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Developing A Digital Video: Medical Students' Experience during the COVID-19 Pandemic

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ABSTRACT

The study used a cross-sectional design to describe the production of video and perceptions of medical students during their Community Medicine and Public Health posting. A video on the coronavirus disease (COVID-19) was developed as part of students' personalised and active online learning assignment during the movement control order (MCO) using the Identify, Conceptualise/Connect, Storyboard, Develop, Review/Reflect/Revise (ICSDR) development model. The study obtained student feedback via an online survey upon completing the video. A total of 39 students participated in the video production and online discussion. According to the respondents, the ICSDR model was useful in fostering their creativity in a structured manner and enabling more systematic learning. Additionally, their experiences were impactful and increased professionalism. The activity was authentic and fostered students' decision-making for better teamwork and collaboration. The study is crucial as it addressed the healthcare needs of the local community aligned with the philosophy of the medical course, thus producing competent and compassionate graduates.

Keywords: *Digital video, medical students, COVID-19*

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INTRODUCTION

As of 11 August 2021, COVID-19 has infected over 203.9 million people worldwide with 4.3 million fatalities. The changes in lifestyle due to the pandemic have increased the use of social media and mobile devices for information transmission and socialisation (2). Sharing on social media has become a necessity in all communication, hence allowing users to record, capture, and upload materials online to convey messages to other users (3). The latest Forbes (4) report recorded a surge of 50% to 70% in Internet use during the COVID-19 lockdown.

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The consumption of digital content ranging from mobile apps to free TV streaming has also increased significantly.

Video production has become more convenient and easier, thus raising the number of video consumers who have become video producers. The ease in recording videos using smartphones, tablets, and cameras along with publishing the video online facilitated the creation of numerous videos for informational and entertainment purposes by and for individuals, businesses, government, and education. Videos have been used as a tool in classroom teaching for educational purposes. Kaltura Inc. (5) reported that 95% of 1,200 respondents created or included videos in their work, while 66% agreed that using videos for remote teaching or learning is common in higher education. Nonetheless, developing videos requires proper training and experience. A proper framework can facilitate students' creation of digital videos as part of an active and authentic learning assignment (6). Meanwhile, authentic learning enables students to apply classroom learning in real-life environments, thus allowing them to create solutions, answers, and interventions.

The study aims to examine the practicability of engaging students in a more active, authentic, and personalised learning experience. The objectives are (a) to describe the video production process during the COVID-19 pandemic using the ICSDR model by Campbell and Cox (7) and (b) to investigate students' perception of using the ICSDR framework to create the video and the impact of this experience on their professional training as medical students. Ultimately, knowledge of students' learning process through video creation and feedback can be adopted as part of the active and authentic learning process for future medical education.

METHODOLOGY

The study examined video development using a cross-sectional design to determine students' perceptions of video development. The Medical Programme of the Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak is a five-year programme emphasising producing competent and compassionate graduates for community healthcare needs. One of the clinical postings includes Community Medicine and Public Health, which places third-year medical students in the community for their field training. The course learning

objectives require students to interact face-to-face with the community, develop a research survey, conduct an intervention programme, and produce a manuscript on current public health issues. The component is part of a formative assessment and constitutes 30% of the entire course assessment. The course is limited to a maximum of 40 students per group for each rotation with a total of four rotations in one academic year. As the MCO had disrupted the course implementation, an alternative and authentic assessment was adopted to facilitate students' learning, specifically using their creativity and technology to reach the community via video production. Students were assigned a digital video task to address the importance of preventing COVID-19 among the elderly with co-morbidities in rural community in Sarawak. Due to the higher risk among these vulnerable groups, preventive measures should be effectively emphasised via suitable health education channels.

One of the greatest national concerns involves raising rural community awareness of preventing COVID-19 and other infectious disease transmissions. The leading cause of insufficient preventive measures against diseases is linked to health literacy level (8, 9). Therefore, "health literacy" is a crucial concept that needs to be understood and practised, specifically at the community level.

