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Exploring Engineering Students' Views on Learning English for TVET using MOOC

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Abstract: This study aims to explore engineering students' views on learning English for TVET via MOOC in a Malaysian polytechnic. Specifically, the study explored engineering students' views related to MOOC instructional elements namely course resources, active learning, monitoring learning, meaningful connection, interaction and intended perception. A total of 102 engineering students participated in the study and they were asked to respond to a 32-statement questionnaire using Google Docs. The results of this study highlights the importance of understanding students' views on MOOC instructional elements that may influence educators' motivation to utilize and develop constructivist MOOCs.

Key words: *MOOC, English for TVET, engineering students' views*

INTRODUCTION

The power of technology and innovation continues growing and impacting all industries including the education field. In education, the influence of technology has changed the instructional practices and has brought a massive paradigm shift in higher learning institutions. In order to keep pace with the current technological development, it is crucial that higher learning institutions to adapt and utilize latest innovative approaches to improve teaching and learning practices [1].

Effective teaching and learning needs an effective instructional method. The use of traditional teaching resources like the textbooks and course modules are now outdated and no longer serve as a vital source for knowledge acquisition [2]. Besides, the conventional face-to-face and teacher centered approaches of imparting knowledge is slowly taking a step backward. Teaching and learning activities are done using information and communication technology (ICT) and ICT has become the main medium used for imparting knowledge. Virtual classrooms, e-learning and blended learning are slowly gaining momentum.

In Malaysia, the use of technology in tertiary education as well as in secondary schools started since 1996. The government consistently gave emphasis to the access of technology regardless of the geographical distance and fund limitations. The Malaysian Education Blueprint (2013-2025) emphasized on Maximizing the use of ICT as one of the eleven areas of education reforms. Some of the efforts taken to support the use of ICT are by providing internet access and virtual learning platforms, setting up a video library of best teacher's online practices and maximizing ICT use for customized distance or self-paced learning [3].

In Malaysian polytechnics, the Department of Polytechnic Education has implemented blended learning to all polytechnics in 2014. The department has regulated that 70% of the courses offered at polytechnics has to adopt blended learning [4]. In addition, the latest Polytechnic and Community College Strategic Plan (2018-2025) has outlined the importance of effective delivery mechanism via technology under the forth strategic thrust.

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In order to adhere to the implementation of blended learning, various technological tools and platforms has been used in the polytechnic settings [3]. This study would focus specifically on engineering students' views on the use of Massive Open Online Learning (MOOC) as an online learning platform for English for TVET course at one of the polytechnics in Malaysia.

MOOC is currently one of the most popular online learning platforms. MOOC is described as Massive (large enrolment in thousands), Open (free and not dependent on location, age etc.), Online (entirely digital), Courses (not just depository of materials but structured syllabi with a schedule and the guidance of an instructor [5]. The main objective of MOOC is to provide online learning opportunity to participants without any entry qualifications by offering structured course which can be assessed anytime on their own pace of time [6].

MOOC in Malaysia was first introduced in Taylor's University in 2013, followed by five other public and private universities in 2014. Meanwhile in the polytechnic context, the first MOOC course offered was English for TVET: Products and Services in 2016 and then it was followed by the second MOOC course; English for TVET: Processes and Procedures in 2017.

Table 1 provides the course outline and activities for English for TVET: Products and Services MOOC course while Table 2 provides details for English for TVET: Processes and Procedures MOOC course. Figure 1 and 2 shows screenshots of both MOOC course platforms. Although MOOC has been carried out at Malaysian polytechnics since 2016, till date not many studies related to the use of MOOCs for the teaching and learning of English for TVET has been carried out or published extensively. Thus, the objective of this study is to explore engineering students' views towards learning English for TVET via MOOC.

Table 1: Description of English for TVET: Product & Services MOOC course

COURSE NAME	COURSE OUTLINE	ACTIVITIES
English for TVET: Products & Services • Is targeted at students studying at TVET institution such as polytechnics and community colleges	**Unit 1:** Describing types and functions of products & services	• Introduction to Products and Services • Why do you need it? • I like! • Featuring the Features • Physical vs Non-Physical • Strengths & Weaknesses • Describe it Right
	Unit 2: Compare and contrast features, characteristics and functions of products and services	• Add the Adjectives • Make a Comparison • Comparative & Superlative • The Irregular Ones
	Unit 3: Ask for and make clarifications on products & services	• Clarification • Why of Why? • Ask for Clarifications • Make Clarifications • Oral Presentation Tool Kit • Lights, Camera, Action!
	End of Course	• End of course test • Feedback • You have made it!! High Five!

