

Online Collaborative Workflow for Creating Learning Videos on Mental Health

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Abstract: This paper describes an online collaborative workflow to facilitate the process of creating digital learning videos on mental health. Online collaboration allows more convenient ways for people to connect to each other anywhere and anytime. With the rapid development of technologies, online collaboration has become common and widely used for various purposes. The aims of this paper are two-fold, (1) To discuss how online collaborative workflow facilitates the overall creation processes of two digital learning videos on mental health knowledge and management and, (2) To identify key facilitative and impeding factors for a successful online collaborative workflow for creating digital learning videos on mental health. This paper presented the workflow and the findings of facilitating and impeding factors of online collaboration. Based on a qualitative data analysis of comments from collaborative members, four facilitative factors were identified as (a) individual commitment, (b) affective team support, (c) consensus and empowerment, and (d) clear instructions. There were also five impeding factors perceived by the collaborative members which are (a) lack of time, (b) challenges inherent to virtual communication, (c) technology and resource constraint, (d) lack of clear and tight guidelines, (e) lack of structured steps. Based on these findings, recommendations are provided for a more efficient online collaborative workflow to initiate group projects in online environments which is increasing in demand in the new normal era.

Keywords: Online collaborative, workflow, mental health, digital educational video

1. Introduction

Studies on online collaboration is a wide area. Many works done by some scholars such as Dillenbourg and his colleagues (Chibaudel et al., 2020 with Dillenbourg too; Haklev, Sharma, & Dillenbourg, 2018) in his research institute have evolved from the use of common technology such as online or computer - supported collaborative learning to the use of advanced technology or a more intelligent based assistance for collaboration such as collaborative MOOC research or the use of tangible interactions for visual impaired learners. Many more potential of online collaboration can be explored through technology especially in this new normal era.

The current research reported in this paper demonstrated an online collaborative workflow for digital videos creation project on mental health awareness. This fully online workflow in post Covid-19 time for the creative and rapid process of producing mental health awareness related videos may be beneficial for others.

2. Literature Review

There are advantages of online collaborative learning. A research suggested that group work tends to provide advantages to below-average students compared to when they are working alone (Nason & Woodruff, 2011). Nayan et al. (2010) mentioned that collaboration with each other towards a similar goal leads to an increase of productivity and yields better results. However, many studies are also focused on online collaborative workflows to meet some work-related outcomes. Traditional collaborative workflows have been restricted by logistical difficulties in finding space and also time to allow collaborations (Nason & Woodruff, 2011).

A project on digitization of patron requests into a new digital repository was reported by Gueguen and Hanlon (2009). The authors provided a case study based on a university’s library collaborative workflows. Also another study by Hofmann, Hollender and Fellner (2009) has done a video annotation research and presented “a reference architecture model which is based on identified phases of the video annotation workflow and proposed a larger idea of collaborative workflow by complying the basic workflow-related requirements control, task enclosure, extensibility, and information consistency.” (p. 40)

During the Covid-19 quarantine period in Malaysia, traditional collaborative workflow is almost impossible. With the rapid development of internet-based communication technologies, collaboration can now be done online which allows more convenient ways for people to connect to each other anywhere and anytime. Online collaboration has become common and widely used for various purposes. It provides an asynchronous manner of collaboration and is able to fit into everyone’s busy schedules, and other conveniences such as virtual meetings (An, Kim, & Kim, 2008). According to Nason and Woodruff (2011), online collaborative has the three characteristics, which are (1) The sharing of knowledge between the collaboration members, and act as roles of information giver or receiver; (2) Shared authority between members whereby the setting of goals within a topic is shared among the members, thereby allowing the members to approach the completion of an assignment in a manner of their choosing; (3) Collaborative learning process among members whereby members are learning from each other’s expertise (refer to Figure 1). Apart from these three characteristics, another special trait that makes the difference is the existence of the internet and communicative technologies act as a supporting element for a more effective collaboration.

Figure 1 shows an important conception of online collaboration in the technological era based on the three characteristics of online collaboration (Nason & Woodruff, 2011).



