Online Video for Self-Directed Learning in Digital Animation

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ABSTRACT
Video is a preferred medium of instruction over other media for learning about digital animation. However, there is lack of understanding of how and why students use video instructions for learning digital animation. The purpose of this study is to explore how learners use online videos for learning from the perspectives of Uses and Gratification Theory and Cognitive Theory of Multimedia Learning. Twenty final year students enrolled in Digital Animation programmes in Klang Valley, Malaysia participated in focus group discussions to share their thoughts and experience of online videos for self-directed learning. Through thematic analysis, the students voiced dependency on online videos especially for skill mastery, ideas, and inspiration. The process of how online videos were used for self-directed learning was derived from data analysis. The findings also revealed that students gained content and process gratification by using videos but did not gain much gratification socially through online video uses. It was also found that digital and critical literacy skills are required in order to become more effective and efficient in using online videos for learning. The findings of the study would enable educators and media specialists to identify the capabilities and challenges of online video use to maximise its potential to engage learners.

KEYWORDS: Online Video; Uses Gratification Theory; Cognitive Theory of Multimedia Learning, Self-directed Learning; Digital Animation.

INTRODUCTION
In recent years, there is a growth in online video-based learning (Giannakos, 2013) with Massive Open Online Courses (MOOCs) and video sharing platforms opened opportunities for self-directed learning. The breadth and the easy access to video content have made videos an essential and preferred choice for learning. The number of courses and students enrolled in MOOCs have steadily increased over the years (Shah, 2017). YouTube, an online video sharing platform has been voted as the number one tool for learning among Top 200 Tools for Learning in 2016 and 2017 while consistently ranked as the top video-based learning tool from the years 2009 to 2017 (Hart, 2017). Not only online videos are open access and user-friendly, the versatility and up-to-date video content have seen its use as a support for formal and informal learning in various areas of science, medical and health sciences, social sciences, arts and humanities (Kousha, Thelwall, & Abdoli, 2012). The use of online videos in learning is commonly practised to cater to the students' learning styles, to engage learners, to enhance communication, to provide learners with the opportunity for social collaboration and to reflect upon their learning (Cuevas & Kohle, 2012; Jordan, 2012). Learners moreover can access videos through online and mobile technologies enabling ubiquitous access to content and information. The freedom and control offered by online video-based learning platforms create a conducive environment fit for self-directed learning activities.

Video-based learning platforms had become more dominant teaching and learning environments on the Internet (Laaser & Toloza, 2017). The advantage of video learning is also seen in its effectiveness in presenting complex information and processes that are difficult to be presented through a single medium (Mayer & Moreno, 1998). Despite the popularity of video-based learning, there is a lack of understanding in relation to online video technologies especially in the use of online video and its impact of video-sharing technologies among users, groups and communities, as well as the impact of video technology on teaching and learning (Snelson, Rice, & Wyzard, 2012). It would be beneficial if learners are able to maximise the potential of video platforms to engage in self-directed learning activities to achieve learning goals. Therefore, the purpose of the study was to answer the research question of "how and why" students use online video resources to gratify their learning needs.

Video-Based Learning Opportunities for Digital Animation

Video is a time-based media containing visual elements frequently combined with other media elements to present content. Video has the characteristics of moving pictures, visualisation with audio support which is very suitable for the studies of digital animation. Studies of digital animation can be viewed from the perspective of technical, creative and principles-led studies that tell stories or messages. Despite so, art and design subjects are generally scarce in MOOCs (Shah, 2017). Nevertheless, digital animation related content is usually accessible on the MOOCs platform shared by partner contributors, e.g. Pixar in a Box by Pixar Animation Studios accessible through the Khan Academy portal. Digital animation content was more often retrieved from video sharing platforms. There are digital animation related learning portals which cater for designers, animators and storytellers such as TheCGBros and Motionographer, which covers content, insights and digital inspiration related to computer graphic imagery and all areas of motion visual design. Software providers and professional tutors whereas created YouTube learning channels (e.g. Adobe® Creative Cloud™, Autodesk 3ds Max Learning Channel) where information and tutorials were reposited to help learners use their tools. Digital animation content frequently contains theoretical knowledge, practical skills and techniques that need to be mastered. For example, principles of animation, behind-the-scenes, and "how to" videos which allowed students to practice while watching the videos (Guo, Kim, & Rubin, 2014; Van Der Meij & Van Der Meij, 2014).

Videos are a preferred medium for learning among digital animation students (Yuen, 2010). Videos appeal to the digital animation students due to their familiarity with the technological and technical aspects of video consumption and production as digital animation is a video genre itself. While videos have been an integral part of teaching and learning in the digital animation context, it could not be presumed that digital animation students are technologically advanced or skilled in using online videos for self-directed learning. Digital animation students like many Digital Learners may struggle to search for information online, struggle to make sense of the information obtained or struggle to vet and integrate online content into their learning (Gallardo-Echenique, Marqués-Molías, Bullen, & Strijbos, 2015). Thus, these skills such as digital literacy and critical literacy which could be taught to the students so they could use online videos more effectively to achieve learning goals.

