VIDEO-BASED LEARNING FOR HIGHER EDUCATION 4.0 IN MALAYSIA, INDONESIA AND BRUNEI

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Abstract: Higher Education 4.0 is a worldwide initiative in the tertiary teaching and learning industry that ensures the knowledge being shared by tertiary instructors are similar to the future working experiences of their students. Many sweeping changes are occurring due to Industry 4.0. One way that the nature of 'working' is being changed is in how training is being done at this moment in time. Tertiary learners as future employees are progressively being exposed to learning technologies and tools that are endemic to Higher Education 4.0, one of them is the concept of video learning or video-based learning (VBL). VBL is a primary catalyst of the 'flipped classroom' initiative and it aids in the delivery of blended lessons, predominantly at universities and tertiary colleges. In the ASEAN region, VBL is empowering not just learners but also tertiary instructors who can now ensure that access to learning will be open 24/7, and that learners will be able to access knowledge whenever and wherever they want. Short, amusing, engaging, and illuminating videos are the future of learning through the Higher Education 4.0 movement. This empirical study is based on previous concerted initiatives to create and share 'explainer video clips' to teach in a wider, more open and accessible manner focusing on key points and highlights that tertiary learners need to expand on their own. At present, VBL is not just a form of informal learning, it is becoming a common tool across the academic and corporate learning divide.

Keywords: ASEAN, blended learning, higher education 4.0, flipped classroom, video-based learning

1. Introduction

In the current sphere of teaching and also learning, the use of technology is rapidly developing. After all, it is the 21st century, hence technologies are at the fingertips of both educators and their students. With this understanding, learning can basically take place anywhere and anytime (Adnan, Ahmad, Yusof, Mohd Kamal & Mustafa Kamal, 2019). In addition, teaching and learning processes can now be conducted remotely using videos, state of the art gadgets and other technologically enhanced methods (see Adnan, 2018; Adnan & Zamari, 2012a, 2012b; Zamari & Adnan, 2011). Part of the rapidly developing learning technologies movement is the prevalence of video-based learning (VBL) within the realm of education (see Mustafa Kamal, Adnan, Yusof, Ahmad & Mohd Kamal, 2019).

This method of content delivery is widely used for corporate training, engineering, medicine, education and more. Based on my experience as a learning technology driven content developer, VBL may incorporate animated videos featuring infographics and texts, scenario videos with people, explainer videos along with experts and concepts through a narrative, videos with kinetic text and videos, and also more interactive videos through whiteboard animations. They work well for demonstrations, introductions, and examples (see Yusof, Adnan, Mustafa Kamal, Mohd Kamal & Ahmad, 2019; Mohd, Adnan, Yusof, Ahmad & Mohd Kamal, 2019). In the Malaysian context, virtual reality-based videos are being used for tertiary level learners to teach difficult aspects of conducting meetings, dealing with interviews and other job-related skills. This method allows students to get first-hand experience as if they are there in person (Ahmad, Adnan, Yusof, Mohd Kamal & Mustafa Kamal, 2019).

Further, in this day and age, students' schedules consist of lots of homework, an abundance of assignments, and not to mention outside-of-the classroom curricular activities. Due to this, they are drained, physically and mentally, and time is a pressure that could be an issue for them. As a result, they tend to miss some classes and consequently are left behind in the syllabus. To overcome this issue, 'flipped classrooms' are introduced. It is seen as the perfect solution to cater for both educators and students. The primary aim of this new learning approach is to prepare students even before the course or lesson starts. In other words, they are lectures or lessons which are prepared before the actual class begins. So, only in-class assignments and practices will be conducted. Flipped instruction became popular in year 2007 when two teachers from a high school in the United States successfully devised a

process to 're-teach' their lessons to students who are not present in that high school. They simply recorded lessons and broadcasted these online (see Bergmann & Sams, 2014). In the process, flipped classrooms have altered traditional teaching styles, allowing for the delivery of instructions online out of scheduled classroom hours but opening up classroom lessons for intensive practice and enrichment activities.

