

Malaysian Private University Students' Perception of Online Discussion Forums: A Qualitative Enquiry

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Abstract

The continuous advancement in technology has transformed physical learning platforms into digital spaces in higher education. In Malaysia, instructors and students are gradually adopting the e-learning or blended-learning approach by using online discussion forums (e.g. BlackBoard) or social networking sites (e.g. Facebook groups) to engage students' participation in courses and encourage self-directed learning. This study presents a qualitative view of students' perception of engaging in online discussion forums in a synchronous learning environment, and their views on the positive and negative aspects of using online discussion forums for learning. Results indicate that students perceive autonomy and sense of belongingness in the online community as main factors that influence their voluntary and active participation in the online discussion forums. Technical challenges remain as a key factor in determining students' interests to utilize online discussion forums for learning. While future research is needed to assess the sentiments of Malaysian students in online learning, this study was intended to provide Malaysian instructors and higher education institutions a preview on the sentiments of students towards online learning to better improve the aspects of technical, pedagogical methods and policies for online learning as the nation moves towards Education 4.0.

Keywords: Education 4.0; online discussion forums; sense of belonging; autonomy; self-directed learning; synchronous

Abstrak

Kemajuan teknologi yang berterusan telah mentransformasikan platform pembelajaran fizikal kepada ruang digital dalam pendidikan tinggi. Di Malaysia, para pengajar dan pelajar secara beransur-ansur mengamalkan pendekatan e-pembelajaran atau pembelajaran gabungan dengan menggunakan forum perbincangan atas talian (seperti BlackBoard) atau laman rangkaian social (seperti kumpulan Facebook) untuk melibatkan penyertaan pelajar dalam kursus-kursus dan mendorong pembelajaran sendiri. Kajian ini membentangkan pandangan kualitatif persepsi pelajar terhadap penglibatan dalam forum perbincangan atas talian dalam persekitaran pembelajaran segerak, dan pandangan mereka berkenaan aspek positif dan negatif penggunaan forum perbincangan atas talian untuk pembelajaran. Keputusan yang diperoleh menunjukkan bahawa para pelajar melihat autonomi dan rasa kepunyaan dalam komuniti atas talian sebagai faktor utama yang mempengaruhi penyertaan mereka secara sukarela dan aktif dalam forum perbincangan atas talian. Cabaran teknikal kekal sebagai faktor utama dalam menentukan minat para pelajar untuk menggunakan forum perbincangan atas talian bagi pembelajaran. Walaupun penyelidikan pada masa hadapan diperlukan untuk menilai sentimen para pelajar Malaysia dalam pembelajaran atas talian, kajian ini bertujuan untuk memberikan pralihat kepada para pengajar dan institusi-institusi pengajian tinggi Malaysia terhadap sentimen para pelajar terhadap pembelajaran atas talian bagi memperbaiki aspek teknikal, kaedah pedagogi dan dasar pembelajaran atas talian, selaras dengan pergerakan negara ke arah Pendidikan 4.0.

Kata kunci: Pendidikan 4.0; forum perbincangan atas talian; rasa kepunyaan; autonomi; pembelajaran sendiri; segerak

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The higher education learning environment has moved from traditional modes of classroom interaction to online discussion forums, or a mixed method of both, which is named e-learning or blended learning. The use of technology in the learning environment has become a need, especially for the current undergraduate student population who are born in the digital era. Thus, online discussion forum is one of the effective ways to engage students' participation in class. Furthermore, online discussion forums provide a platform for every student in the course to engage in self-directed learning.

