Social Learning Environment and Pre-service Teachers' Critical Thinking Development

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Abstract
The pandemic has certainly pushed the world to become technologically savvy ahead of its time. Alongside this, the teacher education world was not spared. Teacher trainers and pre-service teachers alike were all forced to utilize technology in their teaching and learning process, in the effort to ensure that education goes on despite the pandemic. This has seen many teacher trainers designing teaching and learning digitally for the past two years. Although many teacher training institutions have gone back to the conventional mode after the pandemic, there is value in looking at how teacher education programmes can be delivered more efficiently in producing teachers with critical thinking skills. This raises the question of how teacher education programmes design a social learning environment that enhances pre-service teachers' critical thinking. The present study attempted to answer this by examining the social learning features that the selected pre-service teachers had been experiencing during their online learning and how the features had developed their critical thinking. A qualitative research design was employed in which series of interviews were conducted on a group of pre-service teachers who were finishing their teacher education programme in two public universities in Malaysia. The study identified that these features include lecturers' dynamics, lesson delivery and support available for students. Several implications of these social learning features were also discussed for teacher trainers to take into consideration when they design social learning environments that enhance pre-service teachers' critical thinking. These implications include the learning delivery and learning activities that affects students' decision- making abilities and students' learning performance. Recommendations were also made at the end of the paper for teacher trainers for future reference.
Keywords: Critical Thinking, E-Learning, Learning Environment, Social Learning, Teacher Education

Introduction
    The post-pandemic world witnessed nations scrambling to recover from the impact that COVID19 brought with it. Lockdowns that were imposed worldwide had a tremendous impact

not only on the economic growth, but also on the education sector. In a report co-published by the World Bank, UNESCO and UNICEF in 2021, which was aptly titled 'The State of Global Education: A Path to Recovery', discusses in detail what education systems worldwide could do in recovering what is termed as 'learning losses'. The report also calls upon the stakeholders to 'reinvent education–to make it more resilient, more equitable, and more efficient' in ensuring that no one is left behind in the delivery of learning.

On top of grappling to revive the education system in the post-pandemic world, we must not ignore the demands of the employers. The World Economic Forum's report entitled 'The Future of Jobs 2020' outlined top-ten work skills with a growing demand by the year 2025. This list included critical thinking and analysis as one of the most important skills perceived by employers. This essentially requires universities to prepare graduates that are able to think critically before they embark in the working world.

Marrying the two earlier concepts of making education more resilient in order to produce graduates with critical thinking skills brings the attention to the frontlines of the education field, which are the educators. From the pandemic, both educators and students were put on the pedestal to take on learning in the digital world. The field of teacher education was not exempt from this as well. Many teacher trainers and pre-service teachers, regardless of how hard it were, had to take the challenge, head-on. The scenario certainly challenged the conventional perception of how teacher education must be done conventionally, given the fact that the curriculum requires face-to-face interaction in courses like Microteaching. Although many teacher training institutions are now back to conventional learning after the pandemic, there is certainly some value in training teachers via the Online Distance Learning (ODL) mode. This to some extent will open many opportunities for teacher training to transcend borders and ensure teacher training programmes become more resilient in the future. For this to happen, there is a need to examine the learning experiences of the students during the pandemic, and how social learning features in the learning environment may become the catalyst to producing teachers with critical thinking skills. Therefore, this study attempts to answer the following research questions:

1. What are the social learning environment features as perceived by the pre-service teachers?
2. How do the social learning features develop their critical thinking?

Literature Review
Learning Environment
The events of the pandemic, which seemingly caused a halt within the education field, at least temporarily, led educators worldwide to resort to online learning. Therein, online learning has been around far before the pandemic was executed. However, one of the main issues during the pandemic was the readiness among instructors and students alike. The Fourth Industrial Revolution (4IR) encouraged higher education institutions to lead towards more technologically advanced learning approaches (Chik and Arokiasamy, 2019). This approach would also allow students to be more autonomous in their learning (Al-Azawei, 2019). With the implementation of 4IR, much of the teaching and learning process can be done online and remotely. Nevertheless, Azah, Natrah and Hayati (2020) found that prior to the pandemic, these plans had not been fully optimized, often referred to as the blended mode of learning, the mixture of face-to-face and online learning. According to Chean and Chai (2018), despite the questionable readiness, the overall globalization and technology

advancements, most instructors and students have familiarized themselves with certain online platforms prominently used in online learning.

