International Journal of Learning, Teaching and Educational Research
Vol. 21, No. 9, pp. 441-459, September 2022
https://doi.org/10.26803/ijlter.21.9.24
Received Jul 20, 2022; Revised Sep 20, 2022; Accepted Sep 30, 2022

Investigating the Role of Digital Learning in Enhancing Educational Values: Online Socialization and Its Effect on Peer Learning, Collaborative Skills and Knowledge Construction

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Abstract. This study aimed to examine the advantages of online socializing and digital learning for the growth of interpersonal, peer learning and collaborative skills. The impact of these three skills on knowledge construction was evaluated. The Salmon five step e-moderation model has been used to explore the many phases of learning in a digital environment. This study examined the first stage of the e-moderation model, which is the respondents' internet accessibility, and the stage of knowledge construction in digital learning. The respondents of this study were 402 undergraduate students from four universities who have completed four semesters of online study. A stratified cluster sampling technique was employed in choosing the samples for this study. The instrument for data collection from the respondents was a 40-item questionnaire. Google Forms was utilized as the medium for data gathering. The main findings show that online learning involves a lot of interpersonal, peer learning, and collaborative activities, which are correlated to knowledge construction. The three abilities of peer learning, collaborative skills, and knowledge construction, as indicators of educational values, are positively correlated. The results suggest that a carefully designed online learning session that promotes group activities can deliver beneficial educational values. The common online socializing and information-sharing activities seen on social network sites (SNS), such as Facebook, Telegram, Twitter, etc., have strong educational components that should be included in digital learning, which is the future of education.

Keywords: digital learning; collaborative learning; peer learning; online socialization; knowledge construction

1. Introduction

Education should play a vital part in establishing good values in society as an underdeveloped country gets closer to being a developed and sophisticated

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nation. To be excellent in a global online learning endeavor is one of the long-term goals set in the Malaysia Education Development Plan 2015–2025 by the Ministry of Education, Malaysia. The COVID-19 pandemic is currently driving digital education globally, providing the chance for a dynamic, sharing environment in teaching and learning. Being able to access high-quality digital learning resources may reduce educational costs, enhance the learning experience, and provide several other benefits, as more learning institutions use digital education (Wahid, 2020). Due to its adaptability, digital learning has grown in popularity. Common issues, such as technological infrastructure, connectivity, and devices, are being taken care of continuously. Additionally, users' adaptability struggles, self-motivation, learning outcomes and achievement itself are other challenges that require further planning by educators.

Digital learning is playing a bigger role in knowledge transfer than ever before and there is a growing need for high-tech solutions. It is crucial to identify the most efficient learning techniques in the age of education digitalization. As traditional face-to-face training is examined, the question of whether online education can offer students the same level of learning and skill development arises.

Teachers are encouraged to undertake spontaneous teaching activities for online learning that are appropriate for a course's learning goals, usually with the help of the IT staff, but with minimum training, especially in lesson design. There is a concern about retaining transferable skills, such as interpersonal skills, through online delivery in professional programs, such as accounting (Ng & Harrison, 2021). Educational values refer to both the acquisition of knowledge and general skill development such as interpersonal, collaborative, and peer learning skills. These are examples of transferable skills that are increasingly included as learning outcomes in most courses offered in higher education. These ideals should be consistently embedded in digital learning, resulting in holistic graduates. Educational values are crucial in enhancing the positive outcomes of digital learning (Hamdani, 2021).

Digital learning, refers to learning that takes place through various social network system (SNS) platforms such as WhatsApp, Telegram, Twitter, and others used on the usual online classes such as Google Meet, and Webex, etc. Social network systems (SNS) are online platforms that people use to build social networks or relationships with other people with similar interests. Examples of SNS are Facebook, Instagram, Telegram, Twitter and WhatsApp, which all have characteristics that can foster social groupings and provide information to improve communication and group cohesiveness. SNS provide platforms that can support students' interaction with content and increase knowledge construction (Knezek et al., 2012). The electronic educational platform provides multiple capabilities in presenting the subject topic in various forms, that helps in developing students' motivation to learn (Almaleki et al., 2021). Students' engagement in learning activities

supplied on social media is also tracked by social learning networks. (Dafoulas & Shokri, 2016).

According to Syafril (2019), one of the drawbacks of digital learning is that digital facilities are not evenly distributed. Inevitably, cases of poor internet connections, lack of devices, and other challenges impede learning, especially for students from remote regions, and make the adoption of online teaching and learning more challenging, especially for educators (Abdullah & Amran, 2021; Bahrom, 2020).

