The Use of Flipgrid for Teaching Oral Presentation Skills to Engineering Students

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ABSTRACT—The Fourth Industrial Revolution (4IR) highlights the need for engineers to be equipped with multidisciplinary and interpersonal skills to stay competitive in the global workplace. In line with this, various technologies have been adopted in teaching oral presentation skills including audio and video, social media platforms, websites and other internet communication technologies. This concept paper explores the effectiveness of using Flipgrid, an online video-mediated communication tool, for teaching oral presentation skills to engineering students. Using embedded mixed-method research design, students record and practice oral presentation skills and experience peer feedback in Flipgrid platform. The ways in which Flipgrid help students practice oral presentation skills and the integration of peer feedback will be explained to provide guidelines for using Flipgrid for future oral presentation courses.

Index Terms:—Flipgrid, Oral Presentation Skills, Video-Mediated Communication Tool, Engineering Students, Peer Feedback.

I. INTRODUCTION

The international engineering accreditation bodies such as the Engineering Accreditation Board of Council of Malaysia (EAC) and the Accreditation Board of Engineering and Technology (ABET) have put emphasis on effective oral communication skills among engineering graduates (BEM, 2007; ABET, 2007). Engineers spend around 60 percent of their time communicating while in their workplace (Tilli & Trevylan, 2008). Therefore, to be effective participants of the professional engineering community, prospective engineering graduates must be equipped with such skills.

Oral presentation skills that is deemed important by the employers is often overlooked by the communication teachers in engineering classroom (Kakepoto, 2013, Saidalvi, 2016). According to Jamaluddin (2008), engineering professionals at multiple levels have always questioned the ability of engineering graduates. To compare the quality of engineers to United States of America, engineers from Asian countries were perceived to be of poor standard (Jamaluddin, 2008). If the industry is not satisfied with the quality of engineering graduates produced yearly in terms of oral communication skills, it means that there is skills gap between the industry and academia.

II. BACKGROUND

Engineers of the 21st century are required to possess a set of multidisciplinary and interpersonal skills to stay competitive in the global workplace. Engineers who solely depend on only one specialized field will no longer be relevant assets in the industry especially with the rise of the Fourth Industrial Revolution (4IR). Engineers must be creative and innovative, possess computer and information technology (IT) skills as well as able to communicate effectively to stay competitive in the professional setting (Eisner, 2010). A combination of both technical and non-technical skills will facilitate them in being effective members of the engineering community. Engineers are deemed competent when they can convey scientific and technical information to an audience who possess both technical and non-technical knowledge effectively (Bhattacharyya, 2014). Communication has become one of the key competencies in this Fourth Industrial Revolution (4IR) era. This was also similar to findings by Park (2017) who reviewed the literature on the impact of technological innovation on jobs and necessary competencies in the age of the Fourth Industrial Revolution.

Oral presentation is one of the seven most important communication skills required at entry-level-employer at the workplace (Kakepoto, 2013). However, many researchers have shown there is a lack of oral presentation skills among engineering students. Mohd Radzuan & Kaur (2011) investigated the source of anxiety among Malaysian engineering undergraduates when they deliver oral presentation. They found that one of the main sources of students’ anxiety in delivering oral presentation is the barriers in students’ English language proficiency. The existence of anxiety during oral presentation among Malaysian engineering undergraduates should raise concern among universities and faculty members as engineers will frequently engage in oral presentation in their workplace. Another concern is time for engineering universities in Malaysia to take appropriate measures to equip these future engineers with effective oral presentation skills.

Zareva (2009, 2011) and Bankowski (2010) noted that instructors have little class time to teach presentation skills. Similarly, Sheth (2015) reported that lack of opportunity to practice oral presentation is one of the three factors that can influence engineers’ ability in oral communication skills. A study by Miskam and Saidalvi (2018) investigating the factors affecting Malaysian undergraduates’ English language speaking anxiety also found that students did not have much opportunity to practice their oral presentation in the class due to constraint of time.

To address this problem, the developments in learning technology have made it possible for students to practice their skills ubiquitously. Technology has created a learning environment that empowers students to create and engage independently. This paper focuses on the use of Flipgrid for teaching oral presentation skills to engineering students. This multimedia platform is a specific tool that facilitates both oral communication skills and peer feedback in an online environment.
combination of video, voice and text (Figure 1). These three combinations provide nonverbal cues to be transmitted to others. Previous researches reported the use of VMC in oral presentation has provided positive insights. Hung (2011) investigated the pedagogical implication of Vlogs (video-blogs) on ESP learners and his study found that the students considered Vlogs to be useful in learning and there are improvements shown in terms of the students’ body language and delivery. Another study by Shih (2010) on the use of video-based blogs in blended learning has shown that students were satisfied and interested in using video-based blogs in their public speaking course. It is also worth noting that the video-based blogging has motivated the students to learn public speaking skills. Her findings are parallel to a study by Balakrishnan and Puteh (2014) that video blogs can facilitate oral skills.