The ideal learning environment would revolve around students being autonomous, whilst the instructors serve as facilitators. As found by Mokhtar (2019), the basis of said environment is the introduction of a learning management system (LMS). This should be a common platform dedicated solely for educational purposes, commonly provided by the institution. However, some LMS platforms can be limited by their technology or ability to handle heavy online traffic (Hankerson, Venzke, Laird, Grant-Chapman, & Thakur, 2022). Therefore, the knowledge on the existence of other platforms falls into computer literacy readiness. Furthermore, Singh, Steele and Singh (2021) argued that the learning environment post-pandemic wise, creates division between returning to face-to-face, traditional classroom setting or to maintain open distance and remote learning experiences. Loosely translating to synchronous and asynchronous learning styles. In a nutshell, the education landscape will never be able to cater all needs. As some are inclined to proceed with remote learning from the comfort of their own environment, some require more conducive environments like a classroom (Pokhrel & Chhetri, 2021). On top of that, the ideal environment for social learning online includes devices and internet connectivity. Social learning requires inclusivity and although smart devices are abundant but there are still limitations that hinge instructors and students alike.

The implementation of technology in the learning environment is to assist the teaching and learning process (Azah et al, 2020). Consequently, the teaching and learning process is enhanced in delivering materials and developing better understanding among students. Students are to experience their learning materials virtually and safely, in a much faster manner. Social learning environments allow students to apply theories they have learnt (Rumjaun & Narod, 2020). Online learning creates a broader scope of materials to practice and apply what they have learnt. This broadness also avoids materials to be repetitively overused. A prominent attractiveness of online social learning is the interactivity it brings to students (Kaliisa, Rienties, Mørch, & Kluge, 2022). It is clear that students rely on peers to maintain motivation in learning. Aside from maintaining healthy relationships, online social learning also eliminates boredom. Interactivity is complemented by visuals, audio and other media aids to draw students' attention.

Social Learning

At its core, social learning is derived from Vygotsky's social constructivism theory (1978). Decades after this theory was founded, along with every technological milestone, social learning has since evolved. In relation, connectivism is included into the discussion, as it is defined as a relatively new introduction to (4IR) (Razak, Alakrash & Sahboun, 2018). It has since been discussed within the educational landscape to promote a more technologically savvy prospect in teaching and learning, focussing on student interaction (Gamage ET AL., 2020). As mentioned earlier, the introduction of 4IR stirred a sort of revamp of the education field, redesigning the landscape
and how the teaching and learning process is conducted. Slamet and Kuswandi (2017) found that social learning refers to a more refined branch of said connectivism, as it infers to the students' overall interaction, understanding, learning and even thinking. Social learning is associated with online learning because the online tools and materials used are used as a way to improve and enhance informal learning among students. Consequently, students are able to learn outside the classroom, establishing the rationale of being open to constant learning

(Zainuddin et al., 2019). The luxury of learning or consuming knowledge outside the classroom also helps students' attitude learning in the classroom, as well. This improves classroom engagement and collaborative learning, the relevant values in social learning.

However, social learning is much more meticulous than that. As mentioned earlier, the social learning environment plays an extensive role in making a student's learning experience successful. Kümmel et al (2020) reported that it is apparent that the social learning environment can affect a students' performance. Today, social learning is often associated with online learning. Hence, it can technically be done remotely, anywhere students prefer. This in turn, allows students the ability to learn boundlessly. Nevertheless, social learning still requires a conducive enough environment whilst being completely reliant on their devices (Zhou, Deyu, Xiao & Zhou, 2022). Thus, connectivity would be an issue. Social learning requires interactivity and making full use of their environment. Moreover, social learning is where students are expected to learn autonomously while maintaining interaction with others. Studies have proved that social learning consists of collaborative learning while having autonomy. Social learning would also require students to be dependent on their devices, using online platforms with aesthetics that can draw attention. In a nutshell, social learning inclines to put the traditional classroom approach in the past, as student participation and collaboration is needed to appropriately prepare them for the future.

Critical thinking

Critical thinking has long been a crucial part of education, importantly at a higher education level. The important essence of critical thinking is it allows an individual to analyze a situation and provide a scientific and rational solution. Employers worldwide look for graduates to employ these skills effectively. Critical thinking is a desirable trait to have among professionals because it allows autonomy in their decision making and problem solving skills. In all essence, critical thinking is the catalyst in enhancing personal thought processes. Critical thinking is valuable in the education field for both students and instructors. Therefore, it is vital that students are adequately prepared in their development of critical thinking.