Other studies have highlighted the effectiveness of videos as a health education tool, such as instructions on hand hygiene and respiratory viruses (10, 11), which improve patients' knowledge and awareness. The ICSDR model was employed to assist the students in the video production assignment. The model begins with the development of a concept, peer feedback, revision, and reflection before □inalizing the video. The ICSDR model was developed by Campbell and Cox (7) to guide students in developing videos. The model was developed using a grounded theory approach and tested on various student populations for refinement purposes, including different education levels ranging from elementary, middle schools, undergraduate, and postgraduate levels (12).

Identify

The COVID-19 pandemic remains a public health issue in the community, hence vulnerable groups, such as the elderly with co-morbidities are the main priority of healthcare providers.

Before developing efficient educational tools for COVID-19, a clear aim was established to provide informational and educational videos and songs. The goal is to raise health awareness among the elderly with co-morbidities in rural areas who lack exposure to mass media and social media. Language barrier was the main issue in developing the video given that Sarawak comprised multiple ethnicities with different languages and backgrounds. For example, the elderly in rural areas had difficulty comprehending messages or information conveyed in the Malay language mainly due to their low education level. The lack of awareness could further spread COVID-19 and complicate efforts to contain the disease in the community.

The target study population were individuals over the age of 60, specifically those with co-morbidities and living in Sarawak rural areas. Most respondents were from different ethnicities, such as Iban and Bidayuh. The elderly with co-morbidities are considered vulnerable during the ongoing COVID-19 pandemic as they are significantly exposed to developing severe illness if they contract the disease due to physiological changes from ageing and potential underlying health conditions. Rural area residents were deprived of access and exposure to the new norm implemented by the government during the pandemic. Qazi et al. (13) stated that many adults with co-morbidities lacked critical awareness regarding COVID-19. Therefore, preventive measures should be □mphasized among the public, specifically among elderly people or people with co-morbidities due to the higher risk of complications among these groups (14).