As Malaysia moves towards Industry 4.0, there is also a need to enhance the higher education industry in the nation. Education 4.0 incorporates innovation in learning, as well as self-directed learning. Students become the centre in the learning process and thus, should feel comfortable in using the e-learning systems (Puncreobutr, 2016; Sulaiman, Suid, & Idris, 2018). Online learning platforms enable students to convey messages with more autonomy and convenience. Individuals are able to connect with others wherever and whenever they are available, thus providing individuals the comfort to interact freely. The synchronous and asynchronous natures of e-learning platforms also enable individuals to respond to others at their leisure. Thus, technology has mediated the relationship and communication amongst individuals in everyday life, including the learning environment. Researchers (Chong & Wan, 2018) have argued for more

innovative and open forms of e-learning methods and platforms in Malaysia in order for teaching and learning methods to be able to achieve the standards of Education 4.0 in the nation. As such, re-assessing students' sentiments and perception on e-learning platforms is necessary to identify gaps and improve methods of teaching and learning.

Higher education in Malaysia has moved from Education 1.0 to Education 4.0 (Maria, Shahbodin, & Pee, 2018). Education 4.0 defines learning as self-directed and according to students' pace of learning (Sulaiman et al., 2018). Thus, it is vital to understand students' sentiments towards existing forms of learning that are available in Malaysia in order for students to be able to engage in Education 4.0 and align their learning to the industry's required skills upon graduation. In Malaysia's higher education, online learning platforms have opened up the application of e-learning approaches between educators and students, particularly in online discussion forums. Public universities in Malaysia have looked into incorporating IT aspects of learning since the 1990s. However, there is a need to examine private university students' perception in their e-learning experiences, as facilities appear to be one of the important factors in determining students' choice of university enrolment in Malaysia (Padlee, Kamaruddin, & Baharun, 2010).

Researchers (Al-Rahmi et al., 2018) have indicated that e-learning is very useful in allowing students to share and obtain knowledge. The e-learning approach is one that utilizes face-to-face and computer-mediated communication (CMC) to encourage learning amongst students. Students are able to meet with their instructors face-to-face while having the autonomy to learn at their own pace through online platforms such as online discussion forums. As such, the online discussion forums in the e-learning approach can be a useful tool to break the ice in a classroom environment.

Past studies have reveal that using CMC such as social networking sites or learning management systems (e.g. Moodle and Blackboard) as a platform to increase student participation in online discussion has proven to be effective and positively impacted students' learning (Al-Rahmi et al., 2018; Beckett, Amaro-Jimenez, & Beckett, 2010; Gao, 2014; Giesbers, Rienties, Tempelaar, & Gijsselaers, 2013; Krause, Portolese, & Bonner, 2017), however, these studies did not consider the effects of synchronous or asynchronous engagement in such platforms. In addition, studies in the past (Al-Rahmi et al., 2018; Balakrishnan & Gan, 2016; Brown, 2016) mostly examined students' satisfaction or engagement styles in e-learning through quantitative measures without identifying the effects of synchronicity in such e-learning platforms. Thus, there is clearly a gap in understanding students' sentiments on the effects of synchronous communication on online learning platforms through qualitative analysis. This study also seeks to identify factors that lead to self-directed learning in order to meet the nation's need to move into Education 4.0. Students' self-reflection allows for in-depth understanding on the factors that can contribute to self-motivation in higher education learning.

■ 2.0 LITERATURE REVIEW

Students' E-Learning Experiences in Malaysia

Malaysia's education revolution emerged in the 1990s when World Wide Web was made available to students in higher education institutions. However, the scenario of using only World Wide Web to learn rapidly changed with the advancements of mobile technology (Maria et al., 2018; Puncreobutr, 2016). As Malaysia advances into Education 4.0, students' sentiments on e-learning becomes an important aspect in classroom engagement (Maria et al., 2018). Instructors have used traditional modes of communication in classroom settings, whereby students meet with the instructors on a face-to-face basis and are physically engaged in discussion activities. However, students are now encouraged to engage in self-directed learning where they use technologies to learn at their own pace.

Student participation through online discussion activities can cultivate successful learning environments (David & Dumanig, 2017). In the classroom setting, synchronous communication generally takes place through face-to-face discussion activities. Students are expected to respond and participate in impromptu or planned in-class discussions. Most of the time, students look to their instructors to prompt the discussion forward. With the application of technology in the classroom setting, instructors are now able to engage, assess, or observe students' participation in the e-learning approach through online discussion forums. Discussions no longer need to be confined in a classroom setting.