Table 2: Description of English for TVET: Processes & Procedures MOOC course

COURSE NAME	COURSE OUTLINE	ACTIVITIES
English for TVET: Processes and Procedures	**Unit 1:** Read and comprehend different types of processes and procedures	• Process vs Procedure • The Meaning • Get the flow • Fire Exit • The Flow Must Go On
	Unit 2: Write a description of a process or procedures based on a nonlinear form using appropriate sequence connectors	• Connect & Engage • Sequel it Right • Passively Active • Step-by-Step • Writers at Work
	Unit 3: Present information on process or procedures orally using appropriate sequence connectors	• Sounds Great • Build the Structure • Preparing the Speech • It's a Process • Show it Off
	Unit 4: Give instructions	• OSHA U • Active It! • Say it Out • Put it Together • Diagrams oh Diagrams

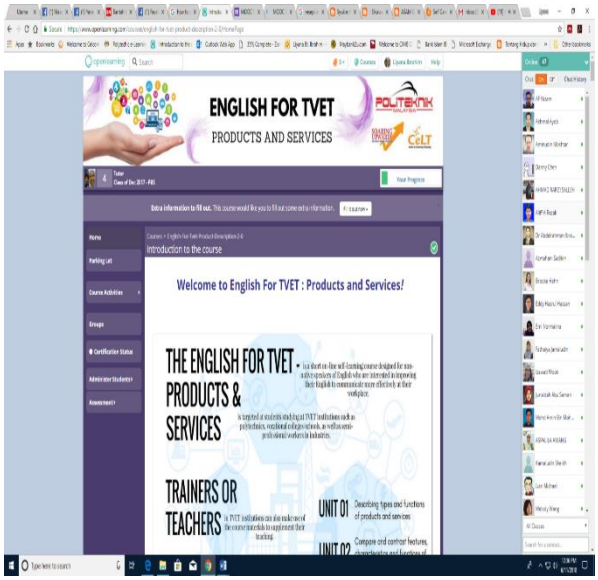

Figure 1: Screenshot of English for TVET: Product & Services MOOC course platform

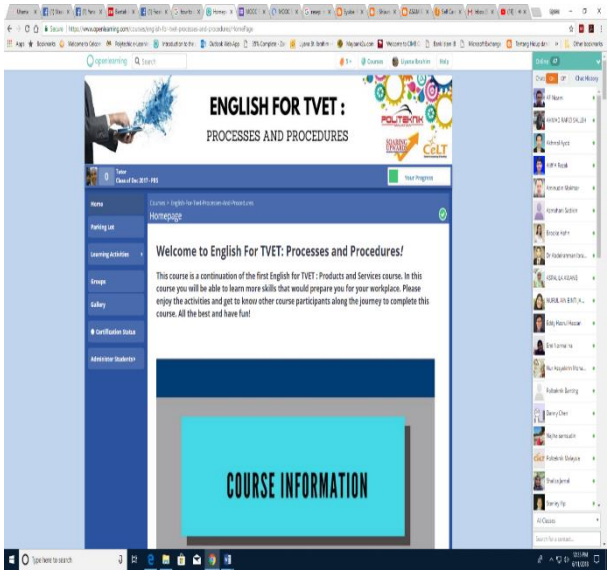

Figure 2: Screenshot of English for TVET: Processes & Procedures MOOC course platform

THEORETICAL FRAMEWORK

This study is guided by Vygotsky's sociocultural theory which emphasizes the role of culture and context in constructing knowledge and enhancing meaningful learning. This theory advocates that meaningful learning occurs through interacting and communicating with others [7, 8]. In the context of this study, both the English for TVET MOOC platforms are potential to promote meaningful learning since participants from different background and cultures can work collaboratively and share their knowledge. These MOOC platforms enable participants to participate in online forums, peer-assessments and work in small groups for projects. However, it is important to note that not all MOOCs encourage teamwork and collaboration; many still adhere to traditional teaching and individual learning [9].