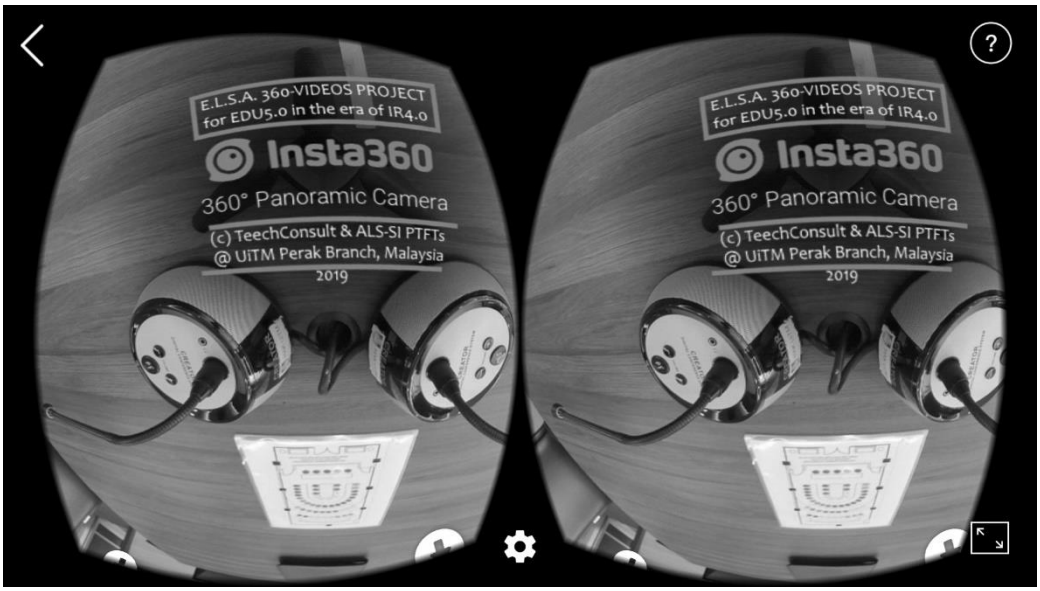

Figure 1: Example of a VR 360-degrees video project to teach Professional English – 'ELSA 360-Videos'

Aside from the flipped movement, the 'blended learning' approach also gained traction. Jeffrey, Milne, Suddaby and Higgins (2014) define this approach as a teaching process that removes temporal, physical, and situational barricades. All at once, it enables first-hand exchanges between instructors and learners. The concept is indeed innovative, as it combines the benefits of traditional classroom instruction together with ICT augmented learning environments (see Adnan, 2019; Ahmad, Adnan, Azamri, Idris, Norafand & Ishak, 2019). This method includes both offline and online learning. As opposed to flipped classrooms, blended learning or instruction is a category of online-based learning where both educators and students can interact live, simultaneously. The educator can supervise discussions, idea sharing and practices. Blended learning diminishes face-to-face interaction. Instead, we have 'live' discussions online and other online delivery of teaching and learning contents. This influences students' perceptions of the learning situation, and positively adjusts their study style and subsequent learning outcomes. Thus, there is a substantial link between the blended learning method and positive learning experiences.

2. Review of Relevant Research Literature

Without a doubt, today's millennials or 'Generation Z' have perceived videos as the main medium for content production and consumption. Videos are all over the Internet and are easily accessible by anyone especially teenagers and tertiary level learners. Examples of websites that educators can utilise as video-based learning (VBL) resources include YouTube, Vimeo, Netflix, and others. Hence, VBL is applied in various teaching and learning methods including flipped classrooms, eLearning, open online courses, and the list goes on. VBL has revolutionised the teaching-learning experience and taken it to the next level. Prior to this, teaching was conducted in the traditional method. Traditional lectures should no longer become the primary means of disseminating knowledge. 'Chalk and talk' have been the norm for educators, and not only that, some also still rely on textbooks alone. On a further note, memorisation and jotting down notes are techniques that are considered as too traditional. From all of the traditional methods mentioned, they all share a few common characteristics: Tediousness, being monotonous and too time consuming. Hence, the application of VBL concurrently improves everything.