Figure 1. Conception of online collaboration in the technological era

Note. Adapted from *Online Collaborative Learning: Theory and Practice*, by Nason and Woodruff (2011, p. 207).

The creation of digital learning artefacts (such as videos) on mental health needs the collaboration of experts with different expertise. The video production experts collaborate with psychology experts and work toward the same goals which is to create digital learning videos to provide high quality educational contents on mental health awareness. Another research by Susman also confirms the claim stated that a meta-analysis of 36 studies indicated that participants in computer collaborative aided environments perform better in higher-order thinking, metacognitive processes, and divergent thinking (Susman as cited in Tutty & Klein, 2008).

2.1 Purpose of the paper

As discussed in the previous section, there are undoubtedly some positive effects of online collaboration towards group works. However, there is still a lack of evidence to indicate if online collaborations can really help to facilitate the process of creating digital learning videos on mental health, especially in the context of Malaysian academicians (of different strengths and expertise) collaboration activities. A research states that by creating online collaborative activities in a class, it is hoped to engage the students

in experiential learning and for a deeper insight of learning experience, but the results are not always successful, and sometimes cause new problems in the process (Armfield, 2015). Therefore this paper aims: (1) To discuss how online collaboration concepts can be implemented into the overall creation processes of two digital learning videos on mental health knowledge and management, and (2) To identify key facilitative and impeding factors for a successful online collaborative workflow for creating digital learning videos on mental health. This workshop paper presented some details of the workflow and reflection of the team on online collaboration and their learning experiences through this project.

3. Development Process of Mental Health Video Content

Two videos were created for the purpose to reach out to more Malaysian and to raise awareness on mental health. According to Hassan and Hamzah, (2018), two most common mental illnesses in Malaysia are depression and anxiety which is a major source of loss of productivity and economic development. Besides, people with mental health conditions are more likely to face other physical health problem such as HIV, TB, and other non-communicable diseases which can lead to higher mortality rate (WHO, 2019), suicidal behavior, a sense of helplessness (Kay, Li, Xiao, Nokkaew & Park, 2009). According to the National Health and Morbidity Survey in 2019, there are around 700 thousands of adults or 2.3% of the total population in Malaysia are facing mental health challenges, which implies the seriousness of rising trends of mental health issues in Malaysia. Therefore, there is a pressing need for some medium to raise awareness on mental health and to educate Malaysian on how to safeguard their own mental health.

This section focuses on the online collaboration for the development process of mental health video during the covid-19 pandemic to raise awareness on mental health, and as an educational video providing guide for the workers at home to be more aware of their mental health during the period of lockdown.

The team is made up of three psychology academic experts who are responsible for providing contents for the video. Two video editors to compile all the contents and produce the video. A visual and art designer responsible to improve the design and presentation of content in the video. Lastly, a team leader responsible to coordinate and oversee the whole video creation process. The conception of online collaboration which was discussed previously is implemented in defining the video creation process. The concept helps to identify which process is essential to be included into the video creation process.

The tasks that are defined from the concept of online collaboration are later arranged based on the three stages of learning phases by Jonassen, as he suggested engaging learners in activities that help them to analyze and explore the problem situation, articulate their solution and then reflect on the outcomes and their experiences can help promote collaborative learning among learners (Bennett, 2011). Another recent research also apply Jonassen's learning phases to design web-based collaborative learning (Leow & Neo, 2018). Figure 2 shows the online collaborative workflow for creating learning videos on mental health which was developed based on the conception of online collaboration (Nason & Woodruff, 2011) and the three stages of learning phases by Jonassen (Bennett, 2011).

