs. Researchers therefore start charting various video styles but still find that speaker-centric (a visible person speaks the contents) and board-centric (a large rectangular surface displays the contents) are still preferred video styles [24], which reconfirm findings from previous studies [25]. In contrast, Chorianopoulos [26] develops an interesting taxonomy of asynchronous instructional video styles. Rahim and Shamsudin completed a study on video lectures and find six categories of designs [27]. Researchers also begin to outline benchmarking criteria over successful video styles [28]. Diwanji at.al [29] shows that if MOOCs combine a variety of video styles, the greater likelihood that successful learning will take place.

PART II: SEVEN PEDAGOGICAL DESIGN POINTS FOR USE OF VIDEOS

Then, the paper turns its attention to outline seven pedagogical design points for use of videos in MOOC. These are only suggestions and derived from making the MOOC, 'Digital Transformation in the Classroom' (DTC).[1] DTC, however, was first and foremost created to use the MOOC concept as an alternative way to disseminate research results. DTC is based on a sociological field study of a female teacher working in a Norwegian high school [30]. The qualitative study investigated how the teacher used digital technologies to organize foreign language training. The sociologist did extensive classroom observation, collected digital items, and conducted qualitative interviews with the teacher and her students. The study was carried out from august 2011 to March 2012. In 2016, the study was published as part of a doctoral dissertation covering about 400 pages. A separate chapter describe the teacher's teaching practice and covers roughly 80 pages. The study is academic, to a sense, 'text-heavy', and a hard read for practitioners, posing challenges. For example, an organizational research lens on technology implementation in organizations was used, not traditional pedagogical theory. The study was inspired by the research works of Orlikowski [31] and relied significantly on *contextualizing*, using a thick description approach [32]. The study described the teacher's classroom practice from a process perspective which included planning and implementation of teaching practices. Later, it would become unfeasible to adapt the study into a scientific journal article. Instead, it was decided to make a regular MOOC. In this format, the study's research results could reach a larger target group, teachers, moreover, one could actively engage with the research. Therefore, a three-week MOOC was made and launched on FutureLearn. The MOOC had its first run the fall of 2019. The course designers used two and a half years to create DTC and the design and production period lasted from August 2017 to May 2019.

Pedagogical design point for video no. 1: Adapting video to a MOOC platform's pedagogy

The first pedagogical design point relates to adapting use of video to a MOOC platform's pedagogy. In other words, the course designers had to adapt the sociological study to fit with FutureLearn's MOOC pedagogy which is facilitated for social learning. FutureLearn appears not to make an explicit connection to the established learning theories, like behaviorism, cognitivism, and social cultural learning theory, when defining social learning. FutureLearn's approach seems based on what we would call a *conversational pedagogy* [2, 3] where the main goal for the learner is to engage into a story and learn from social interaction with other learners, thereby creating a scalable and flexible pedagogy. In FutureLearn's [1] white paper for pedagogical view, the MOOC platform supports three core principles of pedagogy. These include: (1) *telling stories*; (2) *provoking conversations*; (3) and *celebrating progress*. The pedagogy assumes that through engaging into narratives, learners will learn, remember, and structure knowledge. When learners reflect and raise their opinions and contrasting views meet, learning happens. In addition, engagement must be celebrated and made visible. The learner must have ways to assess their development and receive feedback. Here, FutureLearn base their pedagogical principle on Hattie's [33] research who argues that learning is most effective when teaching and learning is visible. In practice, FutureLearn relies on the use of discussion forums to fulfil the objective of social learning or the conversational pedagogy. As a course designer, however, one must engage with the pedagogical view which sets constraints. When creating a MOOC, course designers must adapt to the conversational pedagogy in at least two ways.

