

Create Effective Instructional Videos

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Introduction

The concept of 'video teaching', where an instructor uses their on-screen presence in the medium of video to teach, has risen exponentially over the past decade within medical education (Dong and Goh 2015). This is not surprising given the reported benefits of using such instructional videos. For educators, videos can: support an inclusive, flexible and accessible curriculum; allow for reusability or repurposing of resources across curricula or programmes; and provide opportunities for academic reflection and evaluation. However, there are some concerns that video instruction can lead to a downgraded pedagogical interaction, particularly as videos can be seen as a "passive" medium. To minimise these issues, there are specific steps that medical educators can undertake, involving planning, preparing, recording and using videos.

Instructional Video

A video can be produced using relatively low-cost devices such as smartphones and webcams. Within medical education, instructional videos have been used for a variety of purposes and can take many different forms including:

- screencasts (e.g. recording screen interactions and applications);
- short video lectures (e.g. interviews, talking heads, whiteboard instruction or presentation slides with voiceover) (Figure 1);
- live lectures (e.g. lecture capture from classrooms or online webinars);
- medical procedural videos (e.g. practical demonstrations and filming in clinical locations).

Many software tools and applications allow educators to capture multimedia elements, including video, audio, document cameras and screen interactions. Applications, such as Camtasia, Panopto, Echo360, Screencastify and Loom, typically enable you to record whatever is on your computer screen to an interactive, online video. Recordings can be published via a Virtual Learning Environment, video platforms (such as YouTube) or other online areas you manage.



Figure 1. Example of a picture-in-picture lecture, featuring synchronised talking head and presentation slides.

Planning your Video

- Decide on the purpose of your video. The content of the video should be clearly signposted and constructively aligned with the curriculum outcomes.
- Plan for short recordings – 15-20 minutes maximum, but 5-10 minutes are preferred by learners (Brame 2016). Shorter videos allow you to develop bite-sized chunks around a topic/subject or specific learning outcomes, which can be individually updated if required.
- Become a curator. Can you reuse or repurpose existing online videos?
- Decide on what you need to capture and ensure your application can capture the required sources (e.g. audio, video and/or screen capture).
- Plan for reusability. Select content topics that are reusable and/or address areas that learners typically find challenging or confusing. Consider providing resources or literature references separately so that you can update them quickly without having to change the video itself.

Preparing your Teaching Materials

- Be aware of any copyright issues involving the content you are using or capturing (e.g. video clips, images, sounds).
- Carefully design on-screen material (e.g. PowerPoint slides) to facilitate learning and reduce cognitive load (Brame 2016, Mayer et al 2020). Use signalling to highlight important information (e.g. highlight key words on screen, change colour/contrast to emphasize organisation of information). Remove redundant or decorative multimedia elements. Segment and chunk information (e.g. chapter points or click-forward questions within video).
- Plan for how visible you will be during the recording. Displaying instructor's image at opportune times through a video is effective (e.g. switching between slide content and the instructor). Observing an instructor actively draw diagrams/figures promotes learning rather than using pre-made graphics (Mayer et al 2020).

- Provide an introduction so that your learners can easily check that they are viewing the correct video (e.g. title slide or verbal instruction) though avoid using numerical designations in videos as this may lead to future inconsistencies if videos are reused (Norman 2017).
- If you are presenting a slide deck, number or give a title to each presentation slide so that you can refer to the slide explicitly. Think about viewers who may be relying primarily on the audio output (e.g. visually impaired learners).
- Avoid using weblinks within the video content as these can become quickly outdated.
- Prepare a script which will help keep you focused during a recording (Norman 2017). Providing a script allows for easy captioning and subtitling, which may benefit learners with additional needs and second language learners. Educators should make content as inclusive as possible and there may be legislation that requires you to make teaching materials accessible for learners with disabilities.

Recording your Video

- Allow sufficient time to record the video – a rushed video might compromise the quality of your teaching.
- Ensure the environment is suitable and quiet. Mute or turn off devices and applications (e.g. email, mobile phones). Consider putting a recording notice on the door.
- Test your microphone for the sound quality. Make sure it is fixed and stable. Position the microphone away from the computer if possible (to reduce the noise of the computer fan) but ensure your voice is still audible.
- If including a video headshot, consider your physical background and remove any artefacts which may be deemed inappropriate. When using only natural light, face the window, placing the camera between you and the window.
- Do a practice run first. Put yourself in your learners' shoes and review your test video. Remember that you are likely to be your own worst critic; most people will not notice the little mistakes.
- Communicate clearly and talk with enthusiasm. Speak relatively quickly, using conversational language and varied expression (Brame 2016). Place the learner in the lesson by addressing

the audience during explanations to create a sense of social partnership (e.g. 'your', 'you', 'we').

Using your Videos

- Consider linking the videos explicitly to the other elements of your course or programme. Promote learning by designing activities and deliver them before, during and after video viewing.
 - **Before viewing:** explain to learners the exact purpose of each recording and how they should use the recordings to improve their own learning. Give context and introduce the topic; highlight sections of the video that you believe will challenge learners.
 - **During viewing:** learners can be given simple tasks to carry out and help engagement. Guiding questions, quizzes, polls, or predefined pause points may engage learners by eliciting opinions. However, continuous interruptions risk breaking concentration. Find a balance which does not ask too much but helps keep learners active.
 - **After viewing:** different activities might follow. Content might be used to begin a discussion (e.g. in discussion forums), individual reports might be written from different perspectives or learners could role-play further scenarios.
- Be aware of the impact of asking learners to watch your videos in their own time but remind them of the benefits (e.g. reading material before the next lecture in a weekly briefing).
- Demonstrate how to access the videos. If your videos are going to be weekly, then your learners will also need to know when the videos are going to be available to them.

Conclusion

This guide has been designed to offer some best practice tips in designing, producing and integrating videos to promote learner engagement and learning. It has highlighted diverse elements such as curriculum design and multimedia learning principles that should guide video production design and implementation. It has also highlighted that effective use of video is enhanced when instructors consider strategies to manage cognitive load, encourage engagement and promote active learning (Brame 2016).

References and further reading

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Parts of this guide have been modified from the document "Using Personal Capture in Your Teaching" (CC-BY-SA Anglia Learning and Teaching & C. Everet, 2011) and the JISC guidance on "Using Digital Media in new learning models: Video" available at: <https://www.jisc.ac.uk/guides/using-digital-media-in-new-learning-models/video>

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