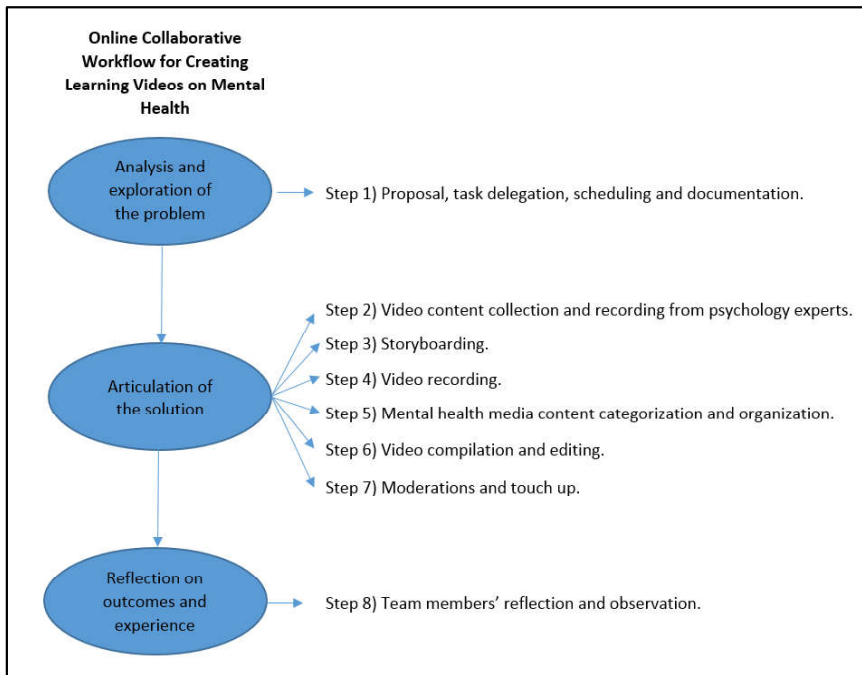


Figure 2. Online collaborative workflow for creating learning videos on mental health.

The following are some screenshots of processes and captured documents based on the above processes.

Step 1) Proposal, task delegation, scheduling and documentation (Figure 3)

FRGS sub-project, a Digital Content Creation Project, Mental Wellness for Digital Talents to Work from Home.

Issues / why

The plan is to propose slide/short video on the problem and issue faced by Workers now at workplaces, for example during Covid-19 lockdown time, or during management demanding workplace work progress due to digital era.

All contents created are to target digital workers who lacks mental health literacy, and those who need some practical guide for their mental wellness for their job productivity while working from home (WFH)

Purpose

General purpose is to create video contents related to e-mental health for digital workers in Malaysia.

- These videos are to improve health literacy among digital workers who are mostly tele-working and work from home (WFH) through digital means, and to provide them knowledge on self-management for better mental health.
- These videos also serve as an introductory video (teaser) for the data collection sessions for FRGS project. Videos will be push (maybe a less intensity word?) to digital talents for their benefit and to seek their participation in answering a survey for FRGS.

Solutions

Step by step plan

- Dr Hava will produce a clip focusing on understanding of individual personality, how to explore individual strength and weaknesses
(or too remarks: Recently i read Carl Rogers' theory on self-concept, i find it useful, and it can be a good foundation for your contents, maybe within 5 minutes is good)
- Mr Alex will produce a clip focusing on PERMAH Model for wellbeing of digital talents (practical guides)
- Mac and Kin Meng can you focus on third video (about 3 minutes or less) on e-mental health app, more on ICT / digital means – how it will affect workers for good and for bad. Do provide the guides based on e-mental health expert view with consultation to Mr Alex and Dr Siew.
(or too remarks: Maybe show's model those three type of e-health model can be mentioned in your infographic or video)
- Compilation and editing of the above 3 videos – in a unified way, under MMU and IMU project with support from MOHE FRGS.

Potential Obstacles

- Time constraint
- Video Quality 720p , 1080p

Conclusion

In the longer term, all these contents will be used as a "small training video" (offered by MMU and IMU) for digital workers through MDEC (r). These contents also serve as an introductory video / teaser for the data collection session for the FRGS project, entitled e-mental health for digital talents.