First, the conversational pedagogy is embedded and structured into the course structure in the MOOC platform itself. The FutureLearn platform is an "interactive book" following an xMOOC format. xMOOC follows a lecture-instructed centric pedagogy. To learn from storytelling and engage into conversations, the learner follows a predefined path with arranged learning material and defined learning goals with assignments and assessment possibilities. In online courses which use Learning Management Systems (LMS), it is not uncommon to use a single file structure and module approach. FutureLearn's course structure does not follow that approach. Instead, the interactive book is based on an instructional design idea that the learner starts on an introductory web page and works him og herself from web page to web page which contains facilitated learning contents. On each web page, a discussion forum feature is embedded as default. Also, instead of using LMS framing, a different terminology stands out. For example, a module is called a "Week", while a subsection within a Week is called an "Activity". Each Week contains a "Step". A step is a web page and can be structured by the limited features offered by FutureLearn. A step can be made in different ways, comprising, for example of an article, a video, a discussion, poll, or a quiz. FutureLearn allows for limited use of embedded third-party content (only YouTube videos) while other third-party contents need to be hyperlinked.

[1] See: https://www.futurelearn.com/courses/digital-transformation-classroom/3

Second, FutureLearn provides a *course design template* which is used for planning and structuring of MOOCs. The course design template is vital for creating coherent course structure and helps to adapt to FutureLearn's pedagogy. An Xcel sheet showing an overview of Week, Activity, and Steps is used as the course design template. The course design template is a rather complex tool that challenges the course designer to think thoroughly through how the MOOC is going to look like. As FutureLearn recommends that a Week should contain no more than 20 steps, moreover, that a learner should roughly engage between 15 to 20 minutes on each step or web page, the course design template is justified. The course design template could be best described as a type of interrelated learning goal maze. When new course designers see it for the first time, they realize that creating a MOOC on FutureLearn takes a great effort. It is full of learning goals which need to be formulated and cover many different levels and levels in detail. These include learning goals for the entire MOOC and for each Week, Activity, and Step, and so forth. The course creator is therefore challenged to think through how the various learning goals stand in relation to each other. For example, if a step contains a video and text and is meant instruct the learner, a following learning activity should encourage the learner to apply their knowledge by a test or answering a question for reflection in the discussion forum.

In contrast, the course design template does not provide any particular guidelines nor recommendations on where and when to use videos, moreover, what type of video styles to be used. In fact, that work is for the course designer to decide. Therefore, you are faced with a number of design challenges to support the conversational pedagogy. For example, one needs to determine where to place videos; type of video style; length, etc. Therefore, to have an effective use of video for learning, course designers are challenged to outline their own video course design plan which should also be devised in relation to the overall plan for learning goals. And there is a good point for raising this issue; you need to consider use of videos against many different levels, for the entire MOOC and what role a video plays in a single step. In other words, videos need to have a defined learning goal in order not to stand in a vacuum. There are many factors to consider. Specifically, a course creator must plan and produce videos in relation to other videos in the MOOC. Videos should have a mutual purpose and role to other media texts like text, audio file, pictures assignments which are used on a web page. When a learner starts to read on the top of a page, for example, videos need to be designed into a structure and have a natural interplay with a text or picture and be created for the intent to initiate and motivate for a self-directed learning process. To achieve that goal, videos can be used in many ways to facilitate for accommodating FutureLearn's pedagogy. They can give instructions; explain theoretical concepts; spark engagement; and motivate learners to reflect, so that they engage into the narration of a particular story. In what way this is realized, depends on the course designer's creative skills.

Pedagogical design point for video no. 2: Decide the need for creating and reuse of videos

Table 1: *Overview of embedded videos with pedagogical purpose.*

No.	Name step	Pedagogical purpose	Length
1	Behave with the mobile	Animation exemplifies phubbing as digital transformation	2:29
2	Behave with the mobile	Interview with expert that warns about use of cell phone	5:00
3	From steam to data	Commercial shows Artificial Intelligence integrates into daily life	1:00
4	The rise of platforms	Keynote explains platforms and platform economy	31:04
5	The rise of platforms	Shows the consequence of platform economy on company	7.34
6	Technology determinism	Expert discussion problematizing the myth of technology power	3:59
7	ICT in the office	Illustration of ICT from 70s	0:46
8	ICT in the office	Illustration of ICT from 70s	0:12
9	The network society	Explains the concept of the Network society	7:55
10	Disrupting workflow	Explains phubbing as a case of disruption	2:12
11	The implementation	Viewpoint on implementing technologies	1:27
12	Continuing the learning	Commercial about further studies at university	2:34