2.1 Pedagogical and technical benefits of VBL for students and their teachers

There has been a rapid rise in educational videos recently. This is because, the applications of VBL are linked with the notion of fun and being student friendly. In addition, most universities offer this approach in par with the development of futuristic smartphones, tablets and laptops. This issue is supported by Traphagan, Kucsera and Kishi's study (2010), where learners defined video lectures (VBL) as entertaining, exciting, motivating, and efficient in terms of learning. Indeed, the benefits stemming from VBL are endless and the sky is the limit. VBL can help students in devising creative notes and study for tests and exams. Based on another empirical study by Van Zanten, Somogyi and Curro (2012), they claimed that learners rely more on video lectures for reviewing purposes. Thus, this tool is a beneficial aid for anyone to study and revise. Students constantly point out the fact that they can easily profit from the convenience of access to video-based lectures.

Additional positive attribute of VBL is the students' capability to regulate it. It is evident that they could quickly review content, rewind, and skip material, as they please. These constructive videos are predominantly suitable before formal assessment and tests for revising specific contents and skills and reducing students' nervousness. Besides, repetitive practice and the capability to skim and scan through contents of any lectures are often considered as supportive practices for tertiary students. Another successful example would be meeting or discussion simulations. With this method, the meeting is brought to the students in a 360-angle camera views whereby students can actually feel, see and experience how a real meeting is conducted. With much practice, their anxiety levels will go down and their confidence level will soon rise up (Adnan, Ahmad, Yusof, Mohd Kamal & Mustafa Kamal, 2019).

2.2 Pedagogical applications of VBL within the teaching and learning dyad

Educators combined and applied various theories with regard to VBL. Among those theories include collaborative learning. This theory focuses on emerging, discoursing and exploring alternatives ideas. Learners develop problem-solving skills through working together among peers or colleagues, and may share their views, outlooks, activities and more. VBP could also be applied in a practical manner to support the teaching and learning process, for instance through video summarisation. Chang, Yang and Wu (2011) observed that from video lectures, students may extract contents by jotting down vital notes. As a consequence, these researchers managed to develop a keyword-based video summarisation learning platform that acts as a textual surrogate for learners to organize information and simultaneously to reduce learning time. Video-based assessment is another example of the practical application of VBL for teaching and also learning. Qiao and Beling (2011) argued that we can easily use short videos that resemble real life scenarios and challenges to assess students and to make them provide the best responses to those scenarios and challengers. They have to act in real time and select the best response that suits the situation. Afterwards, both educators and learners need to discuss and evaluate the whole process. Learners should be able to think more independently and to react positively when facing interruptions and distractions from others.

Hybrid learning and student-centred learning are two more practical applications of VBL in the realm of education. The former integrates both online learning and old-fashioned learning styles together, as reported by Chenail (2011). Pang (2011) carried out a study using video-based learning for the teaching of physical education. It was found that the coach or physical trainer can identify a learner's wrongdoings and thus many learners can reflect on their mistakes. Then, the learners can do the actual exercises properly with the VBL given and most learners agree that they improved afterwards. Learners can also make good progress in their oral communication skills through the use of video lectures for language-based courses. The latter application of VBL is to achieve student-centred learning. Smyth (2011) stated that most VBL classes are student-centred and only less than 15% are teacher-centred. And so, we can strongly argue that VBL is intended to provide space for students to be active in interaction, to construct knowledge and build understanding, and to arrive at mutual agreement with their peers.