Thus, lecturers play a major role in this domain. A study conducted by Lu (2021) has shown that the development of critical thinking among students is heavily impacted by the pedagogy applied as well as their learning environment. Critical thinking is essential regardless of the mode of learning. The attainment and development of critical thinking in online learning has also sparked debates within the education sector. Nevertheless, the perseverance of both students and instructors during the pandemic has ensured positive results given the way events folded at the time. Fortunately, research has shown that the development of critical thinking during online learning has not been compromised (Mshayisa, 2022). Students' general perception indicates that they have, in fact, high confidence in their personal critical thinking skills. However, the teaching process of critical thinking does come with its own set of challenges. Lecturers are expected to prepare their students to think in a more efficient and effective manner. Moreover, the domains involved in teaching critical thinking are also highly impactful for the students. For instance, critical thinking covers areas from problem-solving skills, interactions, creativity and even comprehensive skills. Furthermore, all the mentioned skills are to be applied in the existing teaching model despite critical thinking skills having no concrete unit of measurement. Thus, critical thinking is to be incorporated, applied and practiced by students. It is essential for lecturers to plant the approach for students to seek autonomy in the development of their critical thinking skills (Rodzalan & Saat, 2015).

Besides that, an important element in critical thinking skills is the need for interaction. The process of giving and receiving feedback molds the skill of consuming different perspectives on a similar matter. Thus, it is important for lecturers to note; in the event of online learning that interaction is still to be maintained. A common issue that arises from online learning typically involves the decrease of interaction and motivation in contrast to physical classes. Nevertheless, Lu (2021) has proven that a vital aspect in maintaining the development of critical thinking skills during online learning, is the interaction. Students require engagement and to have their attention drawn to the content. Therefore, among factors that affect critical thinking is the online platforms selected, the rate of interaction of each activity and to exchange feedback. Overall, the development of critical thinking skills requires practice, an appropriate learning environment, the type of learning activities and finally, the interaction between students and with lecturers.

Methodology

Research Design

Taking into consideration the research objectives and research questions, this research takes on the qualitative approach as the research design. As this research aims to investigate the experiences of pre-service teachers learning digitally for the past two years, a semi-structured interview was conducted to understand this phenomenon. A focus-group approach was used as the method of data collection.

Participants

Fifteen pre-service teachers took part in this research. These pre-service teachers are final year students from the Faculty of Education of two public universities in Malaysia. In terms of their teaching and learning, all of them experienced remote learning during the pandemic, where they were all learning via the ODL mode. A unique trait of the participants that is worth highlighting is the fact that they had experienced face-to-face learning, before they had to go into the ODL mode due to the pandemic. Having experienced the conventional way of learning and the ODL mode in their studies allowed for a more comprehensive view of the pre-service teachers learning experience that is deemed valuable for this research. Before the interview was conducted, the participants were briefed on the research purpose and assured on the confidentiality of information.

Instruments

As the study intends to investigate the pre-service teachers' experiences during the ODL, a semi-structured interview protocol was developed. The interview questions development were determined based on the research questions. Further to the process, the development of interview questions also took into consideration relevant literature review. The interview protocol included an icebreaker, the interview questions and closure to ensure the participants are allowed ample time to speak on their experiences.

Trustworthiness

Two methods were used to ensure trustworthiness in this research, which are member-checking and inter-rater checks (Yin, 2014). Member-checking was done at the end of the focus-group interview sessions to check if the perspectives of the participants were accurate. Once the data was coded and thematically analyzed, the data was then discussed with the research team to confirm that they agreed with the findings of the data. The inter-rater was

conducted by involving external experts to confirm the research team's analysis in terms of the categories and coding of the themes and the consistency in data interpretations.

Findings and Discussion

The following discussions provide the answers to the research questions. As stated at the onset of the research, the two research questions are;

1. What are the social learning environment features as perceived by the pre-service teachers?
2. How do the social learning features develop their critical thinking?