![Figure 1: Video-mediated communication](image)

Based on a review by Barrett and Liu (2016) on the changes, challenges and opportunities for learning technology in English academic oral presentation, the emergence of new learning and updated technology has called for teaching approaches in oral presentation course to be evaluated and revisited. In light of this issue and the positive insights that VMC has provided in previous studies, this study will utilize Flipgrid, an online video-mediated communication tool, to teach oral presentation skills among engineering students.

Flipgrid is founded in 2015 by Charles Miller from University of Minnesota, USA. It is a free online video-mediated communication tool that fully utilized video as their platform for discussion. This video discussion platform is targeted for Pre-Kindergarten, PhD educators and students in more than 180 countries. The instructors of the subject can create their own class in the website, which also known as Grid. As the topic designer, they can use specialized resources and attachments, for example, attachments from Google Drive. Flipgrid gives the ability to the students to record short and authentic video, for a maximum duration of 5 minutes and they can reply to each other’s videos as well. The instructors are 100 percent in control with the video moderation and access control.

The Flipgrid website will be fully utilized as a research setting for this research. The main aim of using this website is to provide a platform for the engineering students to have unlimited opportunities to practice their oral presentation. In oral communication class, students rarely have adequate oral practice and, in most cases, only few students will get the opportunity to practice their oral presentation in front of the audience, before their oral presentation evaluation, due to

III. LITERATURE REVIEW

A. Using Online Video-mediated Communication (VMC) Tool in Teaching Oral Presentation Course

To ensure the meaningful and effective presentation, students need to have a lot of practise session and the practise session should be done in an authentic environment (Rajala, 2012). Fortunately, new learning technology will provide the ability to bring improvement in the teaching and learning of oral communication course. It is believed that there is a need to revisit the teaching methodology of oral communication course (Simona, 2015) and to bridge the gap between theory and practise. This technology-supported methodology will move beyond the chalk-and-talk normal classroom. It is also parallel to Shift 9 in the Malaysian Education Blueprint 2015-2025 (Higher Education) that aims for globalised online learning. With the use of technology such as World Wide Web, it provides flexible delivery mode and students have infinite practise session since the course is no longer bound by the four walls of classroom.

According to Manstead, Leah and Goh (2011), VMC is a tool that provide users platform to communicate with a

space where learning materials such as presentations, can be practiced, recorded, reviewed, and being given feedback by peers online (Redecker et al., 2009; Barrett & Liu, 2016). Besides, the use of technology also provide opportunity for online peer feedback without compromising the class time (Nicol & Milligan, 2006; De Grez, Valcke & Berings, 2010).

Previous studies have shown that the use of video technology in language classroom has significant benefit in improving students’ oral presentation skills. The use of videos in ESL classroom is not a new phenomenon and it has been proven to aid language lesson since the early 1960s (Williams & Lutes, 2007). A study by Berlian Nur and Mohamad Jafre (2011) has shown that the use of video technology in English language lessons improved students’ oral presentation skills. Their study also found that the use of video technology maximised the students’ speaking skills as they are encouraged to express their opinion. Wilhelm (2014) in his study on the effective use of multi-faceted video feedback for ESL presentation course has found that producing a video presentation facilitates the students to build effective communication as they have a chance to view and analyse their own videos. When students view their own oral presentation video, it will stimulate a recall of performance, in which will encourage students to reflect on their presentation (Ahmad & Lidadun, 2017). Producing a video presentation will encourage the students to share their thoughts in a non-threatening platform. They will be able to view their own oral presentation performance in the videos and identify their strengths, weaknesses and further improvement in their future oral presentation.

Therefore, this paper aims to explore the effectiveness of using an online video-mediated communication (VMC) tool called Flipgrid in teaching oral presentation skills among engineering students. It also aims to explore the students’ experiences of using Flipgrid platform with the integration of online peer feedback in their oral presentation course.

![Video-mediated Communication](image)
time constraint (Miskam & Saidalvi, 2018). This predicament has caused the students’ inability to be equipped with effective oral presentation skills. Students should be given ample time to plan, prepare and practice presenting their oral presentation. The use of Flipgrid platform will provide the students the ability to have infinite practice of their oral presentation as they can record and view their oral presentation before submitting it and if the students are not satisfied with their performance, they can simply make a new video with just one click. By having a non-threatening learning environment, students will become more comfortable in taking more risks and place the importance of content over form in their language learning process (Sun, 2009).