Malaysian universities have adopted the use of technology in teaching and learning since the 1990s (Maria et al., 2018). Universities mostly adopt the use of BlackBoard or Moodle to provide students an alternative avenue for discussion to take place in the learning environment. Through BlackBoard or Moodle, instructors may choose to participate in the online discussion forum or remain as the observer. The online environment enhances students' participation, especially amongst introvert students.

Maria et al. (2018) have noted that Education 4.0 framework that is provided by the Ministry of Higher Education in Malaysia is bound to change universities' online learning environments into using Moodle, which is a larger online platform that can accommodate larger classes and has been a great hit since Education 3.0. As Education 4.0 comes into play, the Malaysian higher education context will be integrating technology and pedagogy in students' learning. However, this would require students to actively participate online and perceive the online platform as an official classroom for learning. Student participation in courses can improve with the use of CMC, especially when students are encouraged to engage in online discussions at a given timeframe with a given task (Baxter & Haycock, 2014; Gao, 2014; Paulus & Phipps, 2008). Thus, students will be independent learners through the e-learning approach.

Online discussion forums enable instructors to gauge students' sense of relatedness between instructors and students, as well as among students of the same course. Students who participate lesser in face-to-face discussions within the classroom setting tend to participate more in online discussions (McBrien, Jones, & Cheng, 2009). Hence, online discussion forums, an effective learning tool for creating positive social presence for instructors (Krause, Portolese, & Bonner, 2017), can become a tool for students to relate to their peers and instructors due to the sense of security in providing opinion in a safer environment. Students may feel less intimidated when they engage in online discussion forums rather than in classrooms, where the physical presence of an instructor in classrooms can discourage students from participating in open discussions.

Asynchronous vs. Synchronous Online Discussions

Student participation can be affected by the synchronous and asynchronous nature of the online discussion. Researchers (Beckett, Amaro-Jimenez, & Beckett, 2010; Gao, 2014; Hrastinski, 2008) found that students participated more actively when online discussion forums were asynchronous in nature. Students also perceived the asynchronous feature of online discussion forums positively. Beckett, Amaro-Jimenez, and Beckett (2010) claimed that students who are shy often feel more comfortable to engage in academic discourse through CMC, especially when they are given time to respond in the discussions. In addition, students viewed online discussion forums as a positive aspect of their learning experience, as it allows for more time to build and establish rapport with other students in the course (Beckett, Amaro-Jimenez, & Beckett, 2010).

On the other hand, Giesbers et al. (2013) argued that a mixture of asynchronous and synchronous communication leads to an improved learning experience and student participation in online discussion forums. The researchers stated that synchronous communication supports the engagement of asynchronous communication. The given timeframe to respond to the online discussion forum is important to encourage students' participation, as asynchronous communication allows for delayed responses among students who participate in a given online discussion. While asynchronous communication provides students the timeframe to respond, synchronous communication motivates students to actively participate.

Giesbers et al. (2013) posited that synchronous communication enhances the sense of relatedness among students and improved the sense of autonomy through timely process related feedback in the online discussion forum, as the online platform provides students opportunities to connect and interact directly with other students in a given task or topic. As such, students create an informal online community through synchronous communication when given a task and timeframe. Students' sense of relatedness and autonomy will enhance their e-learning experiences, particularly within the use of Blackboard. Thus, this study adopts the definition of synchronous communication that includes students' involvement in the online discussion forum according to an assigned task within a particular timeframe.