The second pedagogical design point for video is to determine the need for creating new and reuse of available videos. This is critical as video production consumes vast resources. The course design work consists of making pedagogical design choices on what learning material genuinely requires to be produced and what videos can be reused from other sources on the Internet which means YouTube. For example, a common pattern that MOOC newbies do when making their first course is to go directly to video production without contemplation. The fun of video making can lead to that your MOOC turns into a series of video lectures that in fact pacifies than activate to learn. Therefore, the course designer needs to reconsider an imperative design question; does a video actually need to be produced or can another modality serve the same purpose? In fact, this is a critical pedagogical design choice. Course creators also need to outline the learning goal behind a video and how to be integrated into the conversational pedagogy. Hence, it is essential to label the videos with a pedagogical purpose in the overall course structure so that they can support the pedagogy for social learning.

In the production of DTC, however, the planning and production of videos came in fact late in the course production process. The course designer started first writing the text for the entire MOOC itself. After the entire script for the MOOC was uploaded and structured into the platform, drafting of treatments for the videos started. In doing so, one had a frame of reference to how to formulate the pedagogical purpose of each video. Obviously, this approach had consequences for deciding how many videos should be made and which could be reused. Therefore, the course designer made a distinction between *self-produced* and *embedded videos*. Self-produced video refers to videos made particularly for the DTC by a video producer while embedded video refers to existing videos that was embedded into the MOOC which means YouTube videos. All in all, the MOOC has 40 videos, 28 self-produced and 12 embedded ones. DTC's videos can be classified as short and are often between 3 to 5 minutes long, except from some embedded YouTube videos that are half an hour long. An overview of the self-produced videos are displayed in Table 2 while the embedded videos can be seen in Table 1.

Table 2: *Overview of self-produced videos with pedagogical purpose.*

No.	Name step	Pedagogical purpose of video	Length
1	Trailer course page	Peak target group's interest to enroll in course	0:54
2	Welcome	Explain background and overall intention behind course	2:54
3	Who is Inger?	Introduce teacher in which the MOOO is based	2:43
4	What to learn in Week 1	Explain learning goals of the course's first week	1:26
5	Disrupting workflow	Explains the concept of 'shadow student learning ecology'	4:56
6	Recursive use	Explains ways to track user patterns in use of technologies	4:33
7	Recap of Week 1	Summary of first week and reflection on learning goals	1:26
8	What to learn in Week 2	Explain learning goals of the course's second week	1:07
9	Inger's digitech kit	Demonstration of digital technologies teacher used in classes	4:03
10	Node-mapping	Demonstration of a method to chart social networks	3:47
11	What learning goes on?	Explains students social media literary	3:27
12	Themes over chapters	Explain approach to operationalize learning goals with students	4:19
13	Working with themes	Teacher's view on ways to define learning goals	2:43
14	The newsround	Explains learning activity developed by teacher	2:29
15	Share your experience	The teacher's view on a self-developed learning activity	3:03
16	Blog and YouTube	Explains learning activity developed by teacher	4:41
17	Recap on Week 2	Summary of second week and reflection on learning goals	1:20
18	Welcome to Week 3	Explains learning goals of the course's third week	1:31
19	Growth in processes	Explains an approach to map pattern from use of technologies	4:47
20	Success and flop of blog	Explains unsuccessful learning activity developed by teacher	4:42
21	Share your experience	The teacher's view on an unsuccessful learning activity	4:13
22	Reflect on your actions	The teacher's view on using reflection to grasp teaching practice	1:33
23	Reflect by debriefing	The teacher's view on using debriefing to grasp teaching practice	3:05
24	Emergent practices	Explains a way to grasp knowledge formation in learning activity	4:02
25	Enacting the newsround	Teacher's view on grasping knowledge formation in learning	2:40
26	Being self-organized	Explains the benefit of self-organization	3:12
27	Share your experience	Teacher's view on self-organization and own practice	3:56
28	Recap on Week 3	Summary of third week and reflection on learning goals	1:26

Pedagogical design point for video no. 3: Determine pedagogical video styles

The third pedagogical design point for video to emerge from making DTC was to formulate pedagogical video style. Pedagogical videos style can be defined as an instructional strategy to provide videos recognizable properties that give videos a particular educational purpose and value in MOOCs. In general, DTC uses six general video styles where each one had sub-sets of distinct video styles serving particular pedagogical purposes which are adapted to FutureLearn's pedagogy. The instructional purpose is often to explain concepts or engage the learner to carry out a learning activity. The pedagogical video styles used in DTC are displayed in Table 3 and include: (1) talking head; (2) introduction; (3) Interview; (4) illustration; (5) lecture; (6) and documentary.