Flipgrid has taken away the technical difficulties that most VMC tools faced which is the struggle to upload the video in the VMC website (Shih, 2010; Hung, 2011; Balakrishnan & Puteh, 2014). By using Flipgrid, students directly record their video by using their web or phone camera and once they finished recording, the video will appear on the website after it gets the approval from the instructors. The students no longer need to worry about the inability to upload their video recording due to the large size of the file or internet connection problem. Therefore, the use of Flipgrid platform will greatly benefit the engineering students in their oral presentation course.

B. Integrating Online Peer Feedback in Online VMC Tool

The use of peer feedback will train students to become more responsible and independent in seeking new knowledge (Vygotsky, 1978). Teachers or language instructors will no longer be the sole ‘error corrector’ in the classroom but it is a shared responsibility of everyone in the classroom. Teachers’ role as an authority figure in the classroom will change to advisor who is responsible to merely monitor students’ learning activity but at the same time, still maintaining the quality of student’s oral presentation performance. In the present study, knowledge construction will be supported with the integration of online peer feedback in their oral presentation using Flipgrid. It is the responsibility of the students to decide their own learning plan and construct new knowledge when they are presented with the peer feedback. Students will become more independent and it inculcates self-reflection of their own learning and overcome their weaknesses.

The integration of peer feedback in an online environment during the students’ practice sessions will add another value to the teaching methodology of oral communication course. Many researches have highlighted the importance of feedback in oral communication course (Mohd Radzuan & Kaur, 2011; Stapa, Murad, & Ahmad, 2014 and Mishra, 2015). According to Smith and King (2004), feedback in oral presentation situations gives information to the speaker about the audience’s reaction to the speech, offers suggestions for improvement in future speeches, motivates the speaker to continue and enjoy speaking experience and finally develops self-confidence.

Feedback is an essential element to promote cognitive, technical, and professional development (Archer, 2010). Thus, it is a crucial element in developing students’ oral presentation skills. According to Hattie and Timperley (2007), feedback is the single most powerful moderator that enhances learning achievement. Pyke and Sherlock (2010) believed that feedback do assist learners to continue making every effort to succeed regardless of challenges and setbacks. Lin and Yang (2011) asserted that students may benefited from receiving and giving feedback. To ensure effective learning, feedback should not only come from the teacher but also facilitated by the students (Jonsson, 2013) and it can positively affect the students’ attitudes and achievements (De Grez et al., 2012). Peer feedback provision will allow the students to not only participate in the learning process but also gives them the ability to understand and appreciate their peers’ experience and perspective in the learning process. It will facilitate students in identifying their strength, weaknesses and improvements needed in their oral presentation.

The use of online learning is increasingly pervasive and it has made online peer feedback provision to gain its place (Schworm and Gruber, 2012). The use of video technology has allowed better feedback and better public speaking acquisition (Fraj-Andres, Lucia-Palacios & Perez-Lopez, 2018). According to studies by Abrahamson (2010), O’Donogue & Cochran (2010) and Barry (2012), video recording increased the effectiveness of feedback provision to the students and they perceive it as more useful. There has been discussion about online digital media to relieve constraint on limited resources of feedback provision in a classroom (Garrison & Vaughan, 2008; Njenga & Fourie, 2010). However, little has been known about maximising resources in feedback provision in an oral presentation course (Leger, 2015). Thus, the integration of online peer feedback in an online VMC tool will help to reduce the amount of time needed for verbal feedback and students will be able to make their own decision in improving their oral presentations based on their peers’ feedback.

IV. METHODOLOGY

Use This study aims to employ an embedded mixed-method research design. By using this mixed-method design, one data set will act as the supportive, secondary data in a study based primarily on the other type of data (Figure 2) (Creswell, Plano Clark et al., 2003). The research design of this study will require the researcher to embed quantitative component within a qualitative study, in which for this study, the quantitative data will act as the supportive data to the qualitative data. Using embedded mixed-method research design will also allow researcher to answer different research questions that require different type of data. In this study, the effectiveness of using Flipgrid platform to improve engineering students’ oral presentation skills and their experience of using Flipgrid platform with the integration of online peer feedback will be investigated and explored by using both quantitative and qualitative data.
The participants will be 25 third year engineering students of Universiti Teknologi Malaysia. The participants will be selected using purposive sampling. In purposive sampling, the sample is approached with a purpose in mind and the criteria needed for the sample has been predefined (Alvi, 2016). This study will utilize four instruments; 1) video excerpts, 2) semi-structured interview, 3) questionnaire, 4) oral presentation rubric. For video excerpts, the researcher will collect three types of video excerpts; 1) oral presentation, 2) peer feedback, 3) reflection, to explore the students’ experience of using Flipgrid platform and the effectiveness of the peer feedback integration in oral presentation using this tool. A questionnaire will be developed by the researcher for this study to investigate the students’ perception and experience of using Flipgrid platform in their oral presentation course. The data collected from the questionnaire and video excerpts will be supported by a focus group interview. This measure will facilitate researcher to ensure the interconnectedness of the data collected from all the instruments.