Autonomy and Sense of Belongingness

Instructors who engage students in online discussion forums can also empower them to provide feedback freely. Students feel a sense of autonomy when instructors take their opinions into consideration in online discussion forums (Jang, Reeve, & Deci, 2010). The social presence of an instructor and perceive presence of peers in online discussions can motivate students to be more engaging (Yang, Quadir, Chen, & Miao, 2016). Students' sense of autonomy and belongingness are further enhanced by the synchronous effect of bonding between students in the same course when they provide feedback through a common online learning platform. The sense of belongingness will increase social interaction in the online discussion forums, which breaks the ice and builds rapport amongst students in physical classroom environments (McBrien, Jones, & Cheng, 2009). The collective feedback and discussion that takes place in an online discussion forum can motivate students to engage in learning due to their sense of autonomy. As such, students engage in knowledge sharing sessions in the online discussions, which enhances their learning experiences and social interaction skills.

Besides building rapport and motivating students to participate actively, online discussion forums can create a sense of community amongst students (Beckett, Amaro-Jimenez, & Beckett, 2010; Dikkers, Whiteside & Lewis, 2012; Hrastinski, 2008; McBrien, Jones, & Cheng, 2009; Liu, Magjuka, Bonk & Lee, 2007). The online community becomes a platform for students to connect with their instructors and peers in the learning process. The sense of being in an online community also enhances the interaction and knowledge sharing among students (Baig & Waheed, 2016). When students engage in online discussions, they are building a community that practices knowledge sharing. Furthermore, engaging in knowledge sharing activities enhances the sense of belongingness and autonomy when students receive immediate feedback in a synchronous online discussion (McDaniels, Pfund, & Barnicle, 2016).

Feedback is another feature in online discussion forums that motivates students to be more engaging (Meyer, 2007). According to Sloan (2015), the number of comments that students receive in online discussion forums can affect students' motivation to participate in the online discussion. As such, peer comments can also be a tool to boost students' self-confidence in the learning process. In relation to receiving feedback and comments, online discussion forums can thus serve as a platform to empower students in voicing out their opinions. Perceived autonomy affects students' online engagement in discussion forums. Students who perceive higher levels of autonomy in online discussions will experience higher levels of motivation in the online learning environment (Rienties, Tempelaar, Giesbers, Segers, & Gijsselaers, 2014).

Autonomy is one of the factors that influences students' potential for self-directed learning (McBrien, Jones, & Cheng, 2009). Self-directed learning is an important aspect in online distance and e-learning. Yang et al., (2016) suggested that online discussion forums can be a tool for engagement and may enhance students' learning outcomes. Students are more likely to engage in self-directed learning when they perceive higher levels of autonomy in the academic discourse. Thus, the length of time given in an online discussion, combined with the synchronous effect of receiving feedback may be factors that influence the sense of autonomy in students' online engagement in discussion forums. As the nation moves toward Education 4.0, which focuses on encouraging self-directed learning, gauging students' perception on the autonomy that they experience through the use of online discussion forums for learning is vital to identify gaps and key points that can improve self-directed learning in higher education. This study aims to examine the following research questions:

RQ1: What factors contribute to students' perception on the benefits of using online discussion forums in their e-learning experiences?

RQ2: How does the synchronous nature of online discussion forums affect students' e-learning experiences?

3.0 METHODOLOGY

The aim of this study is to identify the factors that contribute to students' positive and negative experiences of using online discussion forum through Blackboard, as well as the effects of synchronous communication on students' e-learning experiences. As such, this study adopted a qualitative approach to identify the themes through students' reflective essays on the use of online discussion forum in

Blackboard for classroom education. Reflective essays were further analysed through grounded theory, which subsequently adopted thematic analyses to identify the main factors that contributed to students' positive and negative experiences of using online discussion forums for learning.

Participants and Procedures

The research consisted of 50 students of a private university in Malaysia. The sample size was selected because data reached a saturated point in the analysis. A qualitative approach was used to analyse students' reflection papers in order to understand students' perception towards the use of Blackboard's online discussion function in a communication course. Students were between ages 18 – 25 years old.

In the beginning of the term, students were given an informed consent form to participate in this study voluntarily. However, refusal to participate will not result in any form of penalty in their grades. The instructor then gave students a topic of discussion and instructed students to participate using Blackboard's online discussion forum. Students were asked to reflect on a few questions that the instructors gave as a guide to reflect on the topic of discussion. For example, one of the questions asked students about their positive experiences of using the online discussion forum to discuss about the topic given. Another question asked students to describe about their challenges in using BlackBoard's online discussion forum.