Costs

- Software/ hardware cost: N/A (using existing)
- Talent Hiring: (Kin Meng as a consultant on creative content creation to assist us)

Timeline planning [Target in APRIL 2020 – Gantt chart]

Timeline/Days	Implementation		
	What needs to be done?	By whom?	What resources / Remarks
(26/3/2020)	1) Define video scope and direction of contents, information design 2) Tasks delegations	Dr Koo	Project Proposal (This doc) with task delegations and Gantt chart, upon consensus from project team.
(31/3/2020)	1) Write a proposal for the video production 2) Plan the video series and consistencies (quality, video format, ppt format, audio to be of quality, video quality too, background music, intro of outro of video, plans for subtitle, title of the series, acknowledgement)	Mac and Kin Meng, Koo	

Figure 3a. Proposal, task delegation, scheduling and documentation

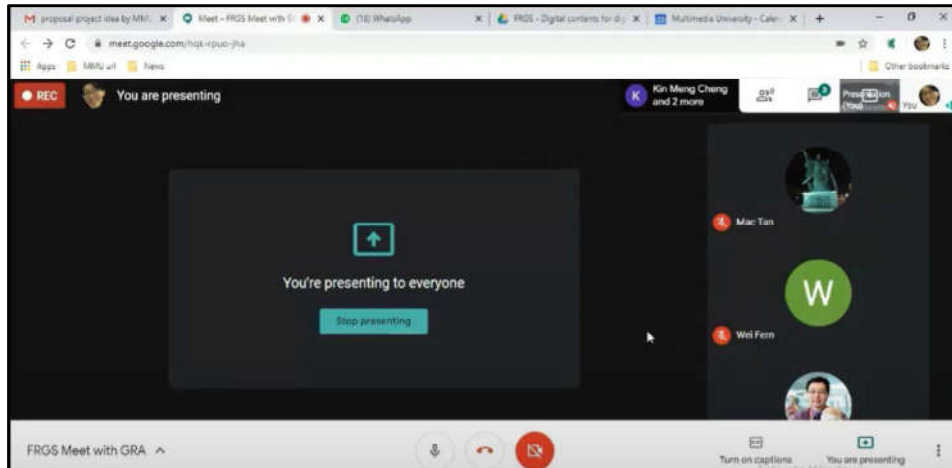


Figure 3b. The top showing digital content creation project proposal and the bottom showing the online meeting through Google Meet.

Project proposal was planned and written with objectives, steps, team members' role and Gantt chart. After showing the proposal to the team members, a weekly Google Meet meeting was carried out to discuss the process of the digital content development. Each video was expected to be completed in one month.

Step 2) Video content collection and recording from psychology experts.

Figure 4 shows a snapshot of the scripts prepared by the experts for their initial thoughts of contents to be presented in the video. Both experts discussed their scope to avoid overlap of contents. A few revisions on the script were done before confirming the final scripts. It was an iterative process where creative words and effects were added into the scripts for later development.

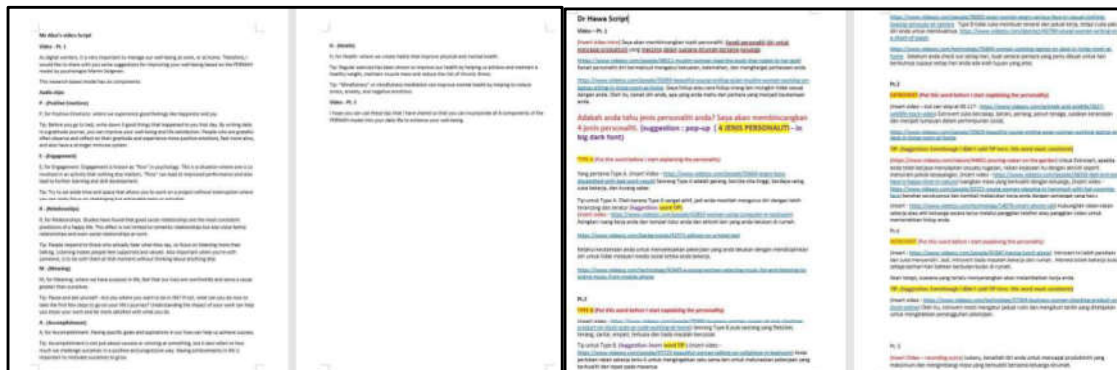


Figure 4. The left is script for the first video and the right is for the second video.

