Article

Augmenting Communicative and Collaborative Skills in an ESP Online Group Project

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Abstract: Rapid technological advancements have resulted in a more user-friendly conducive virtual learning environment. Despite a vast corpus of research on online learning utilising an asynchronous online forum (OF) to improve English, studies on OF to improve English and develop 21st-century skills of communication and collaboration at the university level in Malaysia are still limited. This paper reports the use of OF via a learning management system (LMS) as a platform for teaching and learning in an English for Specific Purpose (ESP) course. This study comprised 26 participants from a public university to look at how OF was implemented in an ESP course to enhance communication and collaboration. Data from interviews and reflective journals were obtained from the participants during their involvement in OF. The findings of this study demonstrate that using OF helps students enhance their 21st century skills like communication and collaboration. It is evident that OF can become a recommended platform for enhancing students to improve 21st century skills based on the promising responses received from the participants in this study. The findings also suggest that OF is relevant for engagement of the language learners and may be worthy to be implemented in English courses or other courses tertiary level.

Keywords: teaching and learning, 21st century skills, communication and collaboration, ESP classroom, online forum.

Introduction

Rapid developments have characterised the 21st century in various domains, including the global economy, technology, culture, society, and education. Education has constantly grown and evolved, necessitating educators to provide students with soft skills in relation to the 21st-century learning skills that will prepare them to confront future difficulties in a competitive world. Educators have significant roles to play in teaching and training a generation to live and thrive in the 21st century. This is also in line with the fast-evolving technologies in the current global workforce. Hence, educators need to rethink how best they can offer their courses by incorporating 21st century skills to benefit students especially at the tertiary level.

Over the past few years, research into virtual learning platforms have increased significantly, as it is one of the most often used tactics in computer-assisted communicative and collaborative learning activities (Biasutti, 2017; Lämsä et al., 2021; Sun et al., 2017; Sun et al., 2018). The Partnership for 21st Century Skills is one of the most extensively utilised frameworks by educators to emphasise the relevance of 21st century skills in learning (P21). Pardede (2020) divides 21st century abilities into three categories: learning, innovation, and communication. The second group includes literacy skills. The third category is life skills. The first category is based on collaboration, communication, collaboration, creative thinking, and critical thinking. Students' capacity to deal with information and technology is included in the second group. The third category covers personal and professional abilities that are necessary and important. Communication,

collaboration, critical thinking, problem solving, and technology and digital literacy are prioritised in this paradigm. Students today are expected to be acquainted with information, media, and technology-related abilities because they are digital natives and live in a technology and media-driven environment (Partnership for 21st Century Learning, 2019). According to the concept of education in the 21st century, educators should take the lead in integrating technology into classroom routines (Langworthy, 2013; Amran & Rosli, 2017) and establish instructional strategies for assisting and supporting learners' progress toward 21st century learning goals (Huang et al., 2019). This is to ensure that learners possess the necessary 21st-century skills to make them capable of coping with the modern features of global life that have been impacted by such developments (Afandi et al., 2019; Buletin Anjakan, 2015). Thus, 21st century teaching methods should be used to promote these crucial abilities (Osman et al., 2016) of communication, collaboration and critical thinking skills. Thispaper attempts to understand better communication and collaboration skills in the context of an English classroom with a focus on the 21st century skills.

1. Domain of Communication skills
- The ability to successfully convey thoughts and ideas in a variety of situations via verbal, nonverbal, and writing communication.
- The ability to comprehend while accurately interpret the values, attitudes, and objectives of what they listen to.
- The ability to effectively use of media and technology for a wide range of objectives and contexts.

2. Domain of Collaboration skills
- The ability to work together effectively and respectfully with diverse individuals.
- The adaptability and willingness to negotiate with colleagues to achieve a common goal.
- The obligation to carry out the responsibilities and to be appreciative of the contributions of others in a group.