Students of two communication courses were given two (2) hours to participate in the online discussion. Students were then instructed to reflect upon the positive and negative experiences of using Blackboard's online discussion forum in a synchronous setting and write their reflection in the form of a two-page essay. The approach of asking students to record their experiences in a two-page essay yielded deeper insights on students' feelings, thoughts, and opinions on using Blackboard's online discussion forum in a synchronous setting (Denzin, 1989).

Data analysis

All data from the reflection papers were analysed using the constant comparison technique (Glaser & Strauss, 1967, as cited in Rubrico & Hashim, 2014), which involved reading the qualitative feedback from participants' reflection papers to gain an overview of the data. Subsequently, data was analysed using the grounded theory qualitative approach, which involves systematic and inductive approach to build a theoretical framework from the analysis (Glaser & Strauss, 1967). In constant comparison technique, 'the method of comparing and contrasting is used for practically all intellectual tasks during analysis: forming categories, establishing the boundaries of the categories, assigning the segments to categories, summarizing the content of each category, finding negative evidence, etc. The goal is to discern conceptual similarities, to refine the discriminative power of categories, and to discover patterns' (Tesch, 1990, p. 96).

To achieve reliability in data analysis, the researchers of this study first reviewed the data and identified overarching themes (e.g. freedom to express, community feeling, technical difficulty, empowerment, identifying with others) that emerged to produce an initial code list. Subsequently, repeated codes were grouped and collapsed into categories. The categories were then merged into three main themes (i.e. sense of belongingness, autonomy, and technical challenges) for the results of this study. The researchers conducted inter-coder reliability to measure the consistency of coders and improve the reliability of coding the data obtained (Harris & Burke, 2005). Inter-coder reliability yielded 90% of similarity between coders in the first phase of coding. In the initial phase of coding, the two coders identified two common themes (i.e. sense of belongingness and technical challenges). The remaining theme that was not similar was collapsed into a category upon agreement between the coders (i.e. autonomy).

The 50 reflection papers that were analysed reached a saturation point, whereby themes were repeatedly appearing in the reflection essays. When data reaches the saturation point, the validity is demonstrated through a rigorous approach of going through initial coding and subsequently thematic analysis that is produced through the code book (Ando, Cousins, & Young, 2014). Acronyms are used throughout this study to keep the identity of the students anonymous.

■4.0 RESULTS AND DISCUSSION

The purpose of this study was to identify the factors that contributed to students' perception on the benefits of using online discussion forums, as well as understand the effects of synchronicity in online discussion forums towards students' e-learning experiences. Results yielded 3 main themes, which were *sense of belongingness*, *autonomy*, and *technical challenges*. The theme on *autonomy* and *technical challenges* answered RQ1 while the theme on *sense of belongingness* and also *technical challenges* answered RQ2.

Sense of Belongingness

Students were given a specific timeframe to participate in the online discussion forum, thus creating a synchronous environment for students to engage in the discussion. Data from the reflection papers revealed that students experienced a sense of belongingness and connectedness when they engaged in the synchronous discussion. Students commented that they could "*connect*" (P2) and "*relate*" (P10) to others' experiences in the feedback that they received from the online discussion. For example, one of the students mentioned that she "*...was not the only one who thought that way...*" (P15) and another student commented "*...we were able to share the thoughts and some feelings that were similar*" (P30). Such statements reflect students' ability to identify with another individual through the online discussion forum, which is enhanced through the effects of a synchronous environment.

Another student mentioned that she was able to "*...feel the sense of belongingness...*" (P36) through her interaction with other members in the online discussion forum. According to Beckett, Amaro-Jimenez, and Beckett (2010), communities of practice are formed when people share common goals and come together to learn from each other. In this study, students were assigned a specific topic to discuss in the online discussion forum. The students stated that they were able to "*...share opinions and information with each other...*" (P8), which established a community of practice and indicated the effectiveness of using online platforms to engage in knowledge sharing.