2.3 Pedagogical applications of VBL as part of the flipped classroom movement

Over the years, as the need for more efficient and thorough teaching and learning ideas become more prevalent in the face of the realities of globalisation, cultural change, and telecommunication technologies of the digital age, many empirical studies have been conducted with the focus being on defining flipped classroom pedagogy. According to one such research project, flipped classroom is a productive instruction strategy that uses technology as a medium for learning, such as the deployment of online video media to help lessen lecture hours yet extend the stretch of time in the classroom for cooperative learning through practice (DeLozier & Rhodes, 2017). It can be seen here that the emphasis of this pedagogical movement is on the usage of instructional video technology in order to give more opportunities for the instructor to focus on applying classroom activities to gauge students' understanding of the learning material, instead of focusing only on the delivery of the subject material. To put it simply, the point of flipped classroom pedagogy is to change the classroom from being teacher-centred to a more learner-centred milieu.

Another way to define flipped classroom is that it is an instructive model that reverses the role of lectures and traditional 'homework' in an academic course (Bergmann & Sams, 2012). For instance, the conventional talk instruction inside a traditional classroom is transferred into digital videos and students are then freed up to review these contents outside of classroom hours. This approach allows them to concentrate on resolving lingering individual problems, instead of spending a huge chunk of time listening to lecture that they might or might not be able to grasp in the first place. In this particular instance, the instructor plays the role of a facilitator in order to motivate, guide and provide responses based on the students' performance instead of being the core of the classroom interaction in the traditional method. The responsibility thus subsequently moves from teachers to students in the flipped approach. Inside a flipped class setting, students would be given more autonomy, providing them with opportunities to explore and put out inquiries on the subject material at their own pace and accordingly to their proficiency and readiness.

Due to the adaptable and adjustable nature of the flipped classroom approach, the learning atmosphere is very much ideal and practical for use inside language classes (Egbert, Herman & Lee, 2015). For example, instructors can provide the students with tutorials and lessons on grammar as well as quizzes to prepare them before class. In this manner, the class session can be committed to the practice of real-life everyday language use in place of merely learning about them in theory, as in the traditional teaching method. According to Reynard (2007), instead of being the core aspect of the teaching and learning session, classroom instruction should be used as a scaffold for the process of language acquisition. As a crucial piece of the whole language learning process, the class period should be focused on language enhancing activities like working in groups or performing demonstrations. What this means is that, by flipping overt instruction to the out-of-classroom context, the flipped classroom approach has presented various opportunities for genuine real-life interactions and applications during class time, thus enhancing the language learning process.

There are many studies that focus on investigating the flipped classroom approach in comparison against traditional classroom methods. Based on a research by Santikarn and Wichadee (2018), the majority of learners they encountered established the agreement that flipped classrooms were more encouraging for the learning process. Amongst many of the studies in favour of flipped classrooms, the one by Moffet and Mill (2014) observed that the flipped model is advantageous and given favourable response from the majority of the veterinary students in the study. This result echoes another comparative study by Chen and Chen, reflecting the students' insights into cooperative learning between flipped classrooms and more traditional classrooms (Chen, Wang & Chen, 2014). Additionally, another two studies found evidence that flipped classrooms outdo traditional classrooms in the aspect of teacher support, increased student involvement and promoted active learning (McLaughlin, Roth, Glatt, Gharkholonarehe, Davidson, Griffin, Esserman & Mumper, 2014; Strayer, 2012). Hung, on the other hand, in studying the prospective outcomes of the flipping classroom approach on learning attitudes established that many benefits could be gained from flipping the classroom in a consistent manner (Hung, 2015). Coming out from their flipped classroom, students were observed to achieve higher dedication towards learning aside from developing greatly positive attitudes toward their learning process as compared to being taught in traditional classrooms.