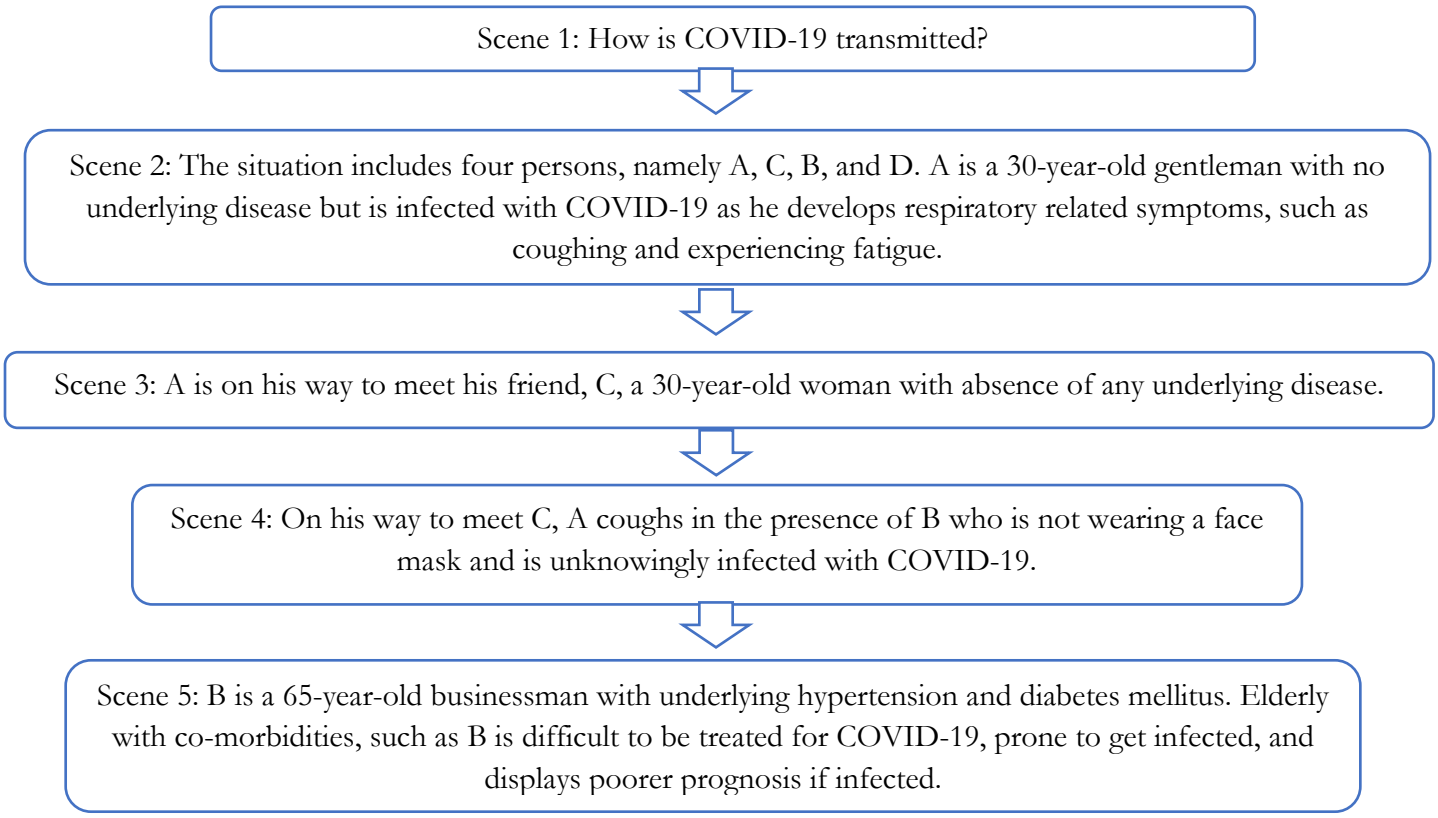
Conceptualise and Connect

The initial concept of the comprehensible educational tool served to convey information on COVID-19 prevention and control using the Iban language. The primary messages delivered in the educational tools included the importance of proper hand washing, social distancing, wearing masks, and avoiding crowded places. The literature review suggested that videos are the most effective educational tool in disease prevention compared to written health materials. Various health prevention and promotion programmes, such as HIV prevention and H1N1 influenza information have applied a video approach and achieved better results for disease knowledge (15, 16). Therefore, the methods could effectively deliver health education

on COVID-19 among the community, specifically the elderly. Observably, most of the elderly in the village community used videos as a tool to obtain information.

Storyboard

The narrative video entitled "How COVID-19 is being transmitted?" (see Figure 1) aimed to educate people on how COVID-19 is transmitted and teach proper protective methods or precautions to reduce COVID-19 infection risks (17). Infection transmission was depicted in a scenario involving several characters who did not practice proper preventive measures, such as coughing without covering their mouth, not washing their hands regularly, not wearing face masks, and not practising social distancing. The video also explained the implications of contracting COVID-19 among the elderly with co-morbidities. Additionally, viewers were introduced to asymptomatic carriers that can unknowingly spread the infection to other people. The video also provided information on preventive measures by introducing a character with similar health status and demonstrating how the character practised the measures daily. Furthermore, the video storyline was created with reference to the Ministry of Health Malaysia.