Besides, the synchronous nature of the online discussion further enhanced students' positive experiences of participation. Students indicated their enjoyment and ability to relate to their peers' experiences. Students felt that feedback from their peers also enhanced their sense of belongingness within the group. For example, one of the students mentioned: *"My experience of participating in the online discussion forum was very meaningful and brought much benefit to me...it was very interesting and I enjoyed reading other people's experiences and opinions...as often they were slightly different from my own perception towards the matter..."* (P42). In addition, students also identified similarities and differences between their peers upon discussing common topics. The similarities brought a sense of belongingness amongst the students, while the differences provided students a new perspective on their peers' learning processes (Willis, Davis, & Chaplin, 2013). As a result, students' sense of belongingness within the class community increased. The following excerpts reflected positive comments and experiences that students have obtained from the online discussion forum:

We interacted in the online group discussion and exchanged ideas with one another because every student has a different learning method...some learn quickly but others may be slower. (P19)

...everyone communicated and discussed the same topic, which some had the same ideas... (P17)

I was able to build a connection with my class community... (P49)

Through the online discussion, I could improve my understanding on the class lecture materials. (P31)

As shown in the above excerpts, students gained positive experiences and connectedness with their peers when they were engaged in a synchronous discussion for the given topic. Synchronicity can enhance the sense of togetherness in the CMC environment (Themelis, 2014). The synchronous nature of this online discussion forum affected some students' motivation and perception of engaging in the discussion positively. One of the students commented about the synchronous nature of the online discussion: *"When everyone is required to comment on the posts within two hours, the positive experience is that everyone can relate to the common topic without having to feel left out in the conversation."* (P5)

However, the synchronous nature of the online discussion in this study also affected some students negatively. Some students felt that they were unable to keep up with the topic of discussion because they could not understand the topic of discussion that took place among their peers. For example, one of the students mentioned that her peers *"...could not fully understand the question..."* (P34) which led to a breakdown in communication. The following five excerpts reflect some of the negative experiences that students had with the synchronous nature of the online discussion in this study:

She responded to my question. However, it was not the answer that I was looking for...although she agreed to my statement, I did not fully understand her answer... (P1)

I could not figure out...it caused confusion among the people who participated in the online discussion forum...it was difficult to initiate further discussion towards the postings. (P13)

It was difficult to understand their feelings because I have not gone through it myself. (P7)

...participants were too overwhelmed by the emotions...we did not discuss much about how theories can be applied... (P45)

I participated in the beginning but not the end...I could not comment when I cannot relate... (P9)

Some students felt that there was no mutual understanding on the topic of discussion, even though communication took place synchronously in the online discussion forum. Liu et al. (2007) stated that community building in the virtual environment requires careful planning and designing in order to foster an environment of information sharing and knowledge construction. In this online discussion forum, several students were not able to understand their peers' comments about the topic of discussion, which created a barrier in motivating them to participate further in the online discussion.

Autonomy

In this study, students were motivated to engage in the online discussion because they felt empowered to voice out their opinions, as well as to connect with their peers whom they have met in class. The online discussion forum served as a platform for them to comment on other people's opinions, provide their opinions without having to worry about repercussions from any parties, as well as approach their peers to ask questions without having to feel embarrassed physically. The following excerpts demonstrated students' positive experiences in engaging in the online discussion:

"With the online discussion forum, I am allowed to start a conversation with those classmates whom I have not talked to in class. It is a platform for me to know their thoughts and opinions, then further discuss about them..." (P44)

Online discussion forum is effective in encouraging students to make a stand on a topic. (P3)

I can overcome my fear of providing opinion in front of many students...I am used to hiding in class and only listen to others. (P6)

The online discussion forum is a very good way to allow students to express their views and opinions. At the same time, we are able to learn new things too. (P5)

It (online discussion forum) is new and innovative, while offering more space and freedom for students to participate... (P43)

...offered me a chance to voice out my opinions and perspectives for different topics. I had a chance to tell others about my opinions, how and what I thought about the topic given. (P32)

As reflected in the above excerpts, students were motivated to participate in the online discussion forum because they viewed the online platform as a useful tool to engage in discourse. In the e-learning approach, learner autonomy enhances the perception of independence amongst students (McBrien, Jones, & Cheng, 2009). Students in this study felt that they had an opportunity to provide feedback without someone ridiculing them. The online postings provided a unique opportunity for them to bring their individual experiences into the discussion.