To answer the first research question, relevant excerpts from the interview transcripts were identified and analyzed in determining the perceived social learning features. Three social learning features emerged from the data analysis, namely a) lecturers' dynamics, b) lesson delivery and c) support for students when they are in a social learning environment.

a) Lecturers' dynamics

In any classroom environment, particularly one that focuses on social learning, aspects that revolve around the lecturers, or lecturers' dynamics, as we term it in this paper, is without a doubt, an important feature in determining the students' engagement in learning. The findings suggest that students in a social learning environment appreciate authoritative figures in lecturers and lecturers who are present in their teaching and learning.

In describing authoritative figures, the word assertive and aggressive was found to be repetitive in the interview data. Assertiveness is associated with lecturers taking a stand and making their points across clearly in the findings. In defining assertiveness, the Department of Health, Government of Western Australia indicated assertiveness as the ability to express oneself in a direct and clear manner, while still maintaining the boundaries of respect between individuals. Although assertiveness is at times viewed less preferably in the eastern culture, surprisingly this trait is one of the most appreciated communication style among lecturers in a social learning environment, as exemplified in the two excerpts below

The lecturers should be assertive when conveying information in online learning. They should be straightforward, direct, expressive, and emphatic. In this way, the students can easily understand the information given by lecturer.   *- Participant 7*

In my point of view, I love when lecturers convey the information verbally and visually. Besides, being assertive is a bonus.

- Participant 12

In analyzing both these excerpts from the participants, it could be suggested that the participants relate assertiveness with understanding the subject matter at hand. When lecturers are assertive, it indicates clarity in what is expected of the students, which may contribute to them understanding the lesson better.

Another word that is used among the participants to describe authoritative figure is 'aggressive'. Although the word 'aggressive' carries a negative connotation, the data could be interpreted as the students appreciating lecturers who are direct and straightforward in conveying their expectations to the students.

I think the aggressive style of communication is more effective because it will have students be submissive to the lecturer and the work given will be done without a second thought. This style is important because most students need the push and sternness to enhance self-discipline as online classes can cause them to be lazy.   *-Participant 11*

Communication style I would choose aggressive first followed by being friendly at times. For online classes, being nice never works. Otherwise, if the lecturer is aggressive and the language is on point, students tend to really focus. Fear is good at times.
-Participant 8

Besides being assertive, another feature that is closely related with lecturers' dynamics is availability of the lecturers, as exemplified in the excerpts below:

I think, to always be available when the students want to ask them questions regarding assignments or lessons. Because sometimes, students tend to have problems like understanding, maybe they are distracted because of their internet connection. I think the best support a lecturer can give during online learning is always to be available to help the students.   *- Participant 14*

I have to agree with Fakriah. Most of the times, I will never get 100% of the lectures during that time, right. I have to go back to the recording. Only then, will I get the- yeah.
- Participant 15

This is especially important when the social learning environment is done online, whereby communication may be asynchronous. The nature of asynchronous learning normally requires the students to be working at their own pace, where lecturers often take a backseat. The excerpt suggests that students in a social learning environment appreciate lecturers who are present, who are available to answer their questions when they need help.

b) Lesson Delivery

In determining the social learning features that was perceived by the students, two aspects in lesson delivery were also found, namely interactive platforms and the use of multimedia. In light of the findings from the interview, students indicated that they enjoyed learning more when their lecturers utilize interactive platforms during their teaching and learning activities. In other words, teaching should involve the students in knowledge creation, and no longer take the chalk-and-talk method as mentioned by the participants in the excerpts below.

They can reduce boredom in the online class by conducting interesting and interactive teaching and learning environment. For example, using Padlet/Moodle to create an active discussion, and/or using Kahoot for a competitive learning.   *-*
Participant 2

In my opinion, the lecturer can reduce boredom in the online class by using Kahoot! and Padlet so that all students can participate actively without having to turn on their mic and camera.   *- Participant 9*

I think the implication of educational online games such as Kahoot or quizzes will help reduce boredom in online classes. It is because it boosts competitiveness among students and enhances participation. -
Participant 11

I would say, using a lot of like, what do you call it- Kahoot, or anything like can bring visuals to the students. Instead of giving like, a full lecture. Yeah. Doing some games and like, quizzes after classes. That would help hence, the overall class engagement. -
Participant 15

It is interesting to note that the first three excerpts associated the usage of interactive platforms with reduction of feeling bored in class. The last excerpt above also highlighted how the increased class engagement when interacting platforms are used. Having found this, it is then crucial for lecturers to keep abreast of interactive platforms that could be used in class, since the findings suggest that the students appreciate the usage of these platforms.