Theoretical Perspective of Media Usage for Learning

Two theoretical perspectives are used to explain the use of video media for learning, the uses and gratification theory and the cognitive theory of multimedia learning as the supporting theory.

Uses and Gratification Theory for Video-Based Learning

From the theoretical perspective of uses and gratification theory (U&G theory), users are knowledgeable enough to choose media that will satisfy their needs, allowing for knowledge enhancement, entertainment, social interaction, diversion and escapism (Katz, Blumler, & Gurevitch, 1974; Levy & Windahl, 1985). U&G theory suggests that users are active consumers who have control over their media consumption, and have adequate self-awareness of their media use, interests, and motives to be able to interpret and integrate media into their daily lives (Katz et al., 1974; Levy & Windahl, 1985; Wang, 2014). As this study is focused on learning, the study focused on the uses and gratification of online videos for knowledge enhancement. U&G theory was applied in an educational media perspective where learners consciously choose the medium that could satisfy their learning needs, and they are able to recognise their reasons for making media choices while gaining satisfaction in the media use process. Stafford, Stafford and Schkade (2004) had identified that users could gain three types of gratification through Internet use, which are a) Content gratification (gratification gained from the use of the video e.g. the need for researching or finding specific information), b) Process gratification (gratification gained from the experience of purposeful or random navigating in its functional process), and c) Social gratification (gratification gained when video uses enable the forming and deepening of social ties). Similarly, users would be able to gain these gratifications through online video uses. This study mainly probed into how these three gratification aspects contribute to the students' online video use for learning.

Cognitive Theory of Multimedia Learning

Video designs that comply to the Cognitive Theory of Multimedia Learning are generally more engaging, more memorable, and are more effective in presenting complex information and processes compared to text-based or visual-based medium (Mayer, 2005; Mayer & Moreno, 1998). The Cognitive Theory of Multimedia Learning proposes multimedia such as audio and visual elements (words and graphics) facilitate active learning. This theory is strongly related to information processing model, which emphasises how multimedia representation, sensory memory, working memory and long-term memory are interrelated (Mayer, 2005; Mayer & Moreno, 1998). This theory explains the cognitive activities such as selecting words, selecting images, organising words and organising images, and more importantly how these activities (or information) are integrated coherently with the learner's prior knowledge in working memory. This will then lead to the meaning-making process, which is called as learning. The cognitive activities demand a high level of attention and reflection from the learner's

perspective. For example, videos in the multimedia format presented in small chunks with a conversational voice could engage and sustain learners' attention (Mayer, 2005; Mayer & Moreno, 1998). The benefits of learning through video include enhanced motivation and satisfaction (Moreno & Mayer, 2007; O' Shea, Stone, & Delahunty, 2015), and improved retention (Whatley & Ahmad, 2007).

Interactivity in Multimodal Learning Environments

The online video learning platform is an interactive and social activity which requires cognitive attention from the learners. Though most activities are focused on consuming videos, users may also participate through user-to-content (indirect) interaction and user-to-user (direct) interaction (Shao, 2009). With a social network account, users can engage in interactivities online to create playlists, tag, annotate, link, comment, search, read comments and review other users' write-ups. These activities are examples of user-to-content interaction. Learning with online videos also allows for user-to-user interactions where users chat and message each other through a social platform. Moreno and Mayer (2007) had derived five main types of interactivity in a multimodal learning environment. Table 1 lists the example of interactions possible within the YouTube platform.

Table 1: Example of YouTube interactions and interactivities

Online video interaction[1]	Type of interactivity activities[2]	Description	YouTube Example
User-to-user	Dialoguing	Learner receives questions and answers or feedback to his/her input	Comments, ratings (like/dislike)
User-to-content	Controlling	Learner determines pace and/or order of presentation	Video control (play/pause), scrubbing video, download, subscribe channels (follow), add to, playlist
	Manipulating	Learner sets parameters for viewing	Video quality (HD), video viewing options (cinema mode/full screen), caption on/off, speed up/slow down
	Searching	Learner finds new content material by entering a query, receiving options, and selecting an option	Search list, sorting options (relevance, view count, ratings, upload date), YouTube recommendation
	Navigating	Learner moves to different content areas by selecting from various available information sources	Thumbnails reference, annotations, links, share

[1] Shao's (2009) categories of online video interaction
[2] Moreno and Mayer's (2007) Interactivity in Multimodal Learning Environments

This variety of interactions offered learners cognitive attention (and also distractions) on video-based learning, which this study probes with a group of digital animation students.