Furthermore, online postings enhance students' learning experiences because they are contributing to other people's postings (Gaudry-Hudson & Yalda, 2008). According to Jang, Reeve, and Deci (2010), the amount of autonomy leads to increasing levels of online engagement. A student in one reflective essay commented that the online postings in the discussion allowed them "...to think and view things critically" (P47). Another student mentioned that there was mutual respect in the online discussion forum, which resulted in "...everyone participating actively by responding to one another's postings." (P48) Thus, the perception of having autonomy in online discussion forums can lead to improved learning capabilities among students (Rienties et al., 2014).

Technical Challenges

Some of the students felt that technical challenge was a major reason that hindered their motivation to participate in the online discussion forum. In addition, the discussion forum was set in a limited time (ie. two hours), in which students had to post their comments as well as reply to their peers' comment. In Blackboard's discussion forum for this study, students were only able to post new comments without being able to comment on others' postings through threads. In addition, students were constantly refreshing the page to view new postings, which made it difficult for them to follow through the discussion. The following are examples of comments that students provided in regards to the technical challenges when using the discussion forum:

The negative experience of using this online discussion forum's format is that it is not convenient. We had to refresh the page manually to see if there were any new postings or replies. If the online discussion forum is able to update new replies automatically, like how it exists in social networking sites or apps, it would have been better. (P23)

The two-hour discussion forum was not enough...I think we could have commented more and shared our opinions further. The layout of the forum was very confusing and it was very difficult for me to read back my postings. (P25)

The Blackboard discussion forum was not a suitable platform for an online discussion because it was not user-friendly...the posts were not collated... (P41)

I had to keep on refreshing the page to read new posts and replies...it was hard to focus and overwhelming...it somehow limits our responses in a short timeframe because we had to keep refreshing the page. (P14)

...my friends had to go through the clutter of the discussion page. It was cluttered because the discussion page was not designed to specifically fit into computer screens that were small...it was difficult to navigate. (P11)

It was chaotic because I did not know if someone had replied to my post until I refreshed the page...I had to scroll the page to check on my postings and other people's comments. (P37)

Students' comments on the technical challenge of navigating through Blackboard's discussion page was demotivating. As indicated in students' reflection papers, more time is required for students to be familiar with the online environment before engaging in the online discussion. Such technical challenges can affect the depth and quality of their discussions (McBrien, Jones, & Cheng, 2009). Liu et al. (2007) noted that the pre-requisite of engaging in online learning platforms is to have a 'glitch-free' environment. Students will be able to learn more effectively when technical challenges do not become a hindrance for them to engage in the online discussion.

Time was also a factor in affecting students' online engagement in the discussion forum because students had limited time to navigate through the discussion forum page and fully engage in the online discussion. Students noted that more time would have been beneficial. For example, one of the students stated: "*The discussion forum's system was complex and confusing...this is our first time using the system for discussion. We had to refresh our page and go back to the main page to look for past postings. This is very time consuming...this online discussion is only given two hours...we were pressed for time*" (P28).

Students' learning comes to a halt when the technical issues arise (McBrien, Jones, & Cheng, 2009). For example, students (in P11, P14 and P37) claimed that the postings were overwhelming and cluttered which disrupted their discussion. This finding is consistent with Phelan's (2012) study who noted that high volumes of online exchanges in postings could be a barrier in students' online learning engagement. As such, synchronous learning environments need to ensure adequate time and sufficient technical support to ease students' frustration. Furthermore, technical problems also reduce students' sense of autonomy, which affect their learning progress.