Talking head videos are distinguished by that the course leader reads from a script and talks into the camera while it is overlayed with pictures, illustrations, interviews, etc. Talking head videos serve different instructional purposes and can be differentiated by the development of various video styles. For example, certain talking head videos are only used to explain learning goals while other outline theoretical concepts. *Introduction* is a pedagogical video style mainly used for marketing purposes. *Interview* is a pedagogical video style where a person(s) converse, express, and reflect upon a particular topic. The instructional purpose of the interviews are to provoke the learner into engage into the conversational

pedagogy. Interviews are used in two ways in DTC. First, the MOOC contains an in-depth interview with the teacher. Later, it was edited into short interview videos. The videos are edited according to a three-point tell, meaning that each one explains three essential experiences related to a given topic. The three-point tell is an approach that condenses relevant citations from a long interview and makes them more coherent for the learner. For example, in an interview video the teacher explains a learning activity she designed called the news round; the video covers three topics related to this activity. Second, relevant interviews from YouTube is also embedded into the MOOC and are often used to illustrate a topic that might be relevant for a learning goal. *Illustration* is used for demonstration of concepts explored in the MOOC. These are embedded YouTube videos and often stand in relation to other modalities which is often text. For example, an activity explains phubbing and an animation published on YouTube is used as an illustration. *Lecture* is also a video style that serves the purpose of explaining concept and understand their consequences. In DTC, lecture are videos of group conversations between experts or recorded conference key notes and are also embedded videos from YouTube. *Documentary* is a pedagogical video style consisting of interviews and videos that report on factual events on a given topic. Also here, the MOOC uses YouTube videos, and they serve the instructional purpose of engaging the learner and explain the consequences of concepts.

Table 3: *Typology of video style with pedagogical purpose*.

No.	General video style	No	Particular video style	Pedagogical purpose
1	Talking head	A	Week introduction	Explain learning goals for week
		B	Week summary	Reflect on learning goals
		C	Concept explaining with slides	Explain concept
		D	Concept explaining with slides and interviews	Engage learner
2	Introduction	A	Trailer course	Explain course purpose and overall learning goals
		B	Trailer studies	Explain study possibilities
		C	Introduction of course	Explain course purpose and overall learning goals
3	Interview	A	Teacher Interview	Provoke leaner
		B	YouTube interview	Provoke learner
4	Illustration	A	Animation	Engage learner
		B	Archival footage	Demonstrate concept
		C	Commercials	Explain concept
5	Lecture	A	Conference keynote	Explain concept
		B	Group discussion experts	Consequence of concept
6	Documentary	A	Short documentary	Consequence of concept
		B	Point of view	Engage learner

Pedagogical design point for video no. 4: Making videos part of a coherent course

The fourth pedagogical design point for video relates to adapting videos to become part of a coherent course structure. This design work consists of aligning that the videos support the conversational pedagogy. To operationalize that larger objective, any course designer should use FutureLearn's mentioned course design template. As pointed out earlier, the course design template does not provide specific guidelines nor recommendations on where and when to use videos, only specifications on that learning goals need to be defined together with the learning content. To position videos as part of a coherent course structure in the making of DTC, however, required that research from the sociological study was adapted to become content-driven. The design solution was to introduce the learner to three different perspectives on digitalization where each one draw on analysis from the sociological study. To specify each perspective, a large number of learning goals required to be defined and be arranged with the study's research knowledge. The learning goals had be defined within a week, an activity, and a step, and stand in relation to each other. About 70 learning goal were defined for DTC.

Table 4: *Positioning of videos in overall course structure of Week 2*.