Related Literature

The introduction of new technological tools has permitted the merging of several learning environments, such as conventional face-to-face learning and virtual learning, ultimately increasing people's opportunity to acquire a second language (Güzer & Caner, 2014). Alzahrani (2017) asserted that the OF allows learners to collaborate and exchange knowledge and learning experiences as they learn from one another through social engagement in the forum. Meanwhile according to Dailey-Hebert (2018), using OF as a tool facilitates input from instructors and students, allowing them to communicate more efficiently and productively. Learners can receive timely response and comments since Internet technologies are easy to reach. In the classroom, instructors have attempted to incorporate technology into the teaching and learning process by using virtual learning platforms like as OF. Due to the fact that digital platforms allow exchanges between instructors and learners or learners and learners even when they are geographically apart from each other and do not participate at the same time (Pramela & Supyan, 2015), they promote both inquiry-based learning and independent learning. OF is regarded as a medium for expanding language learning because of its limitless learning area and duration, allowing learners ample time to evaluate and practise the language learnt in class (Supyan, 2008). Thus, OF, as a free and accommodating learning platform, offers learners a variety of tools that permit them to communicate and work with instructors and peers, as well as access instructor-provided courses. Furthermore, when people debate a topic and reach opinions or conclusions, OF platforms foster teamwork among participants. According to the findings of an analysis by Osborne et al. (2018), the contribution made by learners in the discussion forums demonstrates that there is substantial evidence of collaboration among learners in the online learning environment. De Lima (2019) and Zhong and Norton (2018) noted in the same vein that online written text-based communication fosters collaboration and improves the learning process among students.

The studies discussed here strongly advocate instructors to integrate technology into the classroom by using an online platform such as OF. Since previous studies in tertiary level context are limited to demonstrate how such process of teaching and learning can be beneficial, this study is an attempt to investigate students' insights towards the implementation of online learning platforms in their group project with a focus on communication and collaboration skills.

Methodology
1. Context of Research Study
The ESP course chosen as the context for the study is English for Business that aims to provide opportunities for students to improve their written communication skills to better prepare themselves for a real-world job environment. The class is held for 180 minutes per week per semester (14 weeks). 3 online OF sessions were scheduled via the university LMS over the course of the 7 weeks (Week 1, Week 3, and Week 5) as part of the technology integration to engage students directly with the language in cultivating communication and collaboration skills.

The project task is to plan and prepare a Business Company Profile Document (BCPD) which requires students to communicate and collaborate using the OF with the guidance of the course instructor. Business Company Profile Document (BCPD) is a group project assigning students to perform and execute in OF. The principle goal for introducing this activity was to create conditions that were similar to real-life situations in which executives collaborated on joint projects. They had to communicate with one another in order to share ideas, report on progress, and make decisions. In this context, the task created many opportunities for searching and exchanging information, stimulating interaction among members, encouraging strong collaboration (to discuss, strategize, share responsibility, and so on.), negotiating, and decision-making, all of which can assist to develop skills in searching and analysing information.   Apart from that, students could improve their English linguistic competence by developing and completing this project via virtual platform exchanges. Hence augmenting the ideal setting to maximise student engagement to help improve the target language.

2. Research Design
This paper focuses on how such OF may be used as a learning tool to enhance tertiary level students in becoming "communicator and collaborator" by presenting a case-study research methodology that investigates the perceptions of students. Correspondingly, this paper also delves into the experience from the students' point of views. According to Yin (2009), this methodology is best suited to situations in which the research is attempting to answer a 'how' issue in the present; in this case, how students perceive 21st century skills of communication and collaboration through discussion activity in an online environment via OF.

3. Sample
The participants in the study consisted of 26 undergraduate students majoring in multiple business background programmes. These students ranged in age from 21 to 29 years old with experience in using OF. The students were chosen from among 20 classes, which represented the entire number of students enrolled in the course. Rather than generalising the acquired data to the full population, the researchers used criterion sampling to get complete data. The students were chosen based on the study's requirements, which included computer and internet knowledge, accessibility, participation, and English language competency. Pseudonyms were used to represent each participant for privacy reasons.

4. Data collection
The instruments included responses from students' journals, in-depth interviews and interpretation of students' texts via OF postings. However, only data from students' reflective journals and individual interviews are used in reporting the findings.

The data from reflective journals and individual interviews were collected to allow student participants to express their feelings and thoughts about their English language learning experience while constructing their BCPD group project with the OF and to share their development of communication and collaboration skills. After each OF session, the student wrote three entries in their reflective journals. Toward the end of the

study's execution (week 10 and 11), the face-to-face interview individual interview was conducted with the student participants. The section that follows contains information about the study techniques that the lead researchers abided throughout data collecting process.

Findings and Discussion
This section highlights and describes the findings of the study.

