

Creating teaching content in optometry for social media during COVID-19 and the digital era

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INTRODUCTION

Information and Communication Technology (ICT) has evolved dramatically over the last 10 to 15 years with social media being ubiquitous in modern society.^{1,2} Students in medicine and the health sciences are accessing social media in their everyday lives. Platforms such as wikis, blogs, podcasts do not create any fear for students and it has been shown such platforms can help them learn.³ Social media platforms have been used to support the dissemination of knowledge, collaboration with peers and to facilitate academic networking.⁴ Opportunities arise in education as technology opens up and evolves. However, the use of such technology can create disruptiveness and uncertainty as seen in during the COVID-19 pandemic where both teachers and students needed to adopt new platforms in a short period of time.⁵

The word 'zoom' had a different meaning during the COVID-19 pandemic. No longer was it associated with the sound of vehicles but associated with online virtual meetings. Due to the pandemic, teaching took an online approach and evolved exponentially out of necessity. Zoom (Zoom Video Communications, California, United States), Skype (Microsoft Corp,

Washington, United States), Microsoft Teams (Microsoft Corp, Washington, United States) and Google Hangouts (Alphabet Inc, California, United States) were adopted by many educational institutions to host lectures and tutorials as people were restricted to their homes.

The use of social media in teaching is not a new concept and has been adopted and used in teaching medical and health science students. A systematic review by Cheston et al.,⁶ reported that social media creates positive learner satisfaction. However, the acceptance of it in mainstream teaching may be slow as the review suggests that educators in the medical and health professions may be reluctant to adopt the digital platform.

Bergl and Muntz⁷ published their experience after five years of using various social media platforms and reported mixed feedback. For example, although Twitter had high visibility and can efficiently reach a large audience; its 140-character limit means that posts on this platform may lack substance. Additionally, Twitter is a public forum and is not ideal in small groups.⁷ YouTube, on the other hand, is a video sharing platform hosted by Google (Alphabet Inc, California, United States). A YouTube content creator has a channel

where they upload and manage their videos. The reported benefits of YouTube include Google's advanced analytic algorithms which allows the educators to see how often students access the videos, peak viewing times and how long students view the videos for.⁷ YouTube allows educators to teach clinical skills and deliver lectures but additionally, videos must be catchy and engaging for the viewer. However, a drawback of YouTube includes limited online interactions with students; as they view the videos in their own time communication is via comments left on the videos and real-time discussion is not present.⁷

Blogs are considered the original form of social media and consist of either short or long text-based posts with supplementary photos or videos. Recently, blogs have evolved to vlogs (a portmanteau of video blog) and are often uploaded to video sharing platforms such as YouTube. Vlogs can be self-reflective in nature, akin to the original blog, which has been a well described use of social media in medical education.^{3,4}

This paper will discuss both the hardware and software used by the author to create teaching content on his social media (YouTube) channel as a medium to supplement teaching of optometry students in the digital age and during the COVID-19 pandemic. The author considers himself as a novice-intermediate user of such equipment and the hardware and software used are targeted at a range of skill levels from the amateur to the professional content creator.

1. CASE DESCRIPTION

A YouTube channel was created by the author in 2017 as a medium to supplement student teaching and patient education in optometry. With the COVID-19 pandemic, the author invested more time to create new content for the channel. This channel not only consisted of video tutorials, but also vlogs (to give students an insight to life as a clinician after graduating) as well as patient education videos. The author describes himself as a novice videographer and editor. To create these videos, commercially available hardware and software was used which is described below.

1.1. Equipment/ Hardware:

1.1.1 Video:

Videos were recorded using a smartphone, Huawei P20, (Figure 1 (5); Huawei Technologies Inc, Shenzhen, China). Resolution was set to the default industry standard of 1080P at 30 frames per second when using the default camera application (app). Other times, a third-party video recording app (Open Camera) was used.

1.1.2 Audio:

Microphones used were used to enhance audio quality in the videos. Both a directional and lavalier/lapel microphones were used. The Rode VideoMic Me (Figure 1 (2); Rode Pty, New South Wales, Australia) is marketed as a directional microphone for smart phones. A directional/shotgun microphone is suitable for vlogs due to its ability to receive sound better in one direction than in others, reducing background noise. To further reduce unwanted noise, a "dead cat" (also known as a "wind muff") was attached to the Rode VideoMic Me. The Boya BY-M1

lavalier microphone (Figure 1 (4); Shenzhen Jiayz Photo Industrial Ltd, Shenzhen, China) was used when recording voiceovers for tutorial videos or for instructional videos such as those for patient education. As a lavalier microphone is often worn on the lapel or collar, the audio usually has a good signal-to-noise ratio due to the proximity to the wearer's mouth. The lapel microphone was connected to the Huawei P20 smartphone. The audio was then recorded using either a third-party audio recording app (RecForge II) when recording voiceovers or via the camera app when a video was being recorded. As the Huawei P20 smartphone does not have a 3.5mm audio jack which is required to connect the microphone to the device, a USB Type-C to 3.5mm adaptor (Figure 1 (3)) was used.