User-Generated Content and Video

Learning with online videos has both pros and cons. On the positive side, online videos generally consist of user-generated content that has added knowledge of experienced users and experts as compared to traditional learning videos which are usually professionally created. User-generated content is defined as various kinds of media content publicly made available on the Web that is produced by end-users as Wunsch-Vincent & Vickery (2007) explained reflects a "certain amount of creative effort, created outside of professional routines and practices" (p.4). These videos shared on a social media site are at an advantage compared to other types of online videos (e.g. pay-per-view, video-on-demand) due to the social aspect offered by Web 2.0 technology. On the downside, while heavily dependent on users' participation and contribution, user-generated content sharing sites do not determine the content ownership and depend on users to flag the content as inappropriate before further dispute processes take place (YouTube, n.d.). Online video content especially information or instructional content might be outdated or lack sound instructional design that could confuse the learners. The effective use of these videos is dependent on the digital literacy skills of the users whereas critical literacy is needed to identify trustworthy sources of information, avoid biased content, and integrate divergent thinking into actionable knowledge (Greene, Yu, & Copeland, 2014). Ng (2012) explained that critical literacy involves "critically analyse digital materials in

more depth to understand the underlying meanings in the information" (p.1068). For students who lack critical literacy, the instructors' guidance is needed in facilitating further discussion and critical thinking.

METHOD

This study employed a qualitative approach to explore how and why students use online videos for self-directed learning. Final year students from three higher learning institutions in Kuala Lumpur, Malaysia offering Digital Animation programmes were invited to participate in the focus group discussions. The advantage of using focus groups for this study is that it offers a more accurate representation of the reasons and occurrence of a topic, as well as conveying participants' beliefs, attitudes and feelings towards a topic that could not be explained by quantitative approaches (Liamputtong, 2011). According to Christensen and Johnson (2013), focus groups are able to provide "in-depth and rich information about participants; worldviews and their personal perspectives and subjective meanings" (p. 429). The focus groups are therefore able to elicit comments from students' "own words" (Serrant-Green, 2007, p. 3) and provided a deeper understanding of the participants' beliefs, behaviours and strategies of online videos use for self-directed learning. Focus groups were used for this study instead of a one-to-one interview was also based on the presumption that students would be more comfortable to divulge information within a group setting rather than feeling intimidated within a setting where the interviewer's attention would be focused on the individual (Billups, 2012).

The participants for this study was aimed at final year students as they were more experienced video users as compared to students in the other years of study. They were also more experienced in creating videos or animations, and have worked or are working on their final year digital animation projects. The final year students were also taken to have common experiences in self-directed learning, especially using online videos for problem-solving. From the invitation to participate, a total of twenty students composing twelve males and eight females voluntarily participated in the study offering their thoughts and experience in using online videos for self-directed learning. The participants were on average 21 years-old. A total of three sessions of focus group discussions were conducted. Each focus group was made up of 6 to 8 participants per institution. The participants were presumed to be from the same group of learners in terms of social and cultural background, knowledge, and the level of education. The researcher personally moderated the focus group discussions assisted by an assistant moderator who was more familiar with the culture and background of the participants.

The FGD was carried out in a semi-structured manner until all of the topics were covered, including additional questions in response to the participants' comments and reactions. During the focus group sessions, the participants were asked questions with the focus on how and why they use video for learning. The students were firstly probed to share their experiences on self-directed learning and moved on to the online videos for self-directed learning. The students answered questions such as "how do you sustain or improve your animation interest?", "What kind of videos do you (look) for?", "what makes a good video?", "Could you share a little on your ways in getting the most out of learning with videos?", "What do you suppose are the problems you would face while learning with videos?" Thematic analysis was used to analyse the discussion data. The steps were guided by Braun and Clarke (2006) such as familiarising with the data; transcribing the verbal data; generating initial codes; searching for themes; reviewing the themes; defining and naming the themes, and lastly reporting the analysis. For thematic analysis, the software called Nvivo was used for the process.

FINDINGS AND DISCUSSION

Thematic analysis has identified how digital animation students used online video for self-directed learning. While the motivations and barriers of using online video derived from the thematic analysis are explained through the three aspects of gratifications (i.e. process, content, social) obtained through online videos usage. The findings also explained why digital animation students use online video for learning as compared to other medium of instruction as well as the challenges they faced in their pursuit of learning using online videos. The analysis of data has shown an emergence of distinct themes guided by the components of U&G theory and the cognitive theory of multimedia learning. The cognitive activities through the evidence of students' discussions, were also highlighted for each of gratification dimension.

Video Uses and Process Gratification

The students expressed two main purposes for video use, namely 1) for gaining idea or inspiration and 2) skills mastery. There was an emergent process pattern on how students use online videos for learning as shown in Figure 1. Their process of using online videos for learning is explained from the perspectives of Process Gratification gained from online videos uses, with supporting data were provided under this theme and the subthemes related to the processes.