1. OF nurtures 21st Century skills of Communication and Collaboration
Analysis of the students' reflective journals and interview data revealed that most of the student participants perceived that OF fostered their communication and collaboration skills. Students experienced active engagement through online group discussion, maximise use of English to practise the target language and expand networking in the collaborative group form as they communicated, constructed and shared ideas while doing group discussions to execute and complete their BCPD final project. The extracts share how student participants (Student 5, Student 23) respond to this.

Student 5 mentioned that during class group discussion activities, their group did not fully utilise the English language because it was only used sporadically. However, they were able to actively discuss the posted topic and practise English language throughout virtual OF sessions, which he felt has helped him and his group members improved their communication skills in terms of English language competency in the long term. Thus, it is evident in terms of active language used virtually, ODF provided students with more opportunities to experience an engagement and connection with their learning and other students compared to in-classroom group discussion.

> *we are seldom using English to communicate with friends in class. But, we have to use English to communicate in online discussion forum. Indirectly, it helps us to practice and improve our communication in English language.*
>
> (Student 5, reflective journal 2)

Similarly, Student 23 stated that her communication skill has increased after engaged in interaction with her team members to discuss their group assignment via OF. Simultaneously, she stated that her collaboration skill has improved as a result of her interactions with others. She further elaborated that the ability to collaborate as a team provided her an advantage in terms of networking expansion.

> *I can directly improve my communication skill by discussing with my group member about project topic. I can develop my collaboration skill by having interaction with others and at the same time, it can enhance my network with other people.*
>
> (Student 23, reflective journal 2)

The current findings demonstrate the value of using the OF as a technique to increase student involvement and stimulate interaction among group members in response to specific issues. Asynchronous forums were found to be important in fostering students' communication and collaboration skills which aligns with study by Zhong and Norton (2018).

Apart from that, student participants felt that the group discussion using OF to finish their projects throughout the semester facilitated communication practise. OF is also excellent for encouraging students to feel more motivated to practise more interaction when their BCPD projects were to be made display and to be read by other members of the class. OF was not only a medium for them to engage in communicating with one another but to read comprehensively so that they could share and discuss their readings and respond to the posted questions by other members. Student 9, Student 19 and Student 11 shared their viewpoints in the following extracts.

I think it's a good platform to grow our communication more because in online learning we can share anything about our project like photo, link websites so our friend can view what we posted, and we can talk detail about our project.

(Student 9, reflective journal 1)

the online forum is useful for us to support ideas of what we shared in the team as they can look at the discussion. This also can increase our interaction more

(Student 19, reflective journal 2)

online discussion forum actually not only place for us to, together practise uhh interaction together, but uhh make us to read alot and also to search for the information, from many many internet sites.

(Student 11, individual interview)

In addition, using OF in group discussion also empowered and trained several students to work well with other students as an end product of both skills enhancement. Working in team required them to support each other in ensuring the group project was accomplished successfully as asserted by (Student 2) in her reflective journal. Furthermore, students expressed their satisfaction to accept OF platform into their EBPC course in discussing their group activities as society currently demanded such skills. Few of the students discussed the importance of these skills in their future profession (Student 23, Student 14, Student 11). Their participation in the OF prepared them for future endeavours as they will enter the workforce as they considered that every scenario in people' lives necessitate effective communication practise. Thus, they believed connecting and blending with other people around them, demonstrated through effective communication expanded their network. On another note, Student 11 further asserted that in the near future, every organisation will use the Internet as a platform to transmit information and connect with others. There will likely be a rise in the number of companies seeking global partnerships as people utilise internet forums such as online forums and Skype to connect and work with others through the dissemination and sharing of information. Extracts from (Students 2, Student 23, Student 14, Student 11) are presented to support this.

When working in teamwork using online discussion, we need to cooperate with each other and understand our group members and do not be a selfish person, so that we can make sure our task can be completely well.

(Student 2, reflective journal 2)

It's important because in the future, we would...uh, we would not be working alone...we'll be working in a company, getting to know more types of people so I think, uh...now is a good practicing ground for us to learn to work together, interact with each other and enhance our collaboration.

(Student 23, individual interview)

I have increased my collaboration skill from the several online discussion sessions. The skills can be used for my future career. Therefore, I learn how to adjust and adapt to my surrounding people, and I can increase my networking. A learning experience that can be applied to other areas of my life is how to communicate with other people. Communicating is very important in every situation in our life. Good communication can show how the people can adapt to other people.

