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# Video in Education From 'Sage on the Stage' to 'TV Talk Show Host': Where to Next?

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**Abstract**

This paper looks back at the last 20 or so years of research into using video in education and seeks to see what it tells us about creating video to support learning. The exploration is literature-based and involves a critical discussion of articles on video-based learning and related pedagogical principles and methodologies. Literature chiefly focuses on the principles and characteristics of video that help to transmit and wrap the learning content in a way that will call the learner's attention. Few of the discussed articles attend to learning as the transformation of information per se. Nor do they speak to a clearer pedagogy for video. The scholarly inquiry into the pedagogy within the video, a certain pedagogical style and design of the video necessary to support and thus lead to learning, is lacking. Therefore, the explanatory power of the instructional video and the elements that enable a more transformative learning pedagogy for video are to be yet identified. The video format proves to be effective when compared to other forms of presentation. However, the effectiveness of a learning video is not due to the format itself, but to the principles of its judicious use. This study seeks to advance this premise and insists that transformation in learning is possible through a successful video experience. Upholding this presumption should encourage instructional designers and lecturers to make good the pedagogical principles rather than searching for unending technology and production techniques in order to design an effective learning video and employ its affordances to good ad-vantage. Since creating videos for learning purposes largely adopts a transmission of knowledge approach, this paper discusses the results of a literature review that supports the transmission styles of learning. However, additionally, it explores the literature to identify the elements that enable a more transformative learning pedagogy for video. As a consequence, the tension be-tween the two approaches has been revealed. These discrepancies emphasise the urge for clarification to help research into video-based learning move forward and make headway towards a more efficient learning experience.

**Keywords:** video-based learning, transformative learning, pedagogy, active learning, student engagement, ted talks, lecture capture, PowerPoint narration

## INTRODUCTION

Think back to 1993 and an article in the journal College Teaching written by AKing (1993). In the article, Alison uses the phrase *Sage on the Stage*, and she describes the professor, some people might use the term lecturer, standing behind a podium, centre stage, in an auditorium full of students. The professor is sharing their knowledge with the students and as Alison puts it, 'filling the minds of the passive empty vessels (p. 30)'.

This article has been used by a string of authors since then (see for instance Chung, 2005; Inan, 2021; Kalugina et al., 2018; Louis-Jean & Cenat, 2020; McWilliam, 2009; Morrison, 2014; Privalova et al., 2019, 2020; Salame & Nikolic, 2021; Sudakova et al., 2017) advocating for more active approaches to enable learning arguing that the face-to-face time, the time being used for traditional lectures should be used for interactive and active learning experiences. They say the lecture should be replaced by resources, to be read or watched in students'


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**Contribution to the literature**

- This paper promotes a dialogue about the explanatory power of education video claiming that video-mediated form of instruction can be a strong learning instrument should the pedagogy within the video be explored deeper.
- In so doing. The authors explore the literature to identify the elements that enable a more transformative learning pedagogy for video.

own time, and this is where the exploration of video begins.

### Purpose and Objectives

We believe that video is far more powerful than just being the depository for content. Our premise is that transformation in learning is also possible through well-crafted learning videos. However, the design and creation of these videos is not straightforward. Therefore, this paper endeavours to identify some of the key pedagogical principles rather than searching for unending technology and production techniques in order to design an effective learning video and employ its affordances to good advantage.

## RESULT AND DISCUSSIONS

### The Sage on Stage or Transmission Approach

A lot of learning videos are simply the sage on stage transferred into a new medium and the professor rather than being a sage on the stage has become a star of the screen. If we search YouTube we will find any number of famous scientists giving lectures, talking about their topic, explaining quite complex concepts to us. But we are interested in how video can contribute to learning in more formal contexts and a discussion about MOOCs is a good starting point. Shah (2019) tells us that MOOCs now have over 110 million learners and 13 thousand courses throughout the world. The first MOOCs were often simply recordings of lectures previously given to students at universities. A camera was placed at the rear of the lecture theatre and the recording placed on the VLE or MOOC platform. So, through MOOCs professors have become stars on the big screen available to the masses.

What can we learn from these videos? One of the most cited articles is that by Guo et al. (2014). They looked at the way that MOOC students viewed the videos. Firstly, they said that production values did not really have an effect on engagement. Basically, there was no difference whether the production used one or two or even three cameras and whether the video involved some post-production editing. One interesting point they did identify was that what we call framing, i.e., a wide shot or a close-up, was related to engagement. Close-ups of the professor and text were preferred over wide shots of the lecture theatre.

Perhaps the finding that this study is most known for is that they believed that there was an optimum length of time that people will watch the video for. They found most people stopped viewing the videos after 6 minutes. This is quite alarming as the typical video length was closer to an hour and this is where the magic 6-minute rule comes from. Since then, it has almost become a de facto rule for video production in education. An important aspect we feel Guo et al. (2014) did not address was the context. The videos were not designed for the MOOC audience and the audience were actually onlookers. They were not part of the original learning experience. So, there was a limited connection between the viewer and the professor, hence, the low retention of viewers. These days most MOOC providers still recommend videos of no longer than 6 minutes. However, more importantly, they also suggest that the video is purposely created for the MOOC, and not a second-hand experience for the viewer.