However, Santikarn and Wichadee (2018) also noted that the general favourable opinions for flipped classrooms are not set in stone as there are a few studies that suggest otherwise. For example, despite benefitting from flipped classroom in terms of the improvement of their learning their and communication skills, a study found that somehow some students still conveyed negative attitudes towards the flipped model (Ferreri & O'Connor, 2013). An additional study found that the bulk of students and staff still chose the teacher-oriented lecture-based approach over the flipped classroom approach for certain academic subjects (Missildine, Fountain, Summers, & Gosselin, 2013).

2.4 Pedagogical applications of VBL with and through the blended learning approach

Blended learning as a label warrants a proper and conventional definition. According to Cuesta Medina (2018), the deployment of blended learning includes the application of information and communication technologies to various and distinctive instructional delivery modes and approaches in comparison to traditional learning methods. This sentiment is shared by another study in which they stated that in relation to the widespread and ubiquitous amount of literature on blended learning, trying to make sense of the definitions of blended learning changes with each application and studies, causing a general uncertainty looming over the definition of blended learning (Kanuka & Rourke, 2013). To this end, Kanuka and Rourke asserted that the blended approach incorporates on-campus learning experiences with Internet-based learning. Given the limitless possibilities postulated by the substantial amounts of educational contexts, net-based tools and contents, implementing blended learning comes with its own set of complications.

Whatever the case, the present pedagogically-linked definitions of blended learning gravitate towards three common facets of instruction and learning (see Kanuka, 2001, pp. 32-33). First, it is an instrument in the knowledge acquisition process, integrating Internet-based tools as a technology with the purpose of devising learning tasks from a technological perspective. Second, it is a learning context or milieu that deploys Internet-based tools as a platform for knowledge acquisition for instance learning management systems like BlackBoard or Moodle. Third, it is an interactive medium for knowledge acquisition that uses the Internet's exceptional communication features to enable highly interactive and engaging learning.

3. Research Methods and Research Data Collection

For this study, using two VBL-centred courses designed and delivered to diploma and degree students including external students from other Malaysian (n=58) colleges and universities together with polytechnic students in Brunei Darussalam (n=10) and the Republic of Indonesia (n=8), 'thick' qualitative data (Adnan, 2013a, 2013b) were gathered from 76 research participants mainly from focus group discussion sessions together with a few semi-structured face-to-face interview sessions with several research participants. The VBL course for diploma level focuses on critical skills for the world of work (relating to Industry 4.0) whilst the VBL course for degree level focuses on language skills for the workplace (specifically Business / Professional English). For the diploma level course, VBL was slotted in between 10 sub-modules; each module was 2 hours in length and VBL makes up 10-15 minutes of each module. As for the degree level course, this was a 14-week course with two contact hours per week; each week 15-20 minutes of VBL was delivered as part of the course and to help prepare students for timed test sessions.

Focus group discussion or group interview is a useful qualitative data collection instrument that is employed to gather information about perspectives and opinions on novel ideas, problems, or solutions whether in the past, present or the future. Participants of focus groups are asked questions in an interactive and collaborative setting, and they are strongly urged to discuss their private and public thoughts freely with other participants in the group. These sessions can typically generate good ideas and provide a wealth of data for qualitative researchers (Adnan, 2017).

Summaries from the sessions and field notes are collected after each session. The interview sessions also involved note-taking as a way to preserve the data. For both the focus group interviews and the semi-structured interviews, data were preserved using a digital voice recorder and sometimes short video clips were made as aide-memoires. Data collection happened in late 2018 and 2019; a VBL-centred diploma course to teach critical skills for Industry 4.0 was conducted twice, called 'Potentia

IR40 ASEAN-level'. The participants of the course make up the bulk of the participants reported in this paper. Another smaller group of degree students are from a VBL-linked English for Professional Workplace Interactions course who were involved as 'beta users' for a VR 360-degrees video project I led called 'ELSA 360-Videos' (see, Figure 1).