(Student 14, reflective journal 3)

it increases my skill to communicate with people, to, uh, make, uh, relationship, collaboration, to work in the team. I'm sure that later on, uh, every company will be using most online as a platform to, uh, deliver the information, to communicate with others, so…mesti ada (there will be) company yang akan (that will be) looking, make collaboration with the international people, so they're using…nowadays they're using media like online forum or Skype in order to communicate with others, to deliver and share the information to work together.

(Student 11, individual interview)

The findings postulate that OF offered a platform for the student participants to enhance their communication and collaboration skills. Whenever language learners are required to communicate beyond the

classroom and in a natural setting, they strengthen their communication skills (Choi and Nunan, 2017). In this study, the student participants were required to communicate fully in English not only outside of the classroom, but also with group members from different majors, genders, and races, representing a culturally varied context. As a result, when diverse learners gathered, they did their best to practise English as the sole language that would connect them. Furthermore, student participants interacted with their partners via OF platform and by using the platform, it requires student participants to gain knowledge and develop skills not just in computer use but also in communicating and collaborating with diverse people via electronic devices (Beldarrain, 2006; Pheeraphan, 2013).

The findings also demonstrate that student participants in the study were placed in authentic learning contexts in which they were required not only apply classroom knowledge to real-world situations, but also use 21st-century skills such as communication and collaboration to complete their projects. Their participation in online learning activities through OF afforded them the opportunity to utilise and hone valuable skills when they enter the industry. The ability to communicate and collaborate is essential in a global world with a multicultural population; these abilities must be taught to prepare students for further education and their employment (Kay & Greenhill, 2011; Kivunja, 2015).

In order to prepare learners for their future careers, Erdogan (2019) and Miller (2016) emphasised the value of incorporating 21st-century skills, such as collaboration, communication, and digital skills, into the curriculum on a daily basis. Students must be taught the interpersonal skills necessary and required in the 21st century workplace. Collaborative technological tools can facilitate the development of 21st-century skills. Collaboration is an essential aspect of excellent learning outcomes (Martinez-Caro, 2011). The capability to work together with others in online environments using technological tools is a skill that is distinctive to students of today. Course instructors must integrate technology to facilitate communication, interaction, and collaboration among learners. As digital citizens, learners must be able to collaborate with individuals from all over the world and be prepared for a contemporary career.

Moreover, the findings also indicated that OF enabled learners to provide responses to each other's remarks and allow them to collaborate better which build strong relationships among them. It was discovered that employing OFs increased collaborative learning in a variety of ways; all student participants fulfilled the learning objectives collaboratively, responded to each other's questions, and discussed subjects as a team more (Student 9) even though the opinions made in the group were not mostly reciprocally in agreement with other teammates (Student 2). All these act and execution were believed to be eventually and potentially enhanced the student interrelationship among themselves since they gathered in physical classroom and talked what transpired on the OF (Student 7). The extracts below elucidate the notions:

> *Online discussion helped me and people in my group get closer, to have good friendship. I liked it, like when they replied to me, and then we talked, interacted, even we still talked about online things when we were in class.*
>
> (Student 7, individual interview)

> *As we talk to each other through online, we can make our group relationships become stronger.*
>
> (Student 5, individual interview)

> *When I was able to give good ideas and share information in my group, I got better at communicating and working with others. I think this made my work became easier as I understand more how to do the assignment.*
>
> (Student 9, reflective journal 2)

> *I could give reasonable thoughts to my team, even if they not always agree with my point.*
>
> (Student 2, reflective journal 2)

On a different note, student participants were feeling positive because they considered that using the OF platform would improve collaboration in terms of constructing and sharing knowledge, allowing them to better grasp the entire process of successfully completing group project (Student 18 and Student 10). Using OF in the group discussion would assist them for instance, in creating ideas and explaining contents to one

another and filling knowledge gaps within the group in which they worked. This allows the learners to develop skills that they will be able to use on their own to develop another skill which is critical thinking. Simultaneously, it would also make the student participants easier to receive answers to all of questions addressed via ODF without having to approach the instructor stressed Student 11.