A pilot test will be conducted to ensure the feasibility and practicality of research instrument in collecting the data. A total of 15 learners will be selected to participate in the pilot study and 5 learners will be interviewed, who met prerequisite criteria as the actual participants in the main research. A pilot study will be done to discard any possible misunderstandings or errors on the part of the participants and for the researcher to make any necessary adjustment in the research instruments. Some of the items from the questionnaire and semi-structured interview will be revised and modified if necessary, after the data have been analysed. This study will be conducted in a fixed procedure as follows:

Stage 1: Pre-test will be administered to assess the students’ oral presentation performance prior to the use of Flipgrid platform in oral presentation (OP) course. The pre-test will be evaluated by two independent raters by using an oral presentation rubric.

Stage 2: Students will be given a practice-run session to familiarize themselves with the platform.

Stage 3: 1st oral presentation – Students will record their oral presentation video using the platform. Their peers will provide feedback by replying to the OP video. A reflection video will be made when the students have done reviewing the peer feedback and identify their strengths, weaknesses and the aspects that need improvement in the next OP video.

Stage 4: 2nd oral presentation – Students will record their oral presentation video using the platform. The new OP video must be an improved OP video based on the peer feedback given in the previous OP video. Their peers will provide feedback by replying to the OP video. A reflection video will be made when the students have done reviewing the peer feedback and identify their strengths, weaknesses and the aspects that need improvement in the next OP video.

Stage 5: 3rd oral presentation – Students will record their oral presentation video using the platform. The new OP video must be an improved OP video based on the peer feedback given in the previous OP video. Their peers will provide feedback by replying to the OP video. A reflection video will be made when the students have done reviewing the peer feedback and identify their strengths, weaknesses and the aspects that need improvement in the next OP video.

Stage 6: 4th oral presentation – Students will record their oral presentation video using the platform. The new OP video must be an improved OP video based on the peer feedback given in the previous OP video. Their peers will provide feedback by replying to the OP video. A reflection video will be made when the students have done reviewing the peer feedback and identify their strengths, weaknesses and the aspects that need improvement in the next OP video.

Stage 9: Post-test will be administered to assess the students’ oral presentation performance after using Flipgrid platform in oral presentation (OP) course. The post-test will be evaluated by two independent raters by using an oral presentation rubric.

Stage 8: Questionnaire will be administered. A few students will be selected for focus group interview.

For each stage, one week will be allocated for the students. Hence, the data collection procedure for this study will take approximately 8 weeks.

The data obtain from the questionnaire and oral presentation rubric will be analysed using descriptive statistics. Frequency and percentages will be presented in tables form and charts. It will be presented to show the absolute frequency of the study and for the information to be interpreted conveniently. The Statistics Package for Social Sciences (SPSS) version 25.0 will be used to analyse the data quantitatively.

The data collected from the peer feedback and reflection video excerpts will be transcribed prior to analysis. The data from the focus group interview and video excerpts transcription will be analysed using thematic analysis (Braun and Clark, 2006). There are five stages of analysis process using this framework – i) becoming familiar with data; ii) generating initial codes; iii) searching for themes;
iv) reviewing themes, and v) redefining and naming themes before producing report.

This study concerns with the use of Flipgrid platform in teaching oral presentation skills among engineering students. Thus, the focus of the study will only be the engineering students. The data will be collected from third year engineering students from UniversitiTeknologi Malaysia investigating their perception and experience using Flipgrid platform in the oral presentation course. Therefore, the findings should not be treated as reflecting the perceptions and experiences by all third-year engineering students in Malaysia.

There are four expected findings from this research. Firstly, the finding is expected to provide positive insights about the engineering students’ experience in using Flipgrid in their oral presentation course. Secondly, it is expected that the integration of online peer feedback in Flipgrid platform does help in improving the engineering students’ oral presentation skill. Thirdly, the finding of this study is expected to show improvement on the engineering students’ oral presentation skills after using Flipgrid platform in their oral presentation course. Fourthly, it will add to the existing body of knowledge about the use of online video-mediated communication tool in oral presentation course, especially in Malaysian context.

V. CONCLUSION

This study will be conducted based on the concern to investigate the effectiveness of using Flipgrid to teach oral presentation among engineering students. It is hoped that this research will help to discover students’ experience and perception in using an online video-mediated communication tool in their oral presentation course. Apart from that, this research is also hoped to provide a new teaching methodology that integrates technology and online peer feedback in overcoming the issue of engineering students’ lack of oral presentation skills and hence, improving the engineering students’ English language competency.

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