Another example of the professor as a screen star is the TED talk. A review by Wingrove (2017) tells us that TED talks have been viewed by over 1 billion people globally and some of the most popular talks have received nearly 20 million views each. So, what can we learn from the TED talk experience? Firstly, videos can be longer than 6 minutes. The golden rule for the length of a TED talk is around 18 minutes. Nobody really knows where that number comes from and the justifications tend to be rather post hoc and self-fulfilling. TED talks are good, TED talks are 18 minutes, therefore, good videos can be 18 minutes long. But TED talks are also extremely well-produced. Donovan's (2013) book on how to deliver a TED talk tells us that a single TED talk can take months of preparation; involving teams of people with scripting, editing, carefully crafted examples and rehearsals. Even the cameras are choreographed. But the key focus is on storytelling – capturing the audiences' attention through carefully crafted stories.

However, TED talks have received significant criticism from educationalists. They are seen to focus on the more trendy or populist topics and the storytelling approach lends itself to surface learning. For example, in their paper, Bell et al. (2019) argued that TED talks do not challenge viewers assumptions. Nor do they engage viewers in a deep discussion of the topic. They are still very much the sage on a stage filling the audience and the viewers with ideas, even if it is now on a screen.

**Professor as Star on a Small Screen**

Most of us are not really trying to be a screen star with an audience of thousands, and what we really want is for the 40 students enrolled in our *Introduction to Education* module to just watch the materials we create. For this many universities in the UK have gone down a lecture capture route. These can range from a single camera at the back of the room to a sophisticated centrally controlled system that automatically uploads the lecture to a VLE, available to the student just minutes after the lecture ends. The research on this type of approach is very mixed. In one study, Edwards and Clinton (2019) argued that lecture capture encourages poor study habits, such as non-attendance at lectures and encourage what we call 'box set binges' of lectures on the days preceding an examination. Others, for example, Dommett et al. (2019) say that lecture capture facilitates good learning habits especially in the area of revision. For example, students can playback lectures at times and speeds that are convenient, providing an element of control. Interestingly, Schacter and Szpuner (2015) suggest that watching a video is less cognitively demanding than a live lecture. Mind-wandering during a class can be quite detrimental to learning, however, mind-wandering is less of an issue when you can stop and start and repeat a video.

You might be thinking but didn't the MOOC study by Guo et al. (2014) say students only watch for 6 minutes. The difference here is that the lecture capture video is not a second-hand experience. These students were in the same classroom with the presenter of the video, only minutes earlier. There is evidence that students who did not attend the live class, are the ones who are likely to turn off the video. These students have no connection to the presenter, and this is perhaps what was missing in the early MOOCs videos.

Lecture capture is just one avenue lecturers have used to create learning videos. An option favoured by many academics is to add a narration to PowerPoint and then save it as a video. Because it is so easy to do, it has proliferated. Because it is so easy, it is easy to get wrong. There is a plethora of websites, articles and studies that will tell us that a short PowerPoint with narration, usually less than 5 minutes can be very successful to teach focused topics and concepts. Just look at YouTube or the Khan Academy. Similarly, longer PowerPoints with narration can be used to provide a summary of a lecture.

We have a colleague who does not record his lectures but instead, after class, he adds narration to the class slides in the form of a summary. Then uploads it to the class VLE. This summary usually ends up being far more concise and to the point than the lecture. However, too many PowerPoints videos with just narration run the risk of never establishing the connection between the lecturer and the student viewer. Especially, if they are used in a course where there is minimal physical or even visual connection between staff and students.

We want at this stage, to point to a team of researchers in China focusing on this area (see Pi et al., 2017). Their research concludes that PowerPoint videos can prove to be effective if videos of the instructor are included in the video. They suggest that the video starts with a lecturer, swaps to full-screen PowerPoint slides but returns to the lecturer for summaries, linking sections and the conclusion. There is no need for the lecturer to be seen for the entire video, but it is important to establish some element of connection between the viewer and the presenter. Other research (Zhang et al., 2021) also explores eye gaze, where the instructor is looking, are they looking at the camera or are they looking off camera at some imaginary audience; and how big the image of the instructor, within the frame needs to be, to maintain this presence. This discussion on incorporating the instructor into the video is useful as it leads us to our next group of video styles to discuss.

**Principles for Creating a Learning Video**

In this section, we want to focus on the research that explores creating a learning video from scratch rather than just transferring our lecture in the video format. Hansch et al. (2015) and her colleagues from the Humboldt Institute provide a good overview of the dominant styles we see in education. They start with talking heads -videos that focus on the presenter, and then move to videos that integrate the talking head with graphics and other media, almost bordering on a documentary style. The literature on the production and nature of these styles gets a little confusing and at times confused within the same article. The problem is they are not always talking about the same thing. So, we will divide the studies into either, studies that focus on what we are calling transmission principles and others that focus on transforming or integrating principles.