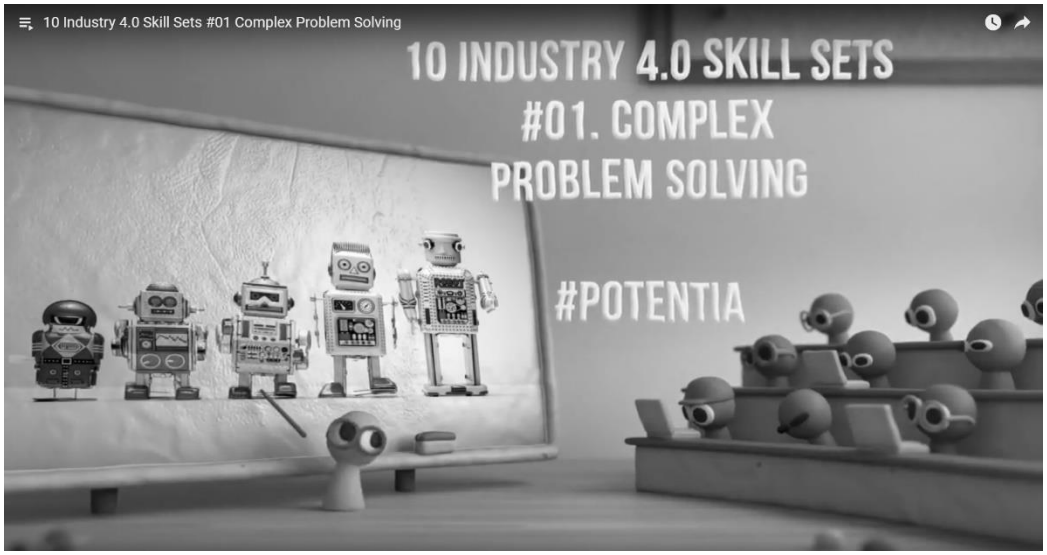

Figure 2: High production value VBL material developed for an international course on Industry 4.0 skillsets

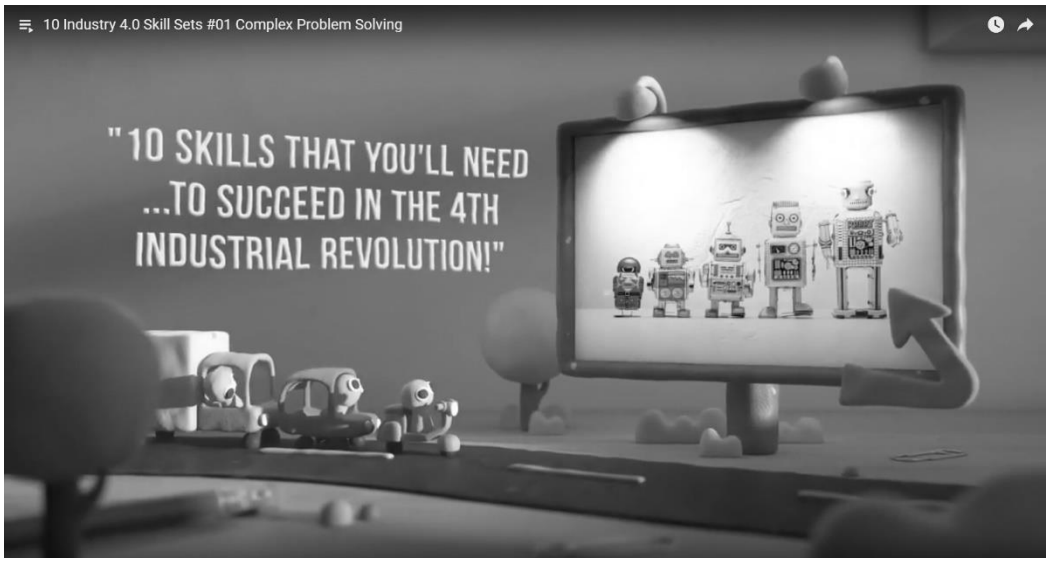

Figure 3: High production value VBL material developed for an international course on Industry 4.0 skillsets

Data were selectively transcribed depending on relevance. This is due to the fact that other aspects of the data will also be used to prepare other empirical papers in future. The data analysis process involved building a data record for the participants, the coding of parts of the data record deemed relevant to this paper, and finally the thematising of the relevant data for the purpose of preparing this paper. The participants were all invited to share their ideas and experiences, openly and freely. All of the participants consented that the data they gave be used for the purpose of academic research and publication whilst preserving their anonymous identities. Selected quotes from the participants of this particular study are shared in the next section.