■5.0 CONCLUSION

The aims of this study were to understand factors that contribute to students' perception on the benefits of using online discussion forums as well as the effects of synchronicity in online discussion forums towards students' e-learning experiences. Results indicate that when students feel a sense of belongingness and autonomy, they are more motivated to participate in the online discussion forum. These themes also contributed to the positive sentiments towards e-learning in the online community amongst students. The findings of this study imply that the lack of face-to-face interaction does not affect students' participation in the e-learning process. The sense of belongingness and autonomy further enhance self-directed learning in students' e-learning experiences.

On the other hand, the synchronous effects of a e-learning in discussion forums also enhance the sense of belongingness amongst students. The sense of belongingness exists when students perceive the online discussion forum as a safe platform to provide their opinion and comment on their peers' opinions. Moreover, feedback from students concerning their peers spur the online discussion forward and positively affects students' e-learning experiences. Thus, students obtain positive experiences of using Blackboard's discussion forum to engage in e-learning.

However, technical challenges remain as a contributing factor in negatively impacting students' e-learning experiences. The synchronous effects of online discussion forums in BlackBoard was not ideal due to difficulty in manoeuvring postings in the forum. Students claimed that the technical glitches also affected their motivation to participate in the online discussion forum and negatively impacted their e-learning experiences. Thus, institutions and online platform providers should investigate interfaces of online discussion forums to consider upgrading or changing the platform's interface in order to enhance students' e-learning experiences. The pre-requisite of being able engage in e-learning is to have a 'glitch-free' environment, which will also enhance students' motivation towards self-directed learning (Liu et Al, 2007). Lastly, the current research used an available instrument that was adopted from a western country, which may not reflect the actual Malaysian students' behaviours. For future research, an instrument that is more suitable for Malaysian school students may be developed.

Implications for Instructors and Higher Education Institutions

In order for higher education institutions to ride on the wave of Education 4.0, instructors need to encourage self-directed learning amongst students. The sense of belonging in the online learning community needs to be emphasised through the presence of the instructors (Parks-Stamm, Zafonte, & Palenque, 2017). When instructors form communities of learning in the online environment, their presence can significantly impact students' perception on the positive aspects of e-learning. Pedagogical methods in e-learning should be innovative and student-centred in order to produce self-directed learning students (Chong & Wan, 2018). Thus, instructors in higher education institutions should be trained and exposed to new pedagogical methods of incorporating new technologies in their teaching.

Results from this study reflect that lack of technical advancements in higher education institutions can negatively impact students' sentiments towards e-learning. Higher education institutions should consider upgrading the facilities (i.e. Internet connection) to enhance students' e-learning experiences. Besides, the Ministry of Higher Education is moving towards Education 4.0, whereby self-directed and innovative learning through new technological platforms are encouraged amongst students. Thus, enhancing the technical aspect of the institution will provide a better environment for e-learning to take place. As facilities is one of the decision making factors for students to choose in pursuing their higher education (Padlee et al., 2010), enhancing the institution's facilities will also yield to improved student enrolment for institutions.

Limitations and Future Research

Results from the reflection papers indicated that the timeframe given for the specific topic of discussion was inadequate due to the lack of familiarity and the need to adapt to the virtual environment. Students will be able to build a closer rapport with other online participants if the online discussion forum takes place for a longer time. Besides, students feel a greater sense of autonomy and competence when they are able to overcome the technical challenges that are present in the online discussion forums.

This study's sample consists of participants in one course – communication, which is not generalizable across other courses across schools. Thus, future research can look into comparing samples from other courses to obtain a holistic overview of students' sentiments or perception of online discussion forums. Furthermore, future studies can also examine the timeframe and tasks given to students when they engage in online discussion forums to better understand students' challenges in navigating a new virtual environment for learning. A final aspect that future studies can examine is the different designs and layouts of online discussion forums can lead to improved student participation, engagement and interaction in the learning process.

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