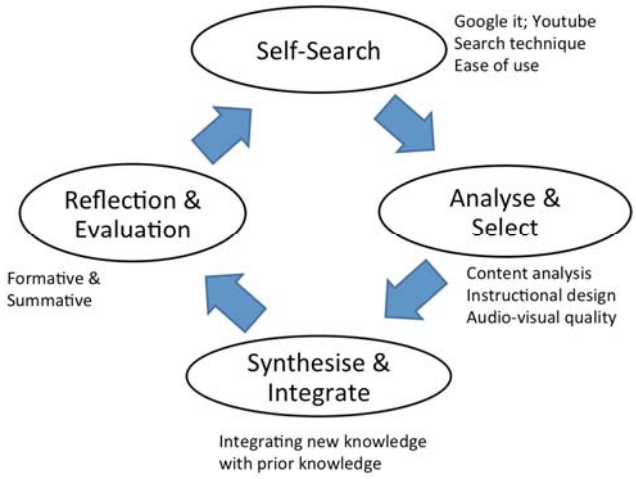

Figure 1: Process of using online video by digital animation students

Once the students' learning goal or task was identified, the video learning process starts with searching for suitable video tutorials, analysing and comparing the content of the searched videos, then synthesizing and applying what they learn from the video towards their learning goal or task, and lastly evaluating the learning outcome and obtaining feedback from relevant sources. Overall, digital literacy was warranted throughout the process of using videos for self-directed learning. Digital literacy is "the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others" (Martin, 2006, p. 155). These processes require cognitive abilities as Moreno and Mayer (2007) highlighted in the theory of multimedia learning.

Self-search

Digital learners are blessed with a range of digital tools and technologies that they could use for learning (Gallardo-Echenique et al., 2015), but their first self-learning activity was always to search online. They were constantly self-exploring during the search stage, continuously reverting to "search for tutorials online" after consulting with their peers or instructors, quoting Student R, "I take down (notes) on what I have to actually do and look for tutorials". The digital animation students said that they usually employ a random search tactic for video content, asserting that "We don't just stick to one. Sometimes, we just search and pick whatever that comes up" [Student N]. They stated not limiting themselves to what the internet has to offer, mainly using Google and YouTube as their main search engines. Being mostly visual and kinesthetic learners, Student L explained why it must be YouTube, "Because YouTube (…) explains and show examples… You can see how they do and solve the problem" There were a few preferred digital animation channels or portals that the students frequently accessed to get their learning materials which shared the latest content and the "best ones" [Student Z]. They obtained these sites from random searching, and from peers and instructors' recommendations.

In situations where there was no expert, the best way for the students to learn digital animation was to "search online". According to the students, with the internet, they could learn from those beyond their social network. "I don't have any friends that like it, teachers (too)… I just Google… and then I started to get more and more" [Student K]. The internet relieved the students from their dependence on the instructors or peers for learning. Self-critical students too believed that using the internet free them from troubling others. This following quote from Student J which explained the advantage of repeated and revised viewing of online videos:

> Sometimes like, for the individual (also), when we independently learning from the online, take an example for me la, for me, when I learn online I easily understand it. But sometimes when I ask people straight away… eh, how do you do this? After a few days, I forgot already.

The instructors' approach has a strong influence on the way students learn. The students commented that their reliance on the internet was partly due to the instructors' strong encouragement to use the internet. Students said, "the lecturers are part of the Google thing" [Student Z]. According to Student N, even when the students approached instructors for help, "the first thing (the lecturers)'d say like … Did you search for it, did you Google it?"

The *ease of use* of Google and YouTube prompted the following statement from the students: "Because we just need to type the technique we are looking for, it'll list out. So basically it's easy to search on YouTube compared to other internet browsers" [Student S]. According to the students, YouTube content is generally accessible unless internet bandwidth becomes an issue. Students voiced frustration caused by unstable internet connection complaining that the internet is slow, loadings could be "Sitting here forever...at 80%..." [Student R] and worse when the server is down sometimes. Especially for video tutorials, "If we were to watch it in HD, it'll always lag…can't watch it" [Student M]. The main concern of using video for learning is that a fast and stable Internet connection is required for downloading and uploading videos as video formats tend to have a larger file size compared to other online media.

Analyse and select

With the long list of content available, while searching, there were basically three tactics students employed to identify video content that is relevant to what they were searching for:- content analysis, reviewing the instructional design and audio-visual quality.

Content analysis. While searching for videos on open access site such as YouTube where search lists tend to be long, when asked about how they filter and select the videos, Student B stated, "Those thumbnails (of the video} which are more attractive...I'll click those." Jordan (2012) has stated that the thumbnail image plays a role to grab viewer's attention. Especially searching for idea and inspiration, the thumbnails give some information about the visual design of the video content. Search results are usually sorted according to relevance and could be further sorted into ratings and view counts to speed up filtering process. As for video tutorials, a student added that by reading the users' comments is an effective way to save time and achieve learning objectives. Another student added, "Sometimes it's stated in the comments below how to achieve what in the videos above. Sometimes the tutor might have forgotten to state a few steps...so we can ask them through the comments" [Student M]. Besides referring to users' comments, the students also scrubbed the video. Some of the methods used as they stated were:

- First, we skip through to see the overall solutions. When we find that it's suitable then only we view it again slowly from beginning to end… if we pause and view, we won't understand why the tutor does it the way he does it… we'd watch once and then watch again. [Student A]
- Sometimes we just speed up what he does. [Student K]
- I do while I watch, it's much easier. [Student J]

Students also sometimes download the videos "in case we need to search for it again" [Student X]. But for some of the more advanced and experienced students, they watch the video tutorials as revision while preferred referring to text tutorial as they already know the steps and were only searching for specific information:

> Sometimes I use just both (video and text) I guess. Because sometimes you already know the gist of what you need to do. So, It's like err … What's the settings again? Fast forward, fast forward … Oh, that's the settings, then you do something to the settings. [Student R]

Instructional design. After confirming that the content is what they were searching for, the students further compared the instruction design of the videos, to identify which was "easy" to follow in the sense that the instruction was precise and not confusing. The Principles of Instructional Design according to the first four of Gagné (1985) Nine Level (or Event) of Instruction begins with gaining attention, followed by providing a learning objective, stimulate recall of prior knowledge and then present the material with sequencing and chunking the information to avoid cognitive overload (Gagné, Wager, Golas, & Keller, 2005). Students were easily confused when following video tutorials which did not adhere to the Principles of Instructional Design. Student J stated, "It's bad because many steps were skipped…sometimes when they (tutors) made mistakes they don't edit it out". Students were required to 'fill in the blanks' or either will opt for other videos with a clearer instructional design. Therefore, some students preferred live demonstrations from their instructors, Student J further explained:

> Our lecturers would say, I tried it so I won't let you do the same mistakes again. That's the advantage of having lecturers. (Video) tutorials are not, you'll have to follow all the mistakes. You have to think wise. You have to watch carefully and skip what is necessary.

Online video tutorials usually range from a few minutes to an hour or two. The students although preferred shorter and chunked videos, but have stated they would tolerate lengthy videos if it was necessary to go through the details if the content and instructional design was in order. Student M stated, "Even if it's an hour or two-hour video, we'd just watch it … but sometimes, longer are better, but fewer mistakes please".

Audio-visual quality. Though not as pertinent as flawed instructional design, students preferred if the audio-visual resolution is of high quality for effective learning. As the students explained, that the visual quality is so low resolutions at times it was difficult to see the content clearly especially for screen-capture tutorials. The students would need to put their critical literacy for guesswork to understand what the tutor was trying to do. Students were generally more forgiving on low-quality visuals as compared to "boring" and heavily accented voiceovers. According to them, they would avoid these videos if possible. They lamented that irrelevant and excessive narration in the instruction design bores them, with students also relaying that "interesting" voices are important to help them stay interested and focused. They too found difficulties in understanding tutors who spoke with a heavy accent. Some of the remarks from the students were as follow:

- Too much gibberish… Sometimes he talked about his experience which is not related (to the tutorial) also. [Student K]
- He talked too much… he only starts showing after 2 to 3 minutes… voice is very important, sometimes I (want to) sleep already. [Student M]
- If they are not (English native speakers), like French … it's really hard to understand what they (are) saying… [Student J]

Finding the right video to watch was akin to finding the right person to ask. According to the students, they agreed that they have to find the right tutor that can show them what they were looking for. Even if the instructional design and video quality were not up to their expectation, it was considered a good video as long as the video content was able to teach the students something and help them achieve their desired learning goal.

Synthesise and Integrate

Next, the students would need their critical literacy skills to *integrate the knowledge* gained from the videos to their work. Bearing in mind that the nature of digital animation problems is ill-structured and authentic, Student M mentioned that adaption and innovation skills were needed in video learning, "When I was still in diploma, someone wanted to model an old Malay castle… he needed a tutorial for it but couldn't find any. He searched for other tutorials and adapted from there".

Students continuously tested and explored till they achieved their desired learning goal. There was no guarantee that watching video tutorials achieve the students' desired learning goal. Student A stated that the possibility of achievement was "70% …Roughly, just trying our luck, if we get it, we get it!" However, over time, students gained experience and knowledge in video usage, especially user-generated content more effectively. Whether the ability to analyse content and be able to integrate the knowledge gained from watching the videos and applying it in their work, getting ideas or mastering a skill, depends heavily on the students' digital and critical literacy. The students must be aware of their prior knowledge and skills, before selecting the right video that matches their knowledge and skill level, Student M stated, "I think if the person is intermediate level, he has to look for the intermediate level video. It depends on the technique and the results that we are looking for." Without the prior knowledge and skill level, students would not be able to apply the knowledge from the video to their work, e.g. "Rigging is odd… when you do yourself there're lots of problems, when you watch the tutorial… all are fine" [Student J]. The students also stated that learning from videos takes up a lot of time to search, preview, view, and re-view the appropriate videos for meeting their tasks. One student complained that "a lot of time wasted… especially when the due date is near, we get stressed…" [Student M].

Reflection & Evaluation

The learning process would not be completed without some self-reflection or evaluation of their learning. The students were constantly reflecting on their own learning at every stage of the learning process. At this stage, the students carry out a summative evaluation of their creative work and the overall achievement of their learning goal. However, from the focus group data analysis, it was found that the digital animation students rarely seek and give feedback from their peers. Student J said, "We really won't dare to comment, usually it's the lecturer who comments". When probed further, most students expressed indifference, fear of criticism or stated that they did not have the luxury of time to do so as they were piled with assignments. Although students are able to evaluate their own learning, the data findings supported Nicol and Macfarlane-Dick's (2006) argument that "formative assessment and feedback are still largely controlled by and seen as the responsibility of teachers" (p. 200) regardless of whether it is a student's choice or an instructor's approach.