**Transmission Approaches**

Transmission principles are a set of principles or rules that focus on techniques to aid information transmitting or moving from the source to working memory then to long term memory. These principles are typically cognitive in nature. One of the most noted researchers in this area is Mayer (2005). Mayer (2005) developed the Cognitive Theory of Multimedia Learning. Multimedia learning theory is currently a set of 10 or so guidelines for the design of digital media. Let us just look a bit more at number one, the coherence principle. The coherence principle says that people learn better when extraneous words, pictures and sounds are excluded rather than included. Simply if we add too much information, such as background music or images then our brain has extra work to do, and this could lead to cognitive overload.

But Mayer (2005) is not the only person advocating this rule-driven approach. Van der Meij and Van der Meij (2013) talk about temporal cueing, telling people in advance the order of information, sort of like priming; pausing, allowing time for the viewer to catch up; and segmenting, i.e., breaking a video up into sections. Brame (2016) from Vanderbilt University talks about signaling, weeding, and matching modality (ensuring any visual, text and audio elements align). We also need to remember that much of the research we mentioned earlier about PowerPoint, image size and gaze, is related to these transmission principles.

Before when we were talking about lecture capture, the length of the video was typically dictated by the length of our pre-existing lecture, or if we could break it up into sub-sections. The length of a video continues to be a contentious issue. In the literature recommended length ranges from 5 – 20 minutes (see Geri et al., 2017; Johanes & Lagerstrom, 2016). Thomson et al. (2014) say that length is really related to audience expectations. Students who are engaged in their learning process, are not satisfied with short, fragmented videos but like the deeper discussion afforded by longer videos. This is also the view of Harrison (2019). Harrison (2019) argued the positive effects of video is not really related to length but rather related to the teacher's style, the students learning motivation and their use of the video. Interestingly, students do not always watch videos in the ways we expect. Students often pause at unexpected spots, fast forward and then rewind in all sorts of ways.

Our final topic in the transmission principles is presence. Virtually all the production-based literature in video learning talks about the importance of the lecturer's presence. Lowenthal and Dennen (2020) in his book calls this social presence. Social presence is about feeling you are there with the presenter, that he or she is talking or communicating directly with you. Borup et al. (2012) tell us that the video needs to present the lecturer as a real person with a real emotional connection to the viewer. And in a SAGE white paper, Leonard (2015) tells us that basically, students dislike monotone speakers and speakers who do not look at the camera. They want someone who is easy to understand, compelling, and interested in the topic.

**Transformational Approaches**

So, in a sense, good learning videos obey these transmission principles. But just simply obeying these principles does not lead automatically to learning. And this is where focusing on integrating the information into our long-term memory rather than simply the transmission becomes important, however, the research is scarce. Ou et al. (2019) talk about using simple pedagogical frameworks such as 'learning by doing' and 'learning by reflection' to structure the video. Similarly, Voronkin (2019) suggests using Blooms taxonomy as a framework. Hung and Chen (2018) suggest that an interactive video is likely to promote deeper learning.

One of the more widely known authors about creating education videos is Koumi (2006). He is best known for his book, but he also has several articles. He argues rather than just focusing on length or graphics or music we should focus on the pedagogy within the video. For instance, a good video could have a narrative or story structure, a beginning, a body and a conclusion. The beginning will hook the viewer into the problem. The body will use various pedagogical strategies and tools such as using metaphors or include realistic experiences to make the idea more concrete. Or we could pose questions and use pauses to encourage reflection and application. And the conclusion of the video should revisit the introduction and resolve the problem. Muller et al. (2008) talk about using misconceptions as the pedagogical strategy for his videos. They use people's misunderstandings or misconceptions of the world as the starting point or hook for his science videos.

However, we do need to point out the tension between the transmission principles and the pedological approaches. Koumi (2013) suggests that a strict adoption of the transmission principles will lead to potentially bland videos which fail to engage the viewer. For instance, background music might appear to be redundant but might be creating pace, to sustain the viewers' attention. The real message is about using the various media in a considered way.

## CONCLUSION

So that brings us to our last category, and we are calling this the TV chat show host, an emerging category in our framework. If we imagine the TV chat show host, their role is far more than just a smiling face. They introduce the evening's topic, they present the problem, they might present some of the information. they are likely to have a guest expert who will talk about their pet topic. And they are likely to be interviewed by the host. Also, a fair amount of the time, the chat show host is managing the audience, engaging them, asking them questions, interacting with them. The professor has recently become a chat show host and during the last year of COVID, it sometimes felt this would be the future of education. When we teach online using Teams or Zoom or Blackboard Collaborate, we become the host. We introduce the day's topic or the problem, we might give a lecture, we might have a guest speaker who will talk about the pet topic, and the more adventurous amongst us will actually interview our guest. But during the class a fair amount of our time is spent managing our audience, our students, engaging them, asking them questions, so in a sense, professors have become small screen chat show host and we wonder what is next?

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