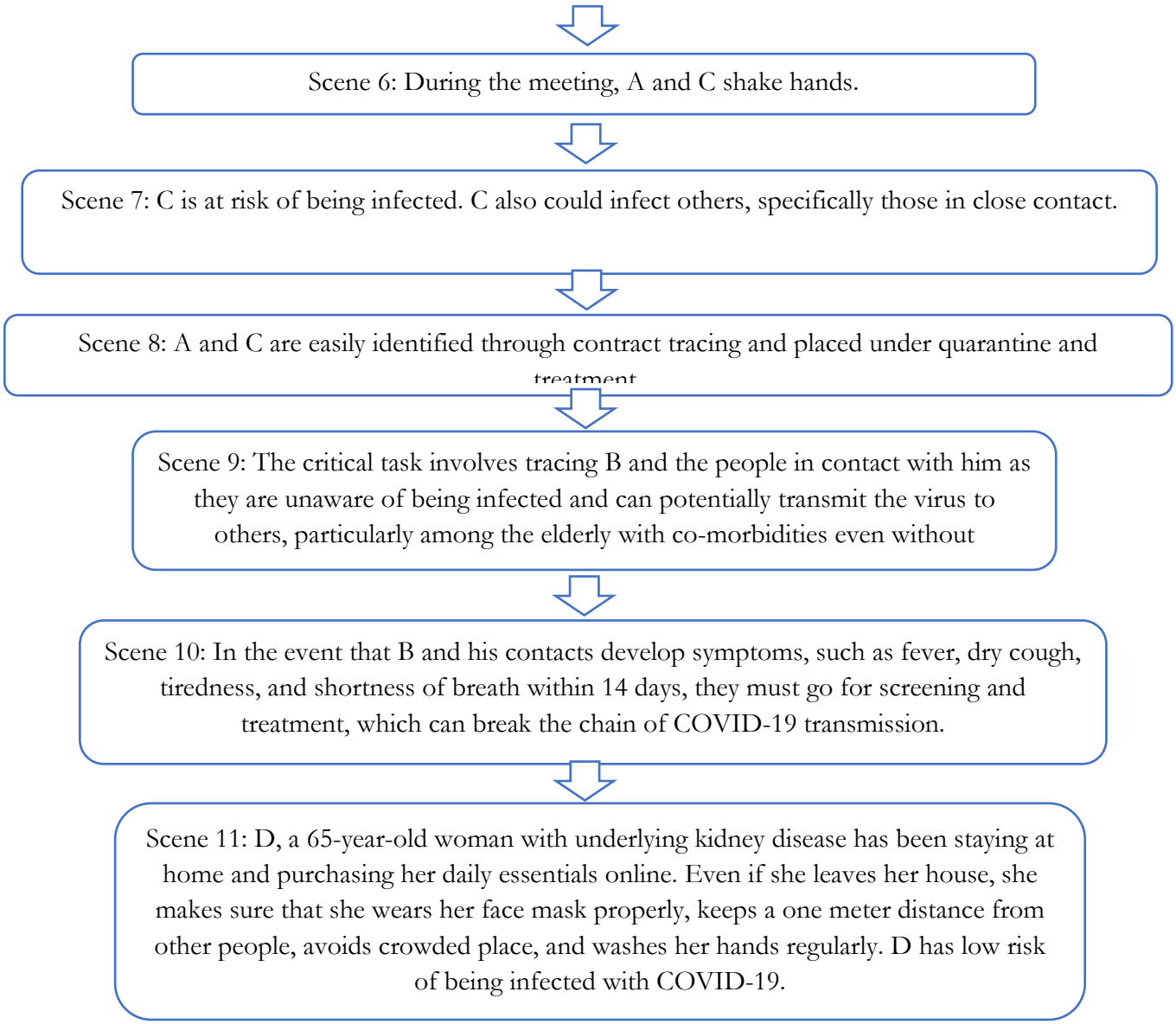


Figure 2 illustrates the video flow on preventive measures. The rationale for using a face mask correctly is to contain respiratory droplets and prevent potential transmission from individuals with asymptomatic or symptomatic infection, specifically when talking, sneezing, or coughing (18). Face mask use in the community should be considered, specifically when visiting crowded and enclosed spaces. The CDC (19) also emphasised that the face covering recommendation excludes medical masks, which should be reserved for healthcare workers. The students demonstrated the proper way to use a mask in the video.