Content Gratification

A summary of themes emerged under Content Gratification is listed in Figure 2, and will be explained with the support of data in this section.

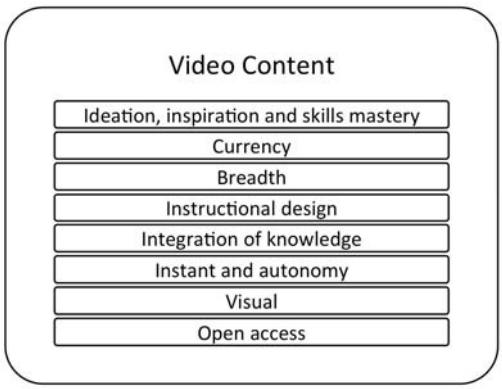

Figure 2: Content gratification of digital animation students

The students have reported mainly using online videos as references for idea and inspiration as well as a source of tutorials for skill mastery. Videos remain as the students' most popular choice for ideation and technical studies for animation design. The videos in narrative genres e.g. "story", behind-the-scenes, making-ofs and work-in-progress gave insights into the animation concept and development process, as Student M described, "Like how to achieve the camera angles; how to do those expressions… we copy them". Student J also said that through these behind-the-scenes they could better appreciate the content of the animation, which is "what is this artist trying to say with this project... How the idea came about". Even before the students enrolled in digital animation programmes, most of the students were watching videos and self-creating animation as hobbies, e.g. Student R shared her story:

> I did animation last time while I was younger, but that is all when I was younger because we were school students (…) and we had ample time to do whatever we like… games, animation and all these. So, we spent it on the things we like to do and that is to make the...animation, the TV series that we liked.

The gratification of video use for self-directed learning was the *currency* of content. According to the students, YouTube, and particular web portals frequently have updates of most recent animated shorts, latest videos related to developments of digital animation, behind-the-scenes, work-in-progresses, making-of's, and reels that they could refer to for idea and inspiration. The students moreover were also able to keep up-to-date on the industry progress, quoting Student Z, "They have the best ones which have lots of inspiration, the technicalities, ahh… momentous milestones in 3D". Digital animation software developers or professional users also frequently update their channels with the latest videos on digital animation techniques and solutions which students could watch to improve their digital animation skills.

Besides currency of the video content, students were gratified with the *breadth* of digital animation content spreading across a wide mix of user-generated and professionally generated content sharing sites. "There are a lot of videos", Student Z stated. The students were constantly referring to YouTube during the focus group discussions. During one of the session, the moderator asked the students "must it be YouTube?" Without thinking, Student G, S and M simultaneously answered "Yes!" All of the students agreed and Student K explained: "If you can't find what you want on YouTube, ask Mr Google". YouTube is the preferred source for skill-based mastery video content according to the digital animation students. The *breadth* of content allowed a variety of options for the students to choose from based on the analyses strategies, citing Student N, "Sometimes, they have different techniques of the same thing. We can do a comparison."

Students overall expressed indifference towards user-generated and professionally-generated content despite both formats of content have significant discrepancies in term of instructional design and audio-visual quality. Rather, the students were more concerned about the practicality of the content and were willing to compromise on its quality; justified by the following student's statement:

> To me, I don't care if they are professionals or not. As long as their techniques could achieve what I want to do. Like I can't solve some bone techniques etc. so I went to their video... *Oh, so that's how you solve it*…so I follow their way. As long as the results are the same, I don't care if they are professionals or not. [Student M].

Additionally, a student said that "Sometimes, the (worst) quality of a recording, like a 10-year-old doing this is …very helpful to us" [Student K]. Another student explained that sometimes user-generated content is more appealing to him because the content reflects his own experience: "Some of the students although they are not in

the industry yet, they will upload their tutorials. They'd share. They also had faced the same problem we faced" [Student S].

Besides that, students were gratified with video content that comes in *different levels of instructional design* that caters to different levels of learners, i.e. most skill-based learning tutorials are sorted according to beginner, intermediate, and advanced skill levels. By choosing the videos tutorials according to their skill level enable the students to grasp the content of the video more effectively. Student R described that "(if) you know the interface you don't need to see the beginner's stuff". If the student's skill level and selected video level were mismatched, students would be confused and will not be able to comprehend the content thus labelling the tutorial as "really hard to understand" [Student V]. The following quote describes Student J's experience learning from a video without the needed prior knowledge and skills:

> Like us, we are much focused when we watch tutorials. When he says the next step…he starts opening those menus or does something, he might have used some shortcut keys that we didn't know… then we'd go... *Oh, what's that?!*

Other challenges the students faced were the need to *integrate* the knowledge gained from the videos onto a different platform using a different tool, as some of the video content were outdated and also of a different animation platform:

> Sometimes we have people who use 3D products from a few years back. So… It's about how you use them is important… the way you use them can be applied to some other platform. It's about understanding what you are doing. [Student F].