Scripts from psychology experts/lecturers are a guidance for storyboarding and video editor to insert the correct term for subtitle. Chung (2006) mentioned that the term of working script was specifically as a guidance for minor changes before recording for voice overs for the stories of the videos, so the psychology experts/lecturers are guided by the scripts during the video developmental stage later. Moreover, a working script as in Figure 4 was necessary for structuring and visualizing a multimedia digital story into a storyboard format.

Step 3) Storyboarding.

Storyboarding is a process to visualize a movie, animation, or digital story. It is also a sketch or blueprint for multimedia digital story. Besides, storyboarding involves the incorporation of media components, the interaction with the audience, planning the sequence of scenes, transitions, and special effects (Chung, 2006). Storyboard is based on the information collected from the psychology expert and it is very important to express to the video content editor before video recording. It is a guide with a timeline in each frame of the storyboard. On the left on figure 6, it is a 6 x 3 tile storyboard, whereas on the right

is a 5 x 3 tile storyboard. Both are fitted in an A4 size dimension in horizontal.

For the first video, on the left from figure 5 shows that there are 6 main sections to be showing to the audience, each section is represented by one alphabet from P, E, R, M, A, H. The video starts with the psychology expert explaining the PERMAH model and facts that create mindfulness. P is the positive emotion that guides the audience on how they can appreciate their life, E, for Engagement, this is how they can be calm and always in the “flow” whenever they are working. R, for relationships, in the video showing a pair of happy couples having a conversation. M, for meaning, this is to guide the audience to spend some time to think about the meaning of their actions and planning. A for accomplishment, video shows a team with happy faces after achieving their goals. Finally, H is health, which shows someone exercises to maintain their health performance.

For the second video, on the right of figure 5. The psychology experts describe the flow of the story in 4 main categories, which are type A, type B, introvert and extrovert. Psychology experts explain each type of worker with different phenomena. In the video, type A has a strong character, whereas type B needs type A to be more productive. However, for extrovert, they are more outgoing and introverts are the opposite of extrovert.

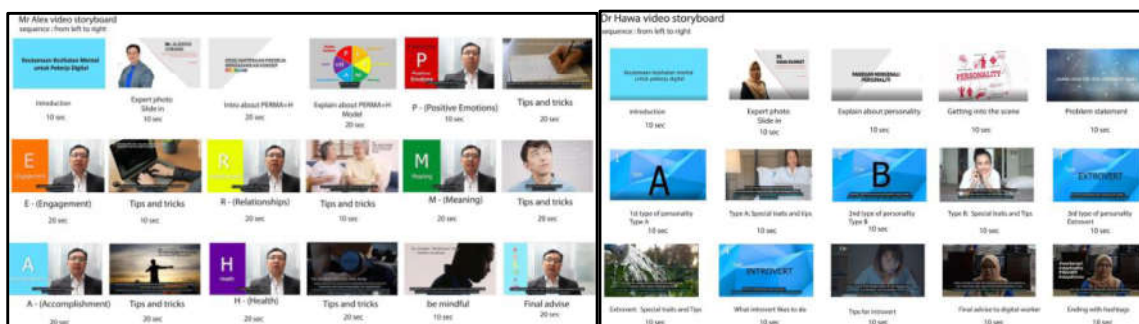


Figure 5. Storyboard

Step 4) Video recording.

Two Psychology experts / lecturers from their respective institutions recorded and shared their raw video and audio files with the team.



Figure 6. Recording of mental health contents by both psychology experts.

Step 5) Mental health media content categorization and organization.

Images, audio, videos and voice over recordings were compiled into one folder for the next step on video editing and development.

Step 6) Video compilation and editing.

Videos were arranged properly to get the result as expected in the storyboard. In order to effectively express the storytelling of both videos, the weekly meeting feedback improves the contents presentation.