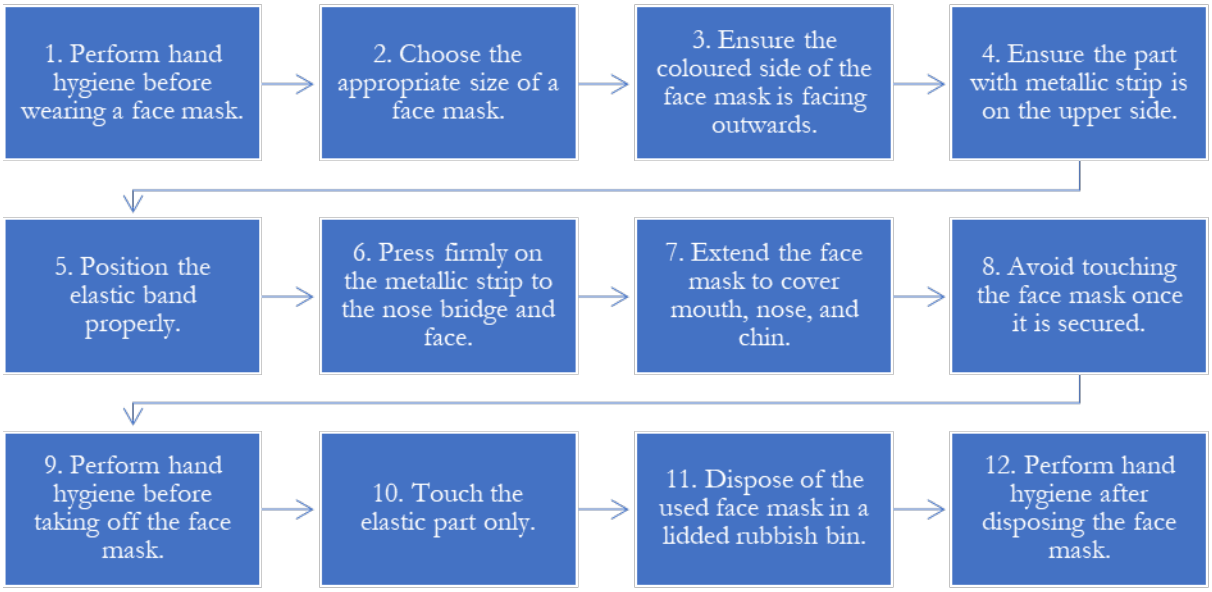


Figure 2: Technique of using a face mask

Development

The "Animaker" application and Microsoft Powerpoint Presentation were used for video animation. "Animaker" enables people to create do-it-yourself (DIY) animation characters online as observed in the animation video. Moreover, the "Crello" application was used to enhance the animated graphics by tweaking the fonts and writings to describe the video and focus the viewer's attention on the educational video. The "Renderforest" application was utilised to create the storyline flow and fix the background image of the educational video. This step is crucial as creating a good and systematic storyline enables viewers to better understand the educational video. The last step for the educational video was adding subtitles and an additional language using the "Kapwing" application. Meanwhile, five students were selected to voice the characters in the video.

Review, Reflect, and Revise

The review, reflect, and revise activities were conducted at several assessment levels. Students were assigned to a health promotion lecturer to improve the content and delivery method. The work assessment was based on a rubric discussed and approved at the

programme level based on the learning objective of the course component. The rubric consists of Concept, Script/Storyboard, Content/Organisation, Quality, Teamwork, and Timeliness as assessment criteria. The rating scale for each component ranged from exemplary or excellent (4 points), very good (3 points), good (2 points), fair (1 point) to not done (0 point).

The video was posted on the university Facebook page and agreements were in the form of "likes" and comments from the college community. Gaining video feedback from the community is favourable. Nonetheless, the assessment timeline was limited and the target community were difficult to reach via social media platforms. Nevertheless, feedback from the university Facebook page was used to obtain peer assessment, which has the advantage of ubiquity and allows more peer involvement and easy and objective criticism (20).

Assessment of Student's Perception

After the assignment completion, an online discussion using Zoom required all students to answer the following research questions:

Question 1: What are the students' perceptions of their experience in using the ICSDR model to develop the video?
Question 2: Did the experience assist the students in their professional training as medical students?
Question 3: What is the most impactful experience in the group assignment?

All students were required to provide feedback as part of their learning assessment. Before the session began, the students were briefed on the survey objective and questions. Informed consent was obtained online using a separate Google Form. The Zoom session was also recorded.

RESULTS

Student Feedback

A total of 39 students participated in the online discussion. Table 1 summarises the results based on the questions.