4. Research Data Presentation

In this section, three themes that emerged are presented based on the 'voices' of the participants. Pseudonyms that the participants chose are used in this section to maintain the hidden identities of the

participants. The themes covered in this section are as follows: General perception of VBL in teaching and learning; Using VBL to learn anytime and anywhere; and VBL as a key component of future teaching-learning initiatives.

4.1 General perception of VBL in teaching and learning

Generally, all the participants in this research project show their positive perception in terms of the deployment of VBL in the teaching and learning process. They like the fact that VBL allows them to have a different kind of "stimulation to think" instead of just having to focus on words upon words on paper. This finding suggests that indeed, the current batch of learners that we teach at university have a different style of learning and acquiring knowledge compared to previous generations. VBL is also "a very cool way", according to the participants, to deliver information and knowledge in short bursts by only providing them with the most basic of information that they later have to 'rebuild' in their minds.

According to 'Miss Yusra', the skills for students now "is not to just read and memorise a lot of information, but the most important skill now for me and my friends is to actually to learn how to build up our knowledge from basic things." This is a great opportunity for educators and content developers to employ VBL due to the fact that short video clips of about 60 seconds or at most perhaps 2 to 3 minutes can be the ideal 'package' to deliver just the very basic of information that can scaffold student learning for later (see Giannakos, Jaccheri & Krogstie, 2016). Later on, the responsibility falls on the students to actually expand their understanding from the very basic points or the simple terms and paraphrases given to them through short video clips.

In addition, the participants also have the idea that videos are basically now part and parcel of teaching and learning, and they cannot do without using videos. This is different perhaps from the past generations whereby videos are only seen as supporting materials for learning. VBL puts short video clips as educational videos that are central to the teaching and learning process. As short education videos are now very common, they have somehow become a central purveyor of knowledge. True enough, for some students, short video clips are the only content delivery method that matters to them compared to just reading about the course or subject matters in their textbooks. It is also interesting to point out that most participants said that presently, for their university subjects, some lecturers are "going fully digital" and they do not use textbooks anymore, and only rely on electronic materials like PDF and shared presentation files (e.g., through PowerPoint).

4.2 Using VBL to learn anytime and anywhere

All the participants in this study appreciate the fact that video-based learning or VBL allowed them to learn anytime and anywhere they want, even from the comfort of their own beds in their hostel accommodation or rented accommodation outside of campus (very interestingly, the latter comment was made almost exclusively by many female participants, perhaps indicating a future direction for researchers who are interested in this very interesting topic).

Without doubt, short video clips are easily digested 'information nuggets' that give the very basic of information which can later be rebuilt as a treasure trove of knowledge by their viewers (i.e., university students). In addition, accessibility is now getting easier due to the fact that we have video sharing platforms like YouTube and Vimeo, and also VeeR that support VR contents. Social networking Internet-based platforms like Instagram, Facebook and Twitter also allow the sharing of short videos in high quality at just the push of a button.