> *we can improve the skill of critical thinking and collaboration...and for the communication skills, it can...because using formal, formal English in discussion, we can increase communication, some more for create idea for company profile project, we need to really, really think carefully...all of us must think to finish the project, so doing like this we can improve our thinking*
>
> (Student 18, individual interview)

> *It's like teamwork for a group member and we collaborate to do assignment like this...we need to...how to say...need to come out the original point together and not only one person thinking the points or thinking the project how to do. I think online discussion forum can make us think critically too, is the way that we can...give the different points, reacting to each other answers and questions that they think is okay to put in the group project.*
>
> (Student 10, individual interview)

> *It has helped us to collaborate, uh...when we, you know...when we reply to each other's questions and ideas. No need to ask lecturer.*
>
> (Student 11, individual interview)

From the above findings, student participants can generate new ideas by sharing information with one another. As a result, developing learners who are actively engaged in learning when they are able to create new ideas and contribute significantly to the discussion (Jamali & Krish, 2021) especially in a collaborative group work. Thus, asynchronous discussions have also proven to be essential for online courses as they are versatile and adaptable techniques in providing learners with opportunities to communicate and discuss issues with each other learners' needs. Many types of digital milieus are commonly employed by progressive educators to assist learners in various ways. The use of OF in particular, encourages learners to engage in discussions that can lead to higher knowledge co-construction when reflective and critical thinking are applied (Goh, 2019; Jamali & Krish, 2021) through communicative and collaborative discussion activities in a group.

The findings also demonstrate that the usage of OF increases successful learning when learners share ideas and build reciprocal understanding. Clearly, OF is an efficient tool that gives a platform for learners to collaborate on subject-related tasks in order to improve their understanding and apply the knowledge which they have acquired (López-Pérez et. al, 2013). All of that is made easier by the use of computers, which allow learners to collaborate on their ideas for greater learning, thus, improve their communication and collaboration skills. This supports Alzahrani's (2017) assertion that the online discussion forum encourages students' ability to collaborate and exchange learning experiences, showing a transformation from basic to complex learning as students interact in the forum. On the basis of this argument, it is advocated that OF be viewed as a possible answer to the difficulties emerging nations face in preparing students to meet the expectations of the globalised world (De Lima, 2019).

Nevertheless, the majority of the student participants acknowledged that using OF provides convenience, which has an indirect impact on their communication and collaboration skills development. They argued that because online learning requires computers and the Internet, which are accessible at any time and from any location, it provides convenience. The students emphasised that by discussing the group project using OF, they can access and find important material to complete the project task smoothly. As a result, they consider that the accessibility feature is one of the benefits of using OF to assist them in their learning while accomplishing the CP assignment and to cultivate their communication and collaboration skills. Clearly, using online learning platforms provided substantial advantages.

*online discussion was **very flexible to use**, and the most important thing is..it's..it can be accessed **at anywhere location when..as long as we have an internet connection.***

(Student 2, individual interview)

*online discussion that's **help a lot since I can do it in between the time frame from anywhere and everywhere**. So **it's quite convenient** I would say.*

(Student 12, reflective journal 1)

*What did I like was that **I could access the online forum anytime, anywhere. There was no specific time and place at all.***

(Student 5, reflective journal 1)

Another concern regarding the convenience of using OF in executing students' BCPD group project to develop their communication and collaboration skills was the connection they formed when members of a group were separated (in space and time). Despite not being in the same location or at the same time, they were able to have connection by asynchronous discussions via OF to contribute, collect, and disseminate essential information in the process of composing the contents of their BCPD group project. Consequently, they shared their experiences of researching and investigating, as well as accumulating information and recognising various resources. As learners gained more understanding about a topic, advanced searching strategies were observed. More relevant keywords were also utilised throughout the source search due to their familiarity with the subject. This is consistent with the findings of Gnida (2017), Ruhil Amal et al. (2018) and Pramela et al. (2014), whose students worked in an online learning environment were able to communicate by sharing their tasks and collaborate searching for the best ideas to be included in their group project using OF as a supplementary to face-to-face learning.

Technology supports research and is a necessary component in completing assignments and projects. When further information is required for learning, resources can be downloaded from a variety of websites. The usage of OF in this study has opened up a lot of possibilities for improving teaching and virtual interaction among students (Wu & Yu, 2009). This allows students to develop skills that they can utilise to create 21st century skills on their own. Therefore, utilising OF to augment skills, motivates learners more effectively. Students are embracing a new 21st-century learning paradigm that encourages them to be active rather than passive learners. This shift in focus has allowed instructors to be more flexible in their delivery and learners to explore new ways of learning. Howlett et. al (2016) found that true transformative learning may happen within a 21st century teaching approach, and that students can sustain what they learn.