Another salient finding in terms of lesson delivery was on how the usage of videos, animation, images and text helped the students to be more engaged and focused in class. Besides being engaged and focused, Participant 15 in the excerpt below also mentioned how the usage of these multimedia elements helped him to score better in that particular course. Again, similar to the previous finding, it is important for the lecturers to upskill themselves with multimedia knowledge to enhance their teaching material with the relevant tools.

An interactive video and attractive graphic animation help me to focus more on the screen during online learning. Plus, an interesting design of slides with a combination of text, audio, graphics, video and animation with an explanation affects me positively as I am able to have a better understanding and engagement of the lesson. -Participant 7

The use of text, graphics, sound, video and animation 100% makes a difference in me. I tend to just fall asleep if I find the slides not interesting while some lectuers who use animative features and creativity, the class is interesting as though the times goes fast.
- Participant 8

If animation is implemented in the class, I tend to be more focused and intrigued throughout the lesson. This enhances my participation in class as well. When the text and graphics are all well done it helps me read and be involved during an online class.
-Participant 11

I think animations is very important because sometimes even if we see the difference. Sometimes we see lecturers who only use very (basic) Powerpoint slides. Not to compare but as students, I think I prefer the ones that's like more animation, more colours to their Powerpoint. Even the margins sometimes, will also help us to focus on that particular lesson.
-Participant 13

Yeah. Honestly, it has a lot of impact. I still remember this subject where the lecturer used more animations. For that subject, I'm able to get a higher score.
- Participant 15

These findings resonates with the work of Azah et al (2020), where they suggested that in the world of Education 4.0, it is crucial for learning environment to be flexible. Taking on from this suggestion, it could be put forth that there is a need for educators to be flexible too. Educators or teachers must be open to learning new things, especially when it comes to incorporating technology in their online social learning environment. It has also been found that students thrive when their online social learning environment is bespoke to their needs, with the incorporation of discovery learning, problem solving, industry problem based-project, research-based learning, collaborative learning and cooperative learning (Azah et al, 2020).

c) Support for students

The third and final perceived social learning feature identified in the findings is in terms of support provided for the students. A common theme that emerged from the data analysis is that the support needed by the students was not in terms of infra or infostructure, but more inclined towards their wellbeing. The findings suggest that the support needed by the students range from mental support and the roles that lecturers can play in providing this kind of support to the students.

Lecturers can give support to students in online learning by always reminding them that you always care for them mentally. Students in online learning tend to overthink more than in face to face cause the environment is secluded and closed to just individuals. Mental motivation matters and from my experience, student perform better academically when lecturers understands them mentally and listens to whatever they feel like at any moment.
-Participant 8

Just understand students situation at the moment and open for suggestions I believe is enough for the students.   - Participant 1

The two excerpts above display how the online learning environment that they experienced was challenging for them and how having lecturers that are supportive in their mental wellbeing helped them to overcome these mental challenges.

Besides providing the students with the right mental support, the students also indicated how important it was for the lecturers to know the students' abilities and capabilities in handling an online learning environment. In this regard, the highlight is more on the infra and infostructure that the students have or do not have in embarking in an online learning environment, as mentioned in the excerpts below.

It's very important because some of my friends, they are using phones during (to join) classes. So, they can't open too many tabs. Having lecturers who know what devices they have and what they are capable of doing at that time is very important. And sometimes, there are some of them who work at that time so having a lecturer who understands it is very important.   - Participant 14

Yes, I definitely agree that the lecturers should be aware of the students' abilities and capabilities. The first one is like, the capabilities of them receiving the knowledge. The learning session. Let's say, do they have the devices? Do they have a good learning environment? Sometimes you know, the house can be quite loud so like, yeah, it's bothering.
- Participant 15

In providing answers to the second research question, relevant interview excerpts were analyzed to determine how the pre-service teachers' critical thinking could be developed. Indirectly, these findings provided the implications on how social learning could leverage critical thinking development among the pre-service teachers. Two themes emerged from the analysis, namely a) lesson delivery and b) learning activities that could facilitate critical thinking skills among pre-service teachers.

a) Lesson Delivery

In delivering lessons that would encourage students to think critically, the focus should be on the teaching approach, teaching style and the activities that are conducted during the lessons. The findings of the research suggest that any teaching approach that encourages problem solving is effective in training pre-service teachers to become critical thinkers as mentioned by the participants below:

Problem solving questions are able to help students apply their critical thinking skills as they have to provide solutions for the questions.
- Participant 9

Providing the solutions to problems presented during the lesson is perceived as a tool to enhance the students' critical thinking skills. This suggests that teacher trainers attempting to enhance their pre-service teachers' critical thinking may want to include more problem-solving approaches in their teaching.