REVIEW OF RELATED STUDIES

Students' views or beliefs is widely stated to influence teaching and learning practices. A study focusing on Technology Acceptance Model (TAM) and E-learning [10] focused on investigating individual users' acceptance of e-learning in universities as an effective learning tool. A total of 122 diploma students from the Science Department at College of Science and Technology, University Technology of Malaysia (UTM) participated in a survey to evaluate the use of e-learning. Results of the study indicated that student's perceived usefulness is more important than attitude in deciding to use e-learning. Students were willing to adopt beneficial e-learning tools and by providing effective training could further solidify students' views on the usefulness of e-learning.

Another related study Al Zumor, Al Refaai, Eddin, and Al-Rahman [11] English as Foreign Language (EFL) students' views on the integration of Blackboard learning management system at King Khalid University, Saudi Arabia were explored. Around 160 male students responded to a 33 item questionnaire. Analysis of the results showed that students gained new experience and knowledge using Blackboard learning management system. Specifically, they stated that the experience provided them wide reading opportunities and enriched their vocabulary. The limitations and problems reported by the students were related to technical aspects like the internet connectivity, their own readiness and the understanding the instructions of the activities. The study further highlighted that the limitations and problems affected more than half of the students whereby it resulted in students to perceive blended learning as less effective compared to face-to-face learning. The study suggested that students' views should be taken seriously and steps to heighten the

efficiency of using blended learning should be undertaken to motivate students' engagement towards blended learning.

Next, a qualitative study on students' preferences and views specifically about learning via MOOC was carried out in Israel [9]. Specifically, the study explored students' views pertaining to MOOCs design features and how their competencies influenced their participation in MOOCs. An online open ended question survey and semi-structured interviews were carried out with 49 gifted undergraduate students undergoing teacher training course at Al-Qasemi College for data collection purpose. A total of 49 MOOCs from 22 universities were analyzed. Each student was asked to analyze a MOOC platform. The outcome of the study indicated several features of learning and design elements which could affect students' participation and engagement in learning through MOOC. In addition, the study highlighted the importance of identifying students' learning competencies, level of participation and course design features in order to enhance students' retention and interests to learn using MOOC.

In the Malaysian polytechnic context, specifically in the teaching and learning of English courses, MOOC is a relatively new online learning tool that has been introduced to fulfill the level of polytechnic's blended learning requirements. Thus, it is necessary to examine and understand students' views to make MOOC an effective online learning platform.

METHODOLOGY

A quantitatively based method was used in this study in the collection, analysis and interpretation of data. An online survey using Google Docs was used to examine engineering students' views about learning English for TVET via MOOC. A total of 102 diploma in mechanical and aircraft engineering students took part in the survey. The respondents consist of semester three students because they were required to complete both the MOOC courses as part of their English course requirement.

The data collection involved 2 major phases. First, the participants were asked to enroll into the required MOOC course platforms and participate in it for six weeks (3 weeks for each platform): participating in the forum, watching videos, answering online quizzes, sharing videos and communicating with other participants. Next, they were asked to critically appraise the MOOC platforms by responding to the online questionnaire via Google Docs.

The survey instrument used for this study was adapted from a previous study carried out in a local Malaysian university by Siti Feirusz Ahmad Fesol, Sazilah Salam and Ahmad Shaarizan Shaarani [12]. The questionnaire was structured from a combination of four different online learning policy documents prepared by professional online learning councils from all over the world. Six components were constructed in the questionnaire to discover the student's perception in using the MOOC platform in the classroom namely; Course Information, Course Resources, Active Learning, Monitoring learning, Meaningful connection and Interaction. The items in the questionnaire is measured using a likert scale from 1 to 5 (1-Strongly Disagree; 2-Disgaree; 3-Neutral; 4-Agree; 5- Strongly Agree). The data collected from the questionnaire were then analysed descriptively.

RESULTS AND DISCUSSION

This section presents the results and findings gathered from data analysis. The data was analyzed descriptively to obtain the frequency and percentage scores. The results will be presented under six different constructs namely; course resources, active learning, monitoring learning, meaningful connection, interaction and intended perception.