Week 2	Activity title	Step	Step name	General video style	Particular video type	Pedagogical purpose	Self-produced or Embedded video
Planning for digital transformation	Designing a digital classroom practice	2.1	What to learn in Week 2	Talking head	Week introduction	Explain learning goals for week	Self-produced
		2.2	Modeling the classroom				
		2.3	Decouple and reconnect				
		2.4	What have you learned?				
	Choosing the digitech kit	2.5	Selecting and creating				
		2.6	Inger's digitech kit	Talking head	Concept explaining with slides	Explain concept	Self-produced
	Mapping social networks	2.7	Node-mapping	Talking head	Concept explaining with slides	Explain concept	Self-produced
		2.8	What learning goes on	Talking head	Concept explaining with slides and interviews	Engage learner	Self-produced
		2.9	Share your experience				
	Forming knowledge	2.10	Create knowledge				
		2.11	Themes over chapters	Talking head	Concept explaining with slides	Explain concept	Self-produced
		2.12	Working with themes	Interview	Teacher Interview	Provoke leaner	Self-Produced
	Meaningful learning activities	2.13	Acts for engagement				
		2.14	The news round	Talking head	Concept explaining with slides	Explain concept	Self-Produced
		2.15	Share your experience	Interview	Teacher Interview	Provoke leaner	Self-Produced
		2.16	Blog and YouTube	Interview	Concept explaining with slides and interviews	Engage leaner	Self-Produced
		2.17	Recap of week	Talking head	Week summary	Reflect on learning goals	Self-produced

In other words, when the adaption work was done, an overall coherent course structure should convey a story that the learner can engage with. That said, DTC tells the story about preparing teachers for how to plan and enact a classroom practice by following the experiences of a high school teacher who used digital technologies in foreign language training, also a researched classroom setting. In the story, the learner meets the main character, Inger, also the same person who was the participant in the sociological study. Then, the learner engage with the story over three weeks. In each week, DTC has a different perspective on digitalization. In the first week, the overall learning goal is to address 'digitalization' and structure a learning path for the learner to talk about digital technologies from their own standpoint. Digitalization is connected to sociological perspectives on social networks and technology. In the second week, the main goal is to connect digitalization to lesson-planning and focus on the particular methods the teacher used to design for a digital classroom practice, while, in the third week, one explores what happens and what strategies the teacher used when implementing her teaching practice.

To understand the detailed positioning of videos in DTC, nonetheless, a look at an excerpt from Week 2 pertains. The overall course structure for Week 2 is displayed in Table 2. In Table 2, each step using a video is marked with pedagogical video style and its pedagogical purpose. The second week, however, introduces the learner to a particular perspective on digitalization which is reflected in the title, "Planning for digital transformation". The week connects digitalization directly to the workday of the teacher and provides an alternative view on lesson planning. The notion 'modeling' is used as a term to reorient the learner towards the idea that lesson planning shares similarities with challenges often seen in technology implementation processes. For the learner to master lesson planning in the new setting, you are introduced to a set of strategies using real-life experiences from the classroom. Here, the empirical analysis from the sociological study comes into play. For example, in the sociological study, the analysis explains four strategies that the teacher used to plan her classes. These strategies were adapted to

become the week's main learning content and is divided into four subsections. First, the learner is introduced to a strategy for staying updated on new technologies and given suggestions for which digital technologies to use in a classroom practice. Second, the learner is introduced to node-mapping, a strategy for charting students' pattern of using digital technologies. Third, the learner is introduced to a theme approach, which is a different way of operationalizing learning goals from the curriculum. Fourth, the learner is presented with examples of how to organize learning activities with use of digital technologies. All in all, the learner has to engage with the story by completing 17 steps,

In Week 2, DTC makes use of at least two pedagogical video styles, talking head and interview. These are positioned intentionally in the overall course structure serving distinct pedagogical purposes, either in a specific setting or as part of a series of interlinked videos constituting a whole. On the one hand, talking head videos are used to introduce learning goals and to summarize the week and explain a theoretical concept to engage the learner, while, on the other hand, interviews are designed to provoke the learners to share their opinions into the MOOC's overall story. In each activity section, the use and structuring of videos are deliberate. For example, in the third activity section, 'Forming Knowledge', which introduces the learner to an alternative approach to operationalize learning goals, a talking head video first explains the strategy on using themes which thereafter is followed up with an interview with the teacher. In this way, the learner is presented with an expert view and a practitioner view on how to set learning outcome, a combined use of video styles that is used throughout the second week.