Generally, the internet provided *instant* gratification for learning. It was part of their autonomy, as Student N explained "ya, no teachers or mentors or something, like you learn by yourself… through internet or media… that whatever you could find… information." Students can access the videos anywhere as long as they are connected to the Internet.

Besides being gratified with videos as *visual and multimedia content*, the speed of information retrieval was another reason the students stated why they favoured videos over textbooks. One student remarked that "The technology is so advanced today, we don't read books... You will find what you are looking for if you just Google Search" [Student J]. Another student added that access to video is ubiquitous and mobile adding to *instant* gratification, "Especially now you can search it on your phone" [Student N]. Some of the students nevertheless mentioned that print media is used as an alternative reference should the internet, peers or instructors fail to help them.

The students further explained why videos were popular with digital animation students. Student S stated, "I think because the kids nowadays don't like to read. They like to watch." Videos being "*visual*" was the main gratification behind the use of videos for learning because undeniably digital animation students were mostly visual learners. The students preferred learning with videos tutorials, as Student K explained, "I prefer videos, and it gives you the cursor and where to point the menu….so you don't get lost with the user interface." Student V added that learning using "Video tutorial is easier" because it is "Straight to the point. One by one…" These statements exemplified the multimodal impact of videos where a single medium cannot achieve. Video tutorials are a great source for students to master their digital animation skills. Screen-captured video tutorials allow learners to learn digital animation skills and techniques through step-by-step demonstration or to familiarise themselves with the digital animation tool environments (Luke & Hogarth, 2011).

Open access

Suber's (2015) definition of open access is "digital, online, free of charge, and free of most copyright and licensing restrictions". Generally, social media content is *open access*, therefore learning videos were easily accessible to the students. There are non-open access sites that allowed access to selected "free videos" or content with limited use such as "30 days trial only" which students can choose and learn from. It provided an opportunity for students to try out or kick-start their learning plan. Student K shared his learning experience, "When I first got my first PC… what I did was, I want to learn about 3D. So, I downloaded a lot of stuff (…) I checked with tutorials and all and see which I manage to do first. First, I tried Maya…and I (got) lost... then ok, stop. Do Blender…" However, most of the content from non-open access sites were accessible only through paid subscription. For example, the students stated that content related to realistic 2D render, 3D projection mapping, simulation and, "those teaching full set rigging without mistakes" [Student J] were difficult to come by on open access sites but were available through paid subscription sites. The majority of the students nonetheless pointed out that they were not willing to pay for the videos due to the high exchange rates. Student M elaborated:

> For that, you'll have to search for the paid tutorials. It happened to me before, I searched YouTube and all the free sites... I can't find any... I wanted to cry…just don't know why I can't find any. And then half-heartedly, I searched Lynda.com and I found it … but need to pay for it, we can't afford it.

Regardless, students voiced that they preferred *open access* videos compared to paid subscription-based web portals believing that there are alternative video contents similar to those in paid subscription, confidently stating "There will be others!" [Student M].

Social Gratification

The students seldom expressed their social gratification gained from online video use during their self-directed learning endeavour. The students were not making full use of the participatory opportunities of online video platforms, especially in giving comments to the video and gaining extra knowledge from the video response shared by others. Their video learning process focused more on user-to-content interactions and little on user-to-user interactions.

The following are found as the reasons for explaining low participation and contribution as video users: First, the students lacked the free time to participate and contribute; secondly, they did not have motivation in participating or contributing and thirdly, they lack the supportive environment that provides constructive feedback that encourages participation or contribution. The influence from their early education which is highly exam-oriented and teacher-centred (Kahl, 2013; Saleh & Aziz, 2012; Tengku Kasim, 2014) was still very much inculcated in the Malaysian students when they enter their studies in tertiary education institutions. They still regard the instructor as the authoritative figure in the learning process, resulting in the lack the knowledge and practice on how to be constructively critical towards their own learning.

During the focus group sessions, the students also have repeatedly stated that they seldom share their academic knowledge, only occasionally reposting "helpful" digital animation related content, e.g. "good film, animation, tutorial, inspiration, competition, storyboard…" [Student S] in their social network. They seldom comment or discuss the videos that they have watched, and the most feedback they gave was a "like" to the videos which they found interesting. According to the students, sharing academic work advocates too much peer competition and criticism from which they feel pressured. Most of the students discussed that for being self-critical about their work which could explain why the students rarely upload their own videos and contribute online. "Self-criticism relates to a form of negative self-judgment and self-evaluation, which can be directed to various aspects of the self" (Longe et al., 2010, p. 1849). While both self-evaluation and constructive self-criticism promote learning, excessive or enforced self-criticism are unhealthy because it focuses on the unfavourable examination or severe judgement of oneself, one's own faults and shortcomings (Sedikides & Luke, 2008). The students, however, were more willing to share non-academic related content or "personal stuff" within their social network.