Table 3: Descriptive results for course resources

Item No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I engage more with lecturer videos to understand better	2 (1.97%)	2 (1.97%)	22 (21.56%)	28 (27.45%)	48 (47.05%)
2	I engage more with lecturer slides to understand better	4 (3.92%)	2 (1.96%)	20 (19.6%)	30 (29.41%)	46 (45.09%)
3	The E-Notes provided are understandable	6 (5.88%)	2 (1.96%)	16 (15.68%)	36 (35.29%)	42 (41.17%)
4	The E-Notes provided are able to meet my learning needs	4 (3.92%)	4 (3.92%)	12 (11.76%)	38 (37.25%)	44 (43.13%)
5	I engage more with quizzes to understand better	4 (3.92%)	2 (1.97%)	12 (11.76%)	36 (35.29%)	48 (47.05%)
6	The MOOC course activities provided are understandable	4 (3.92%)	2 (1.97%)	14 (13.72%)	30 (29.41%)	52 (50.98%)
7	The MOOC course activities provided are able to meet my learning needs	4 (3.92%)	2 (1.97%)	14 (13.72%)	32 (31.37%)	50 (49.01%)
8	The End-of-Course test helped me to understand the course better	2 (1.97%)	2 (1.97%)	14 (13.72%)	28 (27.45%)	56 (54.90%)

Table 3 above summarize the frequency and percentage of the items for course resources dimension. The analysis of the results found that the majority of students agreed or strongly agreed (percentage ranging from 74.5% to 82.35%) that the course resources provided in the MOOC platforms such as videos, slides, e-notes, quizzes and tests are comprehensible and meets their learning needs.

Next, Table 4 illustrates the frequency and percentage scores for items related to active learning. The analysis for active learning construct also found that the students agreed or strongly agreed the comments and badges (around 80.4%) provided in MOOC motivates them to participate and complete the tasks actively. Besides, the students also agreed or strongly agreed that they enjoyed using the internet for searching information related to MOOC activities (80.4%), answering quizzes and getting badges (76.5%) and making and uploading videos (73.5%).

In terms of monitoring learning category, the results uncover similar results. Majority of the students agreed or strongly agreed that both the quizzes and end of course test (84.3%) helped them to achieve the learning objectives. In addition, majority of them were also in consensus that MOOC courses has facilitated their learning and improved their language skills in terms of listening and reading (82.34%), writing (80.4%), speaking and presentation skills (78.4%). Table 5 summarizes the frequency and percentage scores for items related to monitoring learning.

Table 4: Descriptive results for active learning

Item No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
9	I enjoy to answer quizzes and get badges	4 (3.92%)	2 (1.96%)	18 (17.64%)	24 (23.52%)	54 (52.94%)
10	I find that comments provided by friends allow me to participate more actively	2 (1.96%)	2 (1.96%)	16 (15.68%)	42 (41.17%)	40 (39.21%)
11	I find that badges given are able to increase my motivation to complete each of the activities	2 (1.96%)	4 (3.92%)	14 (13.72%)	30 (29.41%)	52 (50.98%)
12	I enjoy making my own video and uploading it	6 (5.88%)	9 (8.82%)	12 (11.76%)	39 (38.23%)	36 (35.29%)
13	I enjoy using the internet to search for information to complete MOOC activities	4 (3.92%)	2 (1.96%)	14 (13.72%)	30 (29.41%)	52 (50.98%)

Table 5: Descriptive results for monitoring learning

Item No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14	Quizzes given helped me to achieve the learning objectives	4 (3.92%)	2 (1.96%)	10 (9.80%)	38 (37.25%)	48 (47.05%)
15	Activities given helped me to understand better the learning objectives	4 (3.92%)	2 (1.96%)	18 (17.64%)	30 (29.41%)	48 (47.05%)
16	I find that "Activity Completion" feature helped me to keep track on my learning progress	4 (3.92%)	4 (3.92%)	16 (15.68%)	30 (29.41%)	48 (47.05%)
17	The MOOC courses improved my skills of listening in English	4 (3.92%)	2 (1.96%)	12 (11.76%)	42 (41.17%)	42 (41.17%)
18	The MOOC courses improved my skills of reading in English	4 (3.92%)	2 (1.96%)	16 (15.68%)	34 (33.33%)	50 (49.01%)
19	The MOOC courses improved my skills of writing in English	2 (1.96%)	2 (1.96%)	12 (11.76%)	30 (29.41%)	52 (50.98%)
20	The MOOC courses improved my skills of speaking in English	2 (1.96%)	2 (1.96%)	18 (17.64%)	38 (37.25%)	42 (41.17%)
21	The MOOC courses improved my skills in presenting in English	4 (3.92%)	2 (1.96%)	16 (15.68%)	32 (31.37%)	48 (47.05%)
22	The MOOC courses improved my grammar skills in English	4 (3.92%)	4 (3.92%)	16 (15.68%)	24 (23.52%)	54 (52.94%)
23	The End-of-Course test result reflects what I have learnt in this course	2 (1.96%)	2 (1.96%)	12 (11.76%)	42 (41.17%)	22 (43.13%)