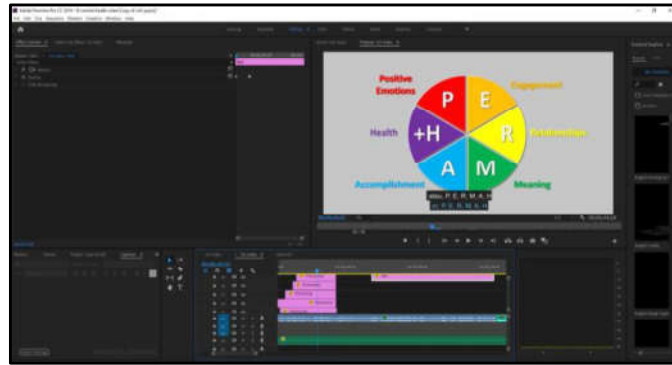


Figure 7. Videos were compiled and edited based on discussions during the weekly meeting.

Step 7) Moderations and touch up.

The team of the project will moderate the video to check the utilization of time and quality of the information after the video has been compiled and released as the first version. Whenever there is a new version, a new number will be assigned to the source file as the version, for example, pernah(v2).mp4 or personality(v3).mp4. There are up to 9 revisions throughout each of the video processes. Revisions including, color of text, background, use of time, suitability of images. With the final version ready, the video was exported to a video sharing platform, namely YouTube.

Step 8) Team members' reflection and observation.

Last step of the video creation process is a data collection and will be discussed in more detail (in Section 3). Basically, team members were requested to provide their experience and review of the project in order to understand their perceptions, experience and their thoughts regarding the creation project. These words of reflection were written down and were further extracted as presented in Table 1 and Table 2 (in Section 4).



Figure 8. Team members' reflection of the digital creation project.

4. Online collaborative workflow explained

This part discusses the implementation of online collaboration in creating two educational videos to raise awareness on mental health among Malaysian and to guide them how to safeguard their own mental health. The videos were developed with the collaborations between psychology experts and video creation experts from 2 different organizations in Malaysia, namely Multimedia University (MMU) and International Medical University (IMU). Psychology experts provided their contents such as photographs and videos and messages/information to be included in the video. The video expert was responsible to do the compilation of all the contents provided by the psychology experts. At the beginning of this project coincidentally met with the urgent announcement of the Movement Control Order due to a sudden spike of COVID-19 outbreak in Malaysia. This has forced the team to work virtually. The team members were able to collaborate virtually and work closely mediated by online communicative technologies such as Google Meet, WhatsApp and Google Drive. Asynchronous

manner of collaborative workflow was applied because it is effective in enabling different members of the group to work together despite each of them having different schedules. For this purpose, a WhatsApp group application was used. Some members uploaded information / video files that they wanted to share with the team into Google Drive, and all members provide their views on the videos at their own convenience. This increases efficiency in getting the work to be viewed and commented for improvement. It was also time saving and resource saving (no travelling needed) as everyone can have a meeting virtually at their own convenience.

However, many issues arise during the process, such as miscommunication and thus causing unnecessary mistakes and eventually delay the completion of the project. The facilitative and impeding factors as perceived by the team members during the overall video creation process will be discussed in the next section. These findings enable a better understanding of online collaboration for video creation, by identifying impeding factors and key facilitating factors. This paper will serve as a guide for anyone who wishes to implement online collaborative workflow in their projects, they will know what to do and what to avoid and ensure higher productivity and effectiveness.

4.1 Data collection

All seven members involved in the video creation were requested to provide their feedback after completing the video project. Their feedback was collected in order to better understand their perceptions regarding online collaboration for video creation. The members were asked to comment on the factors they perceived as important that facilitated the completion, and the factors believed to have prevented the completion of the online collaborative work. The two questions are adapted from a previous study as below (An, Kim, & Kim, 2008):

- 1) List the factors of the overall online collaboration workflow, if any that led to the successful completion of the video creation.
- 2) List the factors of overall online collaboration workflow, if any that impeded the successful completion of the video creation.

4.2 Data analysis

There were two coding schemes namely Facilitative and Impeding Factors, which were used to categorize the feedback. The Facilitative Factors Coding Scheme consisted of five major categories, while the Impeding Factors Coding Scheme consisted of seven major categories (An, Kim, & Kim, 2008). Table 1 and 2 act as an analysis table for the thematic codes with main codes and elaborations of codes. As for this present study, simple coding tables are presented in these tables.