Table 1: Student feedback

Perception of the experience in using the ICSDR model	• *The experience has taught me how to create a video using ICSDR. The process is more structured and easier to follow. The model outlined the steps by identifying the topic, conducting literature search, and selecting the target group. The process outlines a clear aim and provides informational and educational videos and songs to promote health awareness among the elderly with co-morbidities in rural areas who lack exposure to mass media and social media during the COVID-19 pandemic.* • *The experience also makes me realise that working in a team is quite challenging. Nonetheless, members' feedback helped improve the overall process, specifically in the storyboard development. The storyboard addressed the target group comprising the elderly aged over 60 years old from various ethnicities, cultural practices, and languages.* • *The idea conceptualisation required extensive literature search. Furthermore, a research project entailed a literature review. Using a video was perceived as the most effective in educating disease prevention compared to written health materials. An extensive literature search has increased my confidence in delivering the ideas using a character with a similar status and demonstrating the way the characters practice preventive measures in their daily life.* • *Brainstorming ideas has brought us together as a team despite not being able to meet face-to-face.* • *The development process created the needs to understand all the software and methods in developing a video, which is a knowledge outside of the medical programme. We need to master the software and visualise how the viewers can focus their attention and understand the message delivered clearly.* • *The review, reflect, and revise with the lecturer's assistance increased our knowledge in the field. The health promotion lecturer assisted us in understanding how to develop an effective health promotion material and improve the content and delivery method.* • *The entire process of requiring all team members to meet online has provided valuable feedback and strengthen our teamwork spirit. The process is part of the steps in review, reflect, and revise.*

	• *A lot of coordination needs to be completed but we managed it somehow.*
The experience has facilitated the students in their professional training as medical students	• *Using a more effective way to deliver messages, which is simple and comprehensible.* • *Easy to explain as the video was created using the "local dialect", Iban language.* • *It further challenges me to think about how to reach the people who may be illiterate and are "non-tech-savvy".* • *Exploring the communication method for non-verbal messages.* • *Teamwork is essential for a successful programme.*
The most impactful experience	• *Able to create the video with the team members.* • *Brainstorming ideas for the video.* • *Developing the storyboard.* • *Learning to use the software.* • *Learning the Iban language.*

DISCUSSION

The study recorded medical students' experience in conducting the assignment that involved a video production to educate the rural community with co-morbidities on COVID-19 preventive measures. Moreover, participants' feedback on using the ICSDR model for video development was obtained.

The findings revealed that the ICSDR model assisted the students in creating a video as part of their course assignment. Despite being novices in video production, the students expressed their ability to brainstorm for the video, develop the storyboard, learn the Iban language, and use new software for video production. The ICSDR model was rated as useful given that students can clearly follow the steps in a structured manner. The beginning of the process enabled students to meet online, brainstorm ideas, gather evidence through a literature review and synthesise the findings to conceptualise the idea before creating the storyboard. Similarly, Campbell and Cox (7) mentioned that the students rated the ICSDR model as a useful framework for creating videos. The model encouraged revision and collaboration among students when following the procedure.

The review, reflect, and revise components also aided students to gain a sound understanding of the body of knowledge in the field of infectious disease (21). Furthermore, the literature

review and lecturer assistance increased student's knowledge in the related field. The cohesiveness and quality of the video created by the students extended beyond capturing the video and creating a title. The assignment required skills in mastering the software and teamwork to complete the assignment without any physical meeting, which required high coordination and teamwork in the group.

The experiences prompted the participants to 'think outside the box' in fulfilling their learning needs under medical training during the pandemic. Additionally, the ICSDR model was a useful framework that fostered student's creativity in a structured manner and enabled more systematic learning. Creating a video as part of the assignment is considered personalised learning that requiring students to choose and pursue relevant content, produce work, participate in reflective personal and collaborative feedback, and publish the video (7). The activities encouraged the students to make learning choices when completing assignments, which enabled a customised learning experience (22).

The students highlighted that such experiences were impactful and facilitated the learning experience to become more relevant and engaging to the community, hence increasing their preparation for the real world. The activity was authentic, fostered students' decision-making and provided a platform for better teamwork and collaboration. Essentially, addressing the needs of the local community in alignment with the philosophy of the university medical programme enables producing competent and compassionate graduates to meet the community healthcare needs. Hafner and Miller (23) emphasised that video production provides a social context involving learner-environment interactions.

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