Conclusion

Educators may focus on promoting better understanding and engaging students with practical data and tools as part of the educational support system. Educators should be able to include the use of supportive technology that fosters the development of 21st century skills into their learning practises. Instructors and learners can use technology tools to aid language learning because language learning should not take place solely in the classroom. Educators should balance pedagogical practice with the use of technology. Through the effective use of a virtual learning platform, students are engaged in communicative, collaborative work, and real-world problem solving. Students can learn how to develop their communication and collaboration skills, as well as how to effectively articulate their own perspectives and ideas which are important skills in today's competitive and globalised world. Overall, English language instructors can propound activities with specific guides that can be utilised in the classroom to transform their teaching practices in order to improve these skills to better educate global citizens who can then contribute to the betterment of society.

English language teachers should provide students with practices and processes which focus on 21st century learning skills like collaboration and communication. To meet the challenges of the modern workplace, English lessons should not merely focus on English skills only, but also incorporate these skills into the teaching-learning process. Thus, the findings may be beneficial to allow educators understand ways to instil such skills effectively into English classrooms using OF and maximize English learning experiences.

References

Afandi, A., Sajidan, S., Akhyar, M., & Suryani, N. (2019). Development frameworks of the Indonesian partnership 21st-century skills standards for prospective science teachers: A Delphi study. *Jurnal Pendidikan IPA Indonesia*, *8*(1), 89-100.

Alzahrani, M. G. (2017). The effect of using online discussion forums on students' learning. *Turkish Online Journal of Educational Technology-TOJET*, *16*(1), 164-176.

Amran, N., & Rosli, R. (2017). Teachers' understanding in 21st-century skills. *Prosiding Persidangan Antarabangsa Sains Sosial & Kemanusiaan.*

Azmuddin, R. A., Nor, N. F. M., & Hamat, A. (2018). Using iREAD in understanding online reading strategies applied by science and technology students. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, *13*(3), 18-32.

Beldarrain, Y. (2006). Distance education trends: Integrating new technologies to foster student interaction and collaboration. *Distance Education*, *27*(2), 139-153.

Biasutti, M. (2017). A comparative analysis of forums and wikis as tools for online collaborative learning. *Computers & Education*, 111, 158–171.

Buletin Anjakan. (April, 2015). Ciri-ciri pembelajaran abad ke-21. *Pelan Pembangunan Pendidikan Malaysia 2013-2025* (pp. 2.).

Choi, J., & Nunan, D. (2018). Language learning and activation in and beyond the classroom. *Australian Journal of Applied Linguistics, 1*(2), 49-63.

Dailey-Hebert, A. (2018). Maximizing interactivity in online learning: Moving beyond discussion boards. *Journal of Educators Online*, *15*(3), n3.

De Lima, D. P., Gerosa, M. A., Conte, T. U., & Netto, J. F. D. M. (2019). What to expect, and how to improve online discussion forums: the instructors' perspective. *Journal of Internet Services and Applications*, *10*(1), 1-15.

Erdogan, V. (2019). Integrating 4C skills of 21st century into 4 language skills in EFL classes.*International Journal of Education and Research, 7*(11), 113-124.

Gnida, A. (2017). The effect of online discussion forums on student participation and engagement. Master of Arts, Curriculum and Instruction, Caldwell University.

Goh, L. H. (2019). Understanding online learner knowledge building from discussion forum analytics. *CALL-EJ, 20*(3), 62-76.

Güzer, B., & Caner, H. (2014). The past, present and future of blended learning: an in depth analysis of literature. *Procedia-social and behavioral sciences*, *116*, 4596-4603.

Howlett, C., Howlett, C., Ferreira, J. A., Ferreira, J. A., Blomfield, J., & Blomfield, J. (2016). Teaching sustainable development in higher education: Building critical, reflective thinkers through an interdisciplinary approach. *International Journal of Sustainability in Higher Education*, *17*(3), 305-321.

Huang, R., Spector, J. M., & Yang, J. (2019). *Educational technology a primer for the 21st century*. Springer.

Jamali, M., & Krish, P. (2021). Fostering 21st century skills using an online discussion forum in an English for Specific Course. *Malaysian Journal of Learning and Instruction, 18*(1), 219-240.