1.2. Accessories:

1.2.1. Gimbal:

Due to the instability of handheld videos, a gimbal/video stabiliser was used. The Zhiyun Smooth-Q gimbal (Figure 1 (6); Zhiyun Tech Co Ltd, Shenzhen, China) was used in the vlog recordings. The Smooth-Q provides three-axis stabilisation in the X-, Y- and Z- planes.

1.2.2. Tripod:

The Induro Adventure AK-Series tripod (Figure 1 (1); Induro Gear, New York, United States) was used when recording videos where a presenter was in front of the camera.



Figure 1. Image illustrating the hardware used by the author. (1) Induro tripod. (2) Rode VideoMic Me with “deadcat”. (3) USB-Type C adaptor (4) Boya lavalier microphone (5) Huawei P20 smartphone (6) Zhiyun Smooth-Q gimbal.

1.3. Software:

1.3.1. Microsoft Video Editor

The software used for editing footage was the Microsoft Video Editor, a default, built-in programme in Windows 10 (Microsoft Corp, Washington, United States). The programme is a basic video editing software which can be used to add basic visual and sound effects, crop videos, and add audio voiceovers.

1.3.2. Adobe Creative Suite

Adobe (Adobe Inc, California, United States) offers professional level software in their Creative Suite platform. This includes Illustrator and Photoshop (used for photo editing and graphic designing), as well as Premiere Pro and Audition which are used for sound and video editing. All the programmes mentioned are used by professionals in industry. Fortunately, Adobe allows for an educational enterprise subscription allowing many university

institutions to subscribe to their service for their staff to utilise. Adobe Audition was used by the author to edit the audio including voiceovers. The sound level of the audio waveform was increased, and background noise was reduced using their built-in filters options.

1.3.3. Flashback Express Recorder:

For tutorial videos which consisted of slides in a Microsoft PowerPoint presentation, Blueberry Flashback Express Recorder (Blueberry Software Ltd, Warwickshire, United Kingdom) was used to record the screen. The software was set to record at 30 frames per second (FPS) at 1080p resolution making it high definition quality. The Express version is a free software with limited functions compared to the Pro version. Moreover, the company does offer a discount for educators and students.

1.4. Smartphone Applications (Apps):

1.4.1 RecForge II

RecForge II (Dje073, Paris, France) was used to record voiceovers in tutorials via the BOYA lavalier microphone and edited with Adobe Audition. The app has been highly rated on the Google Play Store with a rating of 3.9 out of 5 stars and over one million installations. The developer (Dje073) offers both a lite version and a pro version. The author purchased the Pro version of the app. Settings used by the author included stereo audio, recorded at 44kHz.

1.4.2. Open Camera:

Open Camera (Mark Harman, Cambridge, United Kingdom) was used for video recording when the default camera app on the phone was not used. This app allowed for more professional level videos to be

recorded as it gave additional settings such as exposure control and digital video stabilisation. The app has been widely received by the general public with an average rating of 4.1 out of 5 stars and over 10 million downloads on the Google Play Store. The author's settings on this app included Full HD (1920x1080) resolution and video frame rate of 30 FPS. All other settings were set at default.

PARTICIPANTS AND FEEDBACK

Final year optometry students were asked to evaluate courses and the teaching staff following the end of the course/semester. This is done anonymously and online via Summative Evaluation Tool (SET), an online course and teaching student evaluation system. Comments from the students on what was helpful in their learning included feedback on the author's YouTube channel (Table 1).

Table 1: Feedback

Combined anonymised feedback from students on the YouTube Channel and feedback from students when surveyed on the teaching at the end of the course.
"The videos are helpful - can do video on interesting cases you've seen and how you managed them"
"Keep up the good work"
"Creative teaching resources and feedback, makes clinic learning fun"
"Debriefing at the end of the clinic session was helpful and what areas were needed to be worked on. I really

appreciated the extra resources and YouTube channel!”

DISCUSSION

The impact of social media on learner’s attitude in health professional education has been well documented, with the biggest benefit being clinical teaching⁷. Advancements in technology have prompted a need for teaching to become digital, such as the transition of hardware from overhead projectors to PowerPoint slides and digital whiteboards, and online platforms for students to upload their assignments such as Google Suites (Alphabet Inc, California, United States) and Canvas (Instructure Inc, Utah, United States). However, due the COVID-19 pandemic, teaching has been greatly disrupted by lockdowns and home isolation orders by governments, especially for clinical courses which involve skills-based learning.⁸ The pandemic created a greater need to adopt digital technology and upload videos and teaching resources on YouTube and other social media platforms. As reported by Bergl and Muntz⁷, social media represents the next frontier in educational research.

The author used a variety of hardware and software ranging from amateur level/hobbyist equipment to professional level equipment (Figure 1). Creating teaching content for a social media platform can be achieved by a novice to those with more advanced skills. The work involved in creating such additional teaching resource is appreciated by the students as shown by their positive feedback (Table 1).

CONCLUSION

No longer is teaching restricted to traditional didactic and practical teaching pedagogy for medicine and the health sciences. Research shows social media is a valid medium for teaching. This communication shows the range of equipment (both hardware and software) that can be used to create such teaching resources for a range of skill levels.

DECLARATION OF INTEREST

No potential conflict of interest was reported by the authors.

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