There is a cultural shift in how society uses technology such as mobile phones, tablets, laptops, and computers; the fact is that community relationships are transferring online, and this was most notable during the COVID-19 outbreak (Afrizal et al., 2020). Mobile devices have become especially significant in defining sub-domains of digital learning and readiness, owing largely to steady growth in their use (Blayone, 2017). Combining cultural and social values as educational principles is essential for minimizing the disadvantages of digital learning while maximizing its benefits (Hamdani, 2021).

SNS have many advantages in facilitating teaching and learning. Lessons should be planned to cultivate educational principles in developing students' personalities or characters so that they may accept and use digital technologies to study and grow. Without a question, the digital era has improved human lives, particularly in the field of education. Digital learning has a human component; it emphasizes morals and values (Ndraha & Tangkin, 2021). The digital era, especially in the world of education, brings benefits that make the learning process easier. Unfortunately, it also may cause pupils to become egocentric, ignore other aspects of their lives, and ignore others (Ndraha & Tangkin, 2021). Important learning outcomes, such as interpersonal, collaborative and peer learning skills, which are often formed through face-to-face encounters, should now be fostered through online socializing. Students' interpersonal skills could improve with experience, practice, and time spent in an online setting (Lindsey & Rice 2015).

People who are good at interacting with others do better at work and in social settings. The traditional method of teaching and learning involves face-to-face classes, which are currently combined with the medium of e-learning technology, commonly known as blended learning, hybrid learning, or even full online learning (Mufidah & Tahir, 2018). In contrast to a typical classroom environment, social media allows students to communicate more efficiently, learn more, express themselves more easily, and enjoy the learning process. This makes learning more dynamic.

There, are many studies on the benefit of the digital classroom (Amadin et al., 2018) and students' initial perceptions of Google platforms, such as Google Classroom as a mobile learning experience (Heggart et al., 2018).

Dafoulas and Shokri (2016) showed the potential of using SNS in specific learning activities, as well as the overall effect of introducing a social learning network in the classrooms. Social networks, such as email, Facebook, Wiki, and Skype, provide a way for students to collaborate and share knowledge about their studies outside the classroom (Hiew & Hoon, 2014).
According to Wheeler (2012), learning using technology is different from learning through technology because the former suggests that technology is used as one method among many, whereas the latter suggests that technology is the only channel through which the student receives instruction and interacts with his instructor. A study on readiness for digital learning seems to divide its focus between two distinct complexes, namely digital competencies and learning characteristics variables (Blayone, 2017).

This study is in favor of the latter: learning through technology which focuses on learning behaviour. This study intends to investigate the educational values that students obtained through digital learning. To achieve the research objective, three research questions are generated.
The following research questions will be addressed in this study:

1. What is the level of internet connectivity and device accessibility the students have to engage in digital learning?
2. How much do interpersonal, collaborative, peer learning skills, and knowledge-construction skill development benefit from social learning through digital learning?

2. Literature Review

The popularity and accessibility of social media have facilitated information sharing and improved group cohesion (Dafoulas & Shokri, 2016), and this has an impact on how students engage with one another (Bozanta & Mardikyan, 2017), particularly in collaborative learning, where brainstorming assignments can trigger group debate via comments. Guided by the Malaysia National Philosophy of Education in 1996, Ishak and Mohammad (2021) listed that educational values are moral values, such as kindness, physical and mental cleanliness, honesty, diligence, cooperation, simplicity of gratitude, courage, rationality, sociability, freedom of justice, love, respect, generosity, and self-reliance.

Yakovleva (2022) expounded that in e-courses and digital learning platforms, teachers and students interact not only "person-to-person" but also in "person-intellectual system" paradigms. This causes digital-values humanization to emerge, making educational values such as a sense of duty, self-control, responsibility, good manners, cheerfulness, and independence important in the context of online learning.

Wheeler (2012) defined “e-learning” (electronic learning), or recently known as “digital learning”, as a set of technology-mediated methods that can be applied to support student learning and can include assessment, tutoring, and instruction elements. Laptops and tablets are the devices normally students use for online learning (Afrizal et al., 2020; Kerssens & Dijck, 2021).

Over the past few years, digital learning has slowly played a leading role in different industries' education. Technology discourse is becoming commonplace in 21st century educational environments, and an essential component of distributed teaching and learning by allowing a more active mode of communication (Knezek et al., 2012). Technology has brought tremendous advancements in online education, spurring transformation in online pedagogical practices by making online learning more active, collaborative, and meaningful with the tools available today (Murugaiah & Thang, 2010).