Pedagogical design point for video no. 5: Treatment approach to plan and script videos

The fifth pedagogical design point for video to emerge, however, was using a film treatment approach adapted for educational video production. A film treatment can be loosely defined as a larger story idea for a video before a script is written which outlines main concepts, themes, characters, and detailed synopsis. The treatment approach in the production of DTC took an alternative approach. The foundation for writing a treatment was conceived from the learning goals and what role a video would have in the overall course structure. Each treatment had a particular purpose and varied in instructional design and complexity. Some treatments explored sociological concepts and ideas from the study while others explained learning goals and ask questions to the learner. The treatment approach was foremost used to produce all the self-produced videos which means the talking head videos. The treatment approach followed a basic template and consisted of writing scripted dialogue that would be read out loud from a teleprompter by the course instructor. The dialogue would be recorded in a studio. Afterwards in the editing process, the video producer added relevant pictures, video clips, and animations that would support the course instructor's voice over.

Pedagogical design point for video no. 6: Collaborating with video producer

The sixth pedagogical design point, nevertheless, concerns forming a mutual collaboration with a video producer. This means that in order to make a MOOC, any educator or course designer become part of a team and must engage into teamwork and organize a collaborative process. Here, the exchange of ideas and mutual knowledge production become critical skills to master for anyone involved in the process. The production of DTC was no exception from this pedagogical design point for video. To set the making of DTC into a larger context, however, the MOOC was part of a personal postdoctoral project and had the main objective to further the development of the mentioned doctoral study to understand MOOC pedagogies. Also, DTC was made part of a larger research and development project intended to design a research-based methodology for production of MOOCs, called Drive X [34]. As part of this online course production process, educators co-labor a MOOC with a video producer which also applied in the making of DTC. Here, the role of the video producer is to collaborate with the course designer or educator in all the necessary steps required from the first conceiving of a course idea to planning and production. In the collaboration process on making DTC, the course designer or educator and the video producer used a variety of digital tools to organize and structure the workflow.

Pedagogical design point for video no. 7: Producing the videos

The seventh pedagogical design point to emerge from the making of DTC, concerns the actual production of videos. Video production is so important to consider as it is the most time-consuming activity. In the making of DTC, the video production can roughly be divided into three parts, planning, production, and post-production which focused on production of the self-produced videos. In the planning phase, the co-laboring consisted of exchanging ideas, developing, and commenting on the treatments for educational video and making assessments on what and which was possible to make a video of. The treatments served as scripts and production notes for the next leg in the overall production process. In the

production phase, five production days were used to make the self-produced videos which were recorded in a TV-studio, at a high school, and a seminar room at a university. In the post-production process, the main workload consisted of editing. The video producer was given large autonomy to edit and add suitable illustrations which would enhance the video quality and learning experience.

CONCLUSION

The overall objective with this paper has been to suggest seven different pedagogical design points for use of video in making of MOOCs. These can be applied by future educators and course designers. The pedagogical design points emerged from making the MOOC DTC which run on FutureLearn. By focusing on pedagogical use of videos, however, the paper seems contributing to close a knowledge gap in the current research horizon on MOOCs. To be specific, the research on use of videos in MOOC share similar challenges as observed in research on learning design in MOOCs. Here, the research concentrates on measuring the outcome of MOOCs – which is foremost expressed in the emergence of the research discipline learning analytics – meaning that there is less focus on innovating instructional design processes [35]. This calls for that MOOC course designers must redirect their attention to innovate learning design as a tool to raise the quality in MOOCs which are assessed to be low [36]. Therefore, there can be little surprise that we witness the same pattern in MOOC research on videos – scholars also measure video performance – entailing that approaches to operationalize the role of videos is a needed commodity. In that sense, the seven pedagogical design points for use of video suggested in this paper are more than justified. In contrast, what is genuinely required is not only to analyze and categorize the pedagogical style of videos, but to develop larger and more coherent frameworks for how to effectively use videos and relate to the constraints and possibilities of a MOOC platform's pedagogy like FutureLearn's social learning.

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