Table 6: Descriptive results for meaningful connection

Item No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
24	The lecture videos, E-Notes and interactive slides are useful for my learning	2 (1.96%)	2 (1.96%)	20 (19.60%)	30 (29.41%)	48 (47.05%)
25	The quizzes, End-of-Course test and interactive online activities are useful for my learning	2 (1.96%)	4 (3.92%)	18 (17.64%)	38 (37.25%)	40 (39.21%)
26	On the whole, I find this mode of learning is enjoyable	0 (0%)	4 (3.92%)	16 (15.68%)	26 (25.49%)	56 (54.90%)

Table 6 above shows the frequency and percentage of the items related to meaningful connection. Similar to other constructs, the results of this section also recorded positive agreement among students. The majority of the students agreed or strongly agreed that both e-content materials like lecture videos, e-notes and interactive slides and e-activity materials like quizzes, end-of – course test and interactive online activities were useful for their learning (76.46%). In addition, most of the students reported that they find learning via MOOC enjoyable (80.4%).

Likewise, items in the interaction domain (Table 7) obtained an overall agreement from the students as well. More than 70% of the students agreed or strongly agreed that they are able to interact one-to one with the instructor (78.4%) and large number of students (72.5%). Besides, students reported that it is easier and

comfortable to communicate with lecturer (74.5%) and friends (72.5%) via forum. The result of the study corresponds with the findings of a study by Fesol, S. F. A., and Salam, S. [12] which reported that learners agreed they feel more comfortable and easy to communicate, discuss and share their opinions via online learning environment.

The final construct analyzed in this study explores students intended perception towards MOOC. Analysis of the data found positive intention among students. Specifically, students agreed or strongly agreed that they intend to use MOOC platform to study other courses next semester (82.3%) and other courses in the near future (74.5%). This reflects that students are interested and motivated to continue using MOOC as an online learning platform in future. Table 8 displays the frequency and percentage of the items related to students' intended perception.

Table 7: Descriptive results for interaction

Item No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
27	Opportunity to interact with large number of students is beneficial for my learning	2 (1.96%)	4 (3.92%)	22 (21.56%)	34 (33.33%)	40 (39.21%)
28	I find it easier and comfortable to communicate with lecturer via forum	4 (3.92%)	6 (5.88%)	18 (17.64%)	34 (33.33%)	42 (41.17%)
29	I find it easier and comfortable to communicate with friends via forum	4 (3.92%)	2 (1.96%)	22 (21.56%)	32 (31.37%)	42 (41.17%)
30	Learning using MOOC allows personalization (students can interact one-to-one with the instructor)	2 (1.96%)	2 (1.96%)	18 (17.64%)	36 (35.29%)	44 (43.13%)

Table 8: Descriptive results for intended perception

Item No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
31	I intend to use MOOC platform to study other courses in the next semester	2 (1.96%)	4 (3.92%)	12 (11.76%)	38 (37.25%)	46 (45.09%)
32	I have a plan to use MOOC platform to study other courses in the near future	0 (0%)	6 (5.88%)	20 (19.60%)	38 (37.25%)	38 (37.25%)

CONCLUSION

Students' view plays an integral part in the implementation of effective blended learning environment. In the current study, understanding their views related to MOOC instructional elements provides important insights on the usefulness and suitability of English for TVET MOOC platforms in helping them learn English. The results of the study indicated that the majority of the students held a positive attitude towards all six MOOC instructional elements explored namely course resources, active learning, monitoring learning, meaningful connection, interaction and intended perception. This reflects that these students found learning English for TVET via MOOC beneficial and enjoyable. Besides, the finding of this study supports the findings from other related studies [6, 9, 10, 11]. Besides, the results of the study would also motivate educators specifically the polytechnic English language lecturers to continue using MOOC as an online learning

resource in their teaching and learning process and encourage their students to use it.

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