Kay, K. & Greenhill, Valerie. (2011). Bringing schools into the 21st century. In D. Gut(Ed.), *Twenty-first century students need 21st century skills* (pp. 41-65).

Kivunja, C. (2015). Exploring the pedagogical meaning and implications of the 4cs "super skills" for the 21st century through Bruner's 5e lenses of knowledge construction to improve pedagogies of the new learning paradigm. *Creative Education*, *6*(2), 224-239.

Lämsä, J., Hämäläinen, R., Koskinen, P., Viiri, J., & Lampi, E. (2021). What do we do when we analyse the temporal aspects of computer-supported collaborative learning? A systematic literature review. *Educational Research Review*, 100387.

Langworthy, M. (2013). 21st Century learning design: Learning that matters. Retrieved from https://www.internationalpublishers.org/images/pressreleases/EducationalPublishing/m_langworthy.pdf

López-Pérez, M. V., Pérez-López, M. C., Rodríguez-Ariza, L., & Argente-Linares, E. (2013). The influence of the use of technology on student outcomes in a blended learning context. *Educational Technology Research and Development*, *61*(4), 625-638.

Martinez-Caro, E. (2011). Factors affecting effectiveness in e-learning: An analysisin production management courses. *Computer Applications in Engineering Education*,19(3), 572-581.

Miller, S. (2016). *Implementation of the 4cs of 21st century learning skills within the blendedcoaching model* (Order No. 10119299). Available from ProQuest Central. (1805321719).

Osborne, D. M., Byrne, J. H., Massey, D. L., & Johnston, A. N. (2018). Use of online asynchronous discussion boards to engage students, enhance critical thinking, and foster staff-student/student-student collaboration: A mixed method study. *Nurse education today*, *70*, 40-46.

Osman, B. H. A., & Basar, M. N. (2016). 21st Century teaching and learning practice among lecturer at Institut Pendidikan Guru Kampus Ipoh. *Dedication Research Journal.* Jilid 10.

P21. (2019). Framework for 21st century learning definitions. *In partnership for 21st century learning* https://static.battelleforkids.org/documents/p21/p21_framework_definitionsbfk.pdf

Pardede, P. (2020). Integrating the 4Cs into EFL integrated skills learning. *Journal of English Teaching*, *6*(1), 71-85.

Pheeraphan, N. (2013). Enhancement of the 21st century skills for Thai higher education by integration of ICT in classroom. *Procedia-Social and Behavioral Sciences*, *103*, 365-373.

Phungsuk, R., Viriyavejakul, C., & Ratanaolarn, T. (2017). Development of a problem-based learning model via a virtual learning environment. *Kasetsart Journal of Social Sciences*, *38*(3), 297-306.

Pramela, K. & Supyan, H. (2015). *Online Forum & Language Learning - Pedagogical Consideration*. Selangor: Universiti Putra Malaysia Press.

Pramela, K., Thulasi, V. & Supyan, H. (2014). Exploiting Blogs in the ESL Classroom. *Pertanika J. Soc. Sci. Humanit* 22.

Sun, Z., Lin, C. H., Wu, M., Zhou, J., & Luo, L. (2018). A tale of two communication tools: Discussion-forum and mobile instant-messaging apps in collaborative learning. *British Journal of Educational Technology*, *49*(2), 248-261.

Sun, Z., Liu, R., Luo, L., Wu, M., & Shi, C. (2017). Exploring collaborative learning effect in blended learning environments. *Journal of Computer Assisted Learning*, *33*(6), 575-587.

Supyan, H. (2008). Creating a bigger Z.P.D for ESL learners via online forum in Malaysia. *College Teaching Methods and Styles Journal 4*(11): 1-10.

Thomas, G., & Thorpe, S. (2019). Enhancing the facilitation of online groups in higher education: a review of the literature on face-to-face and online group-facilitation. *Interactive Learning Environments*, *27*(1), 62-71.

Wu, C. P., & Yu, F. Y. (2009). Changing students' perceived value and use of learning approaches for online student-generated questions via an integrative model. In *Workshop Proceedings of The 17th International Conference on Computers in Education: ICCE (pp. 30-34).*

Zhong, Q., & Norton, H. (2018). Educational affordances of an asynchronous online discussion forum for language learners. *TESL-EJ*, *22*(3), 1-19.