These video sharing and social networking platforms are not just useful for entertaining us and socialising with others, but they also provide educators a way to easily spread and disseminate short video clips for teaching and learning. The comments section on YouTube (or indeed any of the sites mentioned in the above paragraph) for instance, can also be used as a way to motivate our students to give comments and critically respond to whatever video they watched. The ability to comment on other people's comment later on is a great way to bring about discussions on certain topics. So again, this is proof that even though VBL or short video clips might be seen as a fad or just something that educators use to support learning, in truth video clips nowadays are central to the process of educating and

learning. These videos could be utilised in such a way that whatever is uploaded online onto social media or video sharing platforms can become actual educational exercises. As 'Afham' aptly observes:

> For us now, when we say we do our work online, we really do it online [laughs], no need to write in our exercise books or on pieces of paper in loose leaf files… later we'll just throw them away or we just forget to read them again. But online is where everything would still be there and safely recorded and can be checked easily by anyone at any time that they want it.

4.3 VBL as a key component of future teaching and learning initiatives

When asked to give their opinions regarding the future of VBL, most of the research participants in this research project said that 'explainer videos' will be a key component for future learning. As 'Jessie' explains, she and her friends appreciate the fact that explainer videos provide "bursts of new information and giving us so much to know within such a short period of time." It is clear that these participants and young tertiary students prefer explainer videos over lengthy didactic instructions, for example through extended in-class lecture sessions. Jessie adds, "the best thing about these [explainer] videos is that I can easily repeat everything, and I can build up what I already know with my own notes or even coming up with my video version of what I learned."

A few of the participants also predict that in the near future, explainer videos will become more high-tech, immersive, and interactive. As 'Faqih' sees it, "Maybe we'll see 3D or holographic versions just like in Star Wars and Star Trek […] maybe I can even talk to the video and the video can talk to me. We can interact and share and learn." What Faqih said might not be too far-fetched with recent developments in depth perceptive camera equipment, LIDAR sensors and other high-tech optical and video technologies at our doorsteps. He further adds: "It's not impossible I think because you can just look at all the current technologies now. AR and VR for example, they can also give more reality to the videos we use in learning." Hence, as far as video clips go, whatever their purposes are, in future we can expect to see even higher production value contents to take advantage of the learning styles of present and future generations. In the words of 'Afirah':

> I read on my LinkedIn profile that research shows that 94% of teachers used videos during the academic year in the USA. This is really amazing, right? I think, this is because they found video learning quite effective for their students. And like what we already discussed, for me it's even better than just teaching with traditional textbooks. I think it's mainly because our human brain is mainly [geared] for processing visual and audio easily. Yes, reading books is still important and I don't really doubt that. But, we shouldn't stop the future, right?

5. Conclusion

This research is based on my own initiatives with my content development team to create and share 60-seconds educational 'explainer' video clips (though some are a bit longer than that), as a method to teach university and college students in a contemporary and more engaging manner. Although some educators might argue that VBL is simply a form of casual learning that makes students waste time in a relaxed but unproductive manner, it is swiftly becoming the most sought after teaching and learning tool across the corporate and academic learning divide particularly for the post COVID-19 world of education.

With regards to flipped learning in flipped classrooms, the utility of VBL is that it allows for learning to happen prior to classroom time and actual contact hours. This not only saves time but also allows the course instructor to refocus her or his attention on skills-related practices and more intensive drills as students have already been exposed to the gist or core of that particular lesson. In addition, students are given more responsibility to learn independently and to take charge of their own progress; those who need more exposure time can simply repeat and relearn the videos that they watched whereas others who are more confident can move on to actual practice and revision. Based on the empirical data above, it is clear that the dawn of the smartphones and tablets age has become such a momentous event in terms of knowledge sharing and transfer in our lifetime. VBL is here to stay and the experience of learning using videos will likely become more interactive, immersive, and truly engaging in the near future.

6. Acknowledgement

I wish to express my heartfelt “thank you” to Muhammad Anwar Mohd Kamal, Nurul Nadiah Mustafa Kamal, Muhamad Khairul Ahmad, and Ahmad Ariffuddin Yusof, founding members of the Future Learning Initiatives content development laboratory @ FLI LAB at UiTM Perak Branch, Seri Iskandar Campus, Perak for working tirelessly with me on earlier drafts of this research paper.

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