The analysis of the feedback from the team members occurred at different phases. First, two coders segmented all the keywords in the feedback using the coding schemes (Segmenting stage) which served as a preliminary data set. Following the preliminary segmentation, discrepancies were resolved through discussion. The two coders (the main and co-author of this paper) then individually coded the segmented units based on the coding schemes (Coding stage). In the last stage, discrepancies were again resolved by discussion between the main and co-author of this paper. The comments which are coded into respective categories are more distinguishable and more defined for better understanding of the perceptions towards online collaboration. It is hoped that the results allow the realization of improvement for a more effective and seamless online collaborative workflow for creation of digital learning videos on mental health.

Table 1 includes major categories under Facilitative Factors which were developed through an iterative process by identifying themes based on comments from the members.

Table 1. *Perceived Facilitative Factors*

Category
Individual commitment to create learning video <ul style="list-style-type: none"> • Meeting the necessary due dates (weekly on Thursday) • Completing the assigned work • Participation /feedback (all members provide their feedback respectively)
Affective team support radiates a positive vibe <ul style="list-style-type: none"> • Members provided positive remarks and encouragement. • Continue learning attitude and willing to take challenges.
Consensus and empowerment given to the respective roles <ul style="list-style-type: none"> • For example, the overall video artefact conception and sections were given the empowerment to the video editor to decide. • The mental health contents were given the experts to decide what is best.
Some clear instructions were in place; brainstorming could produce a better title / visual for the project.

Table 2 includes major categories under Impeding Factors which were developed through an iterative process by identifying themes based on comments from the members.

Table 2. *Perceived Impeding Factors*

Category
Lack of individual time to allocate for the project - to commit to these extra tasks due to time demand for other priority duties <ul style="list-style-type: none"> • Not meeting the necessary due dates • Not completing the assigned work on time • Lack of participation / feedback (idle time with no feedback at times)
Challenges inherent to virtual communication <ul style="list-style-type: none"> • Problem faced when discussing during virtual meetings, or when sharing information through online communication technologies. A few members' internet connection was poor and frequently disconnected.
Technology and resources constraints with multimedia technicalities challenge <ul style="list-style-type: none"> • Requires a more advanced / fast technology for better audio-visual quality and speed on editing the videos. • No recording studio facilities; all via home setup and to do it during nighttime (quiet time) • Limited resources resulted in using stock photos and videos, open source music, etc. • Tedious of the final stage to refine the videos; many rounds were required.
More tighten, clearer and communicative instructions should be established: <ul style="list-style-type: none"> • Unclear guidelines such as process flow for the video creations • To avoid redo, and to produce a better design for the visual part of the videos.
Lack of structured steps to adhere to a better process of workflow. <ul style="list-style-type: none"> • Some unclear steps were observed during the process.

5. Conclusion and future research

Online collaboration workflow can be an effective method to facilitate the creation of digital video on mental health. By using the internet and other communication technologies, it is an effective means for facilitating collaborative processes such as meetings, sharing of information, sharing of work progress, and giving feedback. Online collaboration is simply a more convenient and flexible means for a successful collaboration. Yet, despite all the benefits of online collaboration, there should be some realizations for a successful collaboration to happen; a meaningful online collaboration will not happen if the team is not synchronized properly. Besides, there should also be a realization that some attributes of online collaboration such as asynchronous communication may cause different problems that might not surface during face-to-face group work. Therefore, it is necessary to consider the key Facilitating

Factors and Impeding Factors, and re-conceptualize an improved online workflow (particularly for digital video creations) that fits a certain context to ensure a successful online collaboration process, especially in considering those factors surfaced in this study. Hopefully this paper will serve as a guide for those who wish to implement an effective and successful online collaborative workflow in their project. Future research is to apply the findings from this paper to create a well-structured and effective online collaborative workflow to collaborate with other organizations to create more mental health related contents. A more proper qualitative data analysis method to be used for analyzing users or creators' feedback on their usage experiences on online video for their improvements of mental health.

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