IMPLICATION OF THE STUDY

This study has contributed to the understanding of online video use for learning and the impact of video-technologies among learners. It has contributed in two areas of understanding, "how" online video was used, and "why" online video was used among learners in the digital animation context. The findings showed that videos are an essential medium for studies in digital animation where students are dependent on online videos for skill mastery as well as to gain ideas and inspiration. This implied that online videos will continue to be used for digital animation studies. Overall, how students use online videos for learning may differ slightly but commonly goes through the self-search, analyse & select, synthesize & integrate and evaluation cycle. This process is aligned with Knowles (1975) definition of self-directed learning "in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (p.18). These processes were also fairly aligned with the cognitive processes mentioned by Martin (2006) and Mayer & Moreno (1998) especially in the context of multimedia learning. This suggests that improving self-directed learning skills may also enhance online video uses.

Corroborating with other researchers' (e.g. Gallardo-Echenique et al., 2015; Prensky, 2001) studies about the behaviour of digital learners, the students in this study fit the characteristics of digital learners who are highly dependent on the internet for learning. Their descriptions of their experiences with video learning did not vary considerably. The students gained process gratification and content gratification through online video usage as it matches their learning style, needs and preferences. However, social gratification was not much observed from the students. Similar to what other studies have shown (e.g. Chau, 2010; Shao, 2009), the majority of digital animation students are consumers of video content, with little participation and even lesser contribution to the

video sharing sites. Generally, students in this study are not socially active in video sharing sites or social media for academic learning purpose. They lack the motivation to participate and contribute, believing that their instructors should play a more important role to comment and assess their learning. The findings from the study also implied that time, high level of digital and critical literacy are required to search, filter, select, watch and re-watch videos to critically grasp what the video content is about before they could make sense of it, test it out and apply it to their tasks and only a few of them will share it out to their network. The process of identifying suitable video for learning requires a high level of cognitive activities which need attention, critical selection and decision. Video sharing sites may offer opportunities to make learning more meaningful with the support of a socially engage and promotional environment for the learners. However, the social engagement aspect of using online video for learning requires more research and exploration. These findings, therefore, suggest more emphasis in promoting participatory culture among the learners to maximise the potential of videos for learning in video-based learning platforms.

Although video content in art and design is currently lacking in the MOOCs platform (Shah, 2017) or flawed in instructional design and audio-visual quality in video sharing platforms, it did not hinder digital animation students in using online videos for learning. Video content developers would need to look into areas of content and topics which are lacking, and fill the gap rather than reinventing the wheel – recreating a different video that teaches the same thing. Institutions of learning are also required to weight whether to train instructors or in-house developers to create original (significantly rare) video-based content or implement existing video content in the curricula. Studies of video design and technology to help learner learn would be a continuous feat. Instructional design and audiovisual quality of online learning videos for learning would need to focus on the engagement and sustainment of learners' attention. The online video platform needs to be improved (e.g. stable and strong internet connection) and maintained in order to empower and motivate the students to learn as it provides a natural context for self-directed learning. For example, appropriate video selection should be assisted by the instructors or experienced users to streamline the needs of students before leaving them for their self-learning. More guidance on the pools of online video which map to certain skill set is required to help students learn more efficiently.

LIMITATION OF THE STUDY

The present study was limited to Malaysian digital animation students enrolled in three institutions in Klang Valley, Malaysia and a low number of samples participated in the discussions due to a small number of digital animation programme offered by higher learning institutions. The students' actual statements and comments during the focus group discussions were quoted in "cleaned-up" version of the text presented in the paper. "Minglish" which is English spoken with a mix of other vernacular languages (Halai, 2007) is commonly spoken in Malaysia. Minglish was used occasionally in the focus group sessions in order to encourage sharing among the students and to create an informal mood of discussion. An effort was made to ensure the reliability and validity of data coded into the specified themes and sub-themes, e.g. the vernacular language translations and interpretation were checked and validated a few times to ensure the meanings or codes were aligned with the themes. However, there is no claim to the level of accuracy as there was no formal method applied with regards to the anecdotal evidence. It could nonetheless be potentially bound to human errors limited to the cultural knowledge and language fluency of the researchers or the interpreters.

CONCLUSION AND FUTURE STUDY

The findings in this study can also be used to explain the use of online video for other related area of studies such as creative and digital design subjects (i.e. web design, interactive design, digital arts, photography, etc.), which share the common traits such as to ideate and design, to acquire digital skills, and to create artefacts. As video-based learning is continuing to be a part of the education scene, institutions and instructors will need to continue to empower students' with digital and critical literacy, especially social skills by providing extrinsic motivations and positive learning environment so to prepare the learners for self-directed learning in the digital era. The findings of the study proposed for future studies to develop a more objective measure of learners' video use based on the model of gratification as the dimension of research, with variables developed based on the findings of this study. The findings would be important to the educators, researchers and media specialist for identifying online video learning capabilities and drawbacks when more self-learning paradigm such as heutogogy resurfaced as a new learning approach. The ideas of heutagogical learning are based on learners who are more autonomous and know how to learn. This is enabled due to the ubiquitousness of emerging technologies, user-generated content, and self-directedness in information discovery and in defining the learning path (Blaschke, 2012).

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