Besides the teaching approach, another consideration that should be taken into consideration by teacher trainers in designing social learning environments that enhances critical thinking is their teaching style. Among the teaching styles that was found to be facilitating critical thinking in this study are asking questions, giving examples and using collaborative teaching strategies.

Asking questions seemed to be a popular answer among the participants

When I am assigned of those complex questions, it made to think critically by first identifying the problem and making sure the problem I focus on is the right one.
- Participant 8

When the quizzes or questions require answers that are not in the lecture, it requires students to think and find reasoning for the answer.
- Participant 6

The data from Participant 6 and Participant 8 indicates how questioning by their lecturers help them think critically, as they try to think to answer the questions. Participant 8 is slightly more aware of his process of answering questions, whereby he mentioned how he tried to ensure that the problem is identified accurately for him to answer the questions. It is interesting to note another finding from Participant 13 who described how the lecturer's questioning skills builds up from asking questions that the students are familiar with first, before moving on to more challenging questions.

For me, I think is when the lecturer, their questioning skills- when they ask things that we know first, things that we have learnt through the lesson. And then, the lecturer will increase the question bit by bit. -
Participant 13

In essence, what Participant 13 is trying to convey is how this way of questioning will allow students to engage themselves with effective critical thinking skills.

In delivering lessons, it is also found that the pre-service teachers appreciate having the collaborative-cooperative teaching strategy in helping them become more critical in their thinking. When asked on their opinions on teaching strategies that may help with developing students' critical thinking skills, Participant 2, 3 and 5 both think that collaborative teaching and cooperative learning helps them to think critically by learning from one another.

Collaborative teaching strategy is the best method to improve the students' critical thinking skills because they are to work in group and exchange their opinions for a better understanding towards a particular subject. -
Participant 2

Cooperative learning. The students can exchange information and ideas through their group discussions. - *Participant 3*

The lecturer used cooperative learning. The students worked together such as discussed on the assignment as a group, to resolve problems together and to achieve common goal, which is to complete the assignment. -
Participant 5

Finding out that these pre-service teachers still value collaborative/cooperative learning despite it being around for many years, indicates the impact that collaborative/cooperative learning has on the pre-service teachers' critical thinking and social learning environment. The classical Vygotsky's Zone of Proximal Development is still relevant as we examine this context, whereby the pre-service teachers still believe that they can progress in their learning through learning from an expert-other.

b) Learning Activities

When it comes to learning activities that could help their critical thinking development, the pre-service teachers cited online learning forum boards as being the ones they find most helpful.

Forum on e-Learning. Not only it helps me to think critically but also creatively and rationally in order to reply and/or respond to my friends' questions and/or opinions.
- Participant 2

Through forums and online discussions, we were required to problem-solve. Through these activities, we need to come up with solutions and opinions.
- Participant 3

For instance, creating a forum discussion on Google Jamboard allows the students to give out and express their own opinion while taking a look at their friends' opinions. This can help them to improve their critical thinking skills.

- Participant 7

Drawing conclusions from the previous findings, this particular finding echoed the same sentiment where value was put on the discussion that they carry out with their friends on the forum boards, which in turn helps to shape their critical thinking skills. Responding to their friends' questions and arguments were seen as the push factor for the pre-service teachers to critically think about their responses. In analyzing social interaction among students in an online learning environment, Chen, Chang, Ouyang and Zhou (2018) posits that in order for students to succeed, quality social interaction needs to occur. Maor (2003) echoed similar opinion in his description of building a community of learners where he actively read, synthesize and respond to the postings on the online forums. Hence, these online learning forums will enable the students to be critical thinkers, but only if the interaction that occurs is of high quality.

Another learning activity that was perceived to help their critical thinking skills is presentation. This finding is relevant to the earlier findings whereby the pre-service teachers mentioned about how questioning helps them to become better critical thinkers. The general consensus when asked whether presentation tasks help them to think more critically, most of the participants agreed as exemplified in the excerpts below.

Yes, it is important because lecturers would ask a lot of questions about our presentation. With critical thinking ability, we would easily answer the questions asked by lecturer.

- Participant 4

Critical thinking is important during presentation, as one will be more ready to react to receiving impromptu question and answering the questions without hesitation.

- Participant 5

Yes it can explore deeper problems because students need to do tones of research before they present their slides. The failure of doing so might make students have low confidence level during the presentation, as they are unable to fully understand the content.

-Participant 9

Yes. This is because then one can explain and answer questions by the lecturer as they have a better understanding of the topic. This will also help the students build their confidence and not be nervous during presentations, as they are well prepared.

- Participant 11

From this excerpts, it can be seen how presentation tasks can help students to develop their critical thinking skills before and during the presentation itself. As mentioned by Participant 9, the research and preparation done leading up to the presentations have engaged them in critical thinking, as they want to be fully prepared before facing the audience. Again, as mentioned in the earlier findings, questioning becomes essential in developing critical thinking skills as presentation tasks is often loaded with questions from the audience and the lecturers. Lu (2021) identified several conditions that could promote critical

thinking, one of it being interaction and collaboration. A presentation task fulfills this criteria where students will be interacting and collaborating with their peers before, while and after the presentation is done, which in turn aid them to develop their critical thinking skills.

Implications

The study set out to determine the selected pre-service teachers' perceptions of social learning and how it could develop their critical thinking. The pandemic had led students to embrace their learning in a new norm through the use of digital platform. This in turn, made students to familiarize themselves with social learning environment. Various past studies conducted on the effects of the pandemic and the use of digital technology in teaching and learning have suggested the potentials of social learning in facilitating students' development. In light of the salient findings the present study had presented, many implications could be proposed. As the perceptions of social learning and how it could develop the pre-service teachers' critical thinking were studied, implications leading towards the betterment of the teaching and learning process itself and curriculum seem fitting. First, lecturers' dynamics were perceived as a feature that led to successful lessons conducted via the social learning environment. This brings about the need for further in-house training or professional development for the lecturers in managing their lessons in the social learning environment. Higher education institutions could seriously look into investing trainings on digital teaching and learning and digital technology in education for their academics. Next, as lesson delivery was also perceived as a feature that made their social learning environment a conducive one for meaningful learning, the implication could also be seen on the need of the lecturers to have the competency in conducting their lessons and deliver their subject matter via social learning environment. The third perceived feature is related to the psychological support required by the students compared to the need for infrastructure and infostructure support. This echoes well with the first two features identified from the study. What could be implied is institutions could consider investing more on equipping the lecturers with relevant skill and knowledge aside from investing in the physical aspects such as the infrastructure and infostructure. There seems to be a need to focus on the specific competencies to handle the students, the lesson and the assessment besides the technical know-how by the lecturers. The claims made by Hankerson, Venzke, Laird, Grant-Chapman and Thakur (2022) confirm the suggestion for this implication.

As the study needed to confirm whether students' critical thinking could be developed in the social learning environment, it could be implied that there are various advantages of social learning environment that direct towards the development of their critical thinking such as active student engagement through activities conducted online and the delivery of the subject matter contents across time and space. Lu (2021) and Mshayisa (2022) have concurred student interaction and engagement are one of the obvious advantage of social learning. This implication that could be drawn from this findings is that, the curriculum review need to factor in the features of social learning and its environment that facilitate the critical thinking. Lecturers could be affirmed of the potential of social learning especially when they know relevant tasks and questions to give and pose respectively to their students via the social learning environment as suggested by Kümmel, Moskaliuk, Cress and Kimmerle (2020). Considering the potentials of social learning on students' critical thinking development, perhaps it is high time policy makers and curriculum developers to embed the need for digital technology in education aside the social platforms available in the curriculum aside from the training required for the lecturers in upskilling their competency in teaching and learning.

Conclusion

Pandemic has taught us many things and one of them is how we should embrace the digital technology as a way of life. Much research has been conducted these few years to ascertain the best was to approach teaching and learning either during the pandemic or endemic. It is certain that changes are constant and the ability to be responsive to the changes is essential. This article has somewhat aspire to the notion that digital technology is the norm in teaching and learning. Hence, the search on how to improve the teaching and learning process vis-à-vis the digital technology is a constant quest of every scholar. This article has specifically looked at how social learning features in the digital platform could promote students' critical thinking skills. Some implications have been proposed and yet still plenty of rooms for further research on similar research concern.

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