Digital learning provides opportunities for insights, reflection, cognitive context, calling for active and interactive education, and promoting self-learning strategies and developing practices (Manea, 2019). Collaborative learning in social media is a driver for university undergraduate students' academic performance in Malaysia (Al-Rahmi & Othman, 2013). Many social online learning environments have become synonymous with students at higher learning institutions who engage actively in learning through virtual online learning communities that provide collaborative interaction in a free and non-threatening environment, such as Facebook, Edmodo, Twitter, and others (Marimuthu et al., 2017).

Peer learning is defined as "students' shared learning from each other" (Ab Jalil, 2011; Ab Jalil & Noordin, 2010) and is an outcome of collaborative activities enhanced through online socialization. The collaborative study is feasible to be replicated in future research, such as students' perception of the collaborative learning process (Law et al., 2017). Norlizah et al. (2015) reviewed previous research and found that studies that related to online peer learning are few and recommended expanding and investigating online peer learning in future work.

Social media serves as a dynamic tool to expedite the development of a learning environment by encouraging cooperation and communication among students, which reinforces their learning behavior and performance (Sarwar et al., 2019). Due to the borderless and global world wide web and drastic changes in digital learning, users or students must be able to analyze, update, and adapt information according to their different circumstances. Developing and re-creating knowledge and information is even more important in cross-border, cross-country, and cross-culture dissemination (Wahid, 2020).

SNS's role in education yielded some general positive outcomes when Dafoulas and Shokri (2016) investigated Facebook activities and SNS's role using Salmon's e-moderation model. Multiple variants of learning platforms that available for students to enhance their learning experience. The use of SNS can trigger a significant increase in students' participation in learning activities via Facebook (Dafoulas & Shokri, 2016). They also discovered that students' grades were positively inspired by the complementary use of Facebook in their course study. System quality and users' intention to use an e-learning system directly and positively connect (Salam & Farooq, 2020).

Salam and Farooq (2020) highlighted that web-based collaborative learning enables teachers and students to interact, collaborate and actively participate. Students have a clear value of technology in promoting collaborative and quality digital learning experiences (Heggart & Yoo, 2018). Ruzmetova (2018) discovered that Salmon's e-moderation model was able to provide good contribution to active online and traditional learning, and satisfaction interaction among the learner and instructor.

During the pandemic period, students used digital technology, such as phones, tablets, laptops, and computers, through online applications, such as Google Meet, WhatsApp, and others, to make sure online learning at home ran smoothly (Afrizal et al., 2020). Bahrom (2020) found that students appeared unable to adapt fully to the virtual classroom because the atmosphere was different from that of a traditional classroom. Digital learning encourages a distinct learning culture that is still mostly alien to students, such as virtual learning (cybergogy), self-directed learning (heutagogy), and peer-oriented learning (paragogy). Learning techniques must adapt to this relatively new learning culture, especially during the COVID-19 pandemic when there was less physical interaction. Several social online learning environments help undergraduate students succeed academically by facilitating cooperative engagement in a welcoming and unrestricted setting (Marimuthu et al., 2017; Al-Rahmi & Othman, 2013).

Education principles such as teamwork and peer learning are extra qualities in digital learning that go beyond simply presenting lesson content to enhance learning and accomplishment. To accomplish a specified learning objective, a small group of students engage and share their knowledge and abilities through collaborative learning (So & Brush, 2008). Collaborative learning through social media supports university undergraduate students' academic performance in Malaysia (Al-Rahmi & Othman, 2013). Through virtual online learning communities, such as Facebook, Edmodo, Twitter, and others, that enable collaborative engagement in a cost-free and non-threatening environment, students actively participate in their education (Marimuthu et al., 2017).

Kümmel et al. (2020) found a relationship between social interaction, such as peer learning, and collaborative skills, which promote learning. Learning (as an individual process) and knowledge construction (as a collective process) depend on knowledge-related activities that arise through socio-cognitive conflicts between these two systems. Thus, communication and social interaction may trigger learning and knowledge construction.

This study examines the degree to which educational ideals are ingrained in the learning process through digital learning using Salmon's e-moderation model (2003) as a guide. Salmon's e-moderation model, which consists of five stages, describes how learning occurs on digital platforms:

1. Stage one is individual access, and the ability of respondents to use online platforms are essential prerequisites for learning participation.

2. Stage two involves online socialization and interpersonal skills practice by establishing and finding others with whom to interact.
3. Stage three is information exchange and collaborative skills practice where cooperation occurred by giving each other information relevant to the course.
4. In Stage four, the interactions produce shared understandings that support knowledge construction.
5. Lastly, in stage five, the respondents look for more benefits from the system to help them achieve personal goals and reflect on the learning process.

Figure 1 presents the five levels of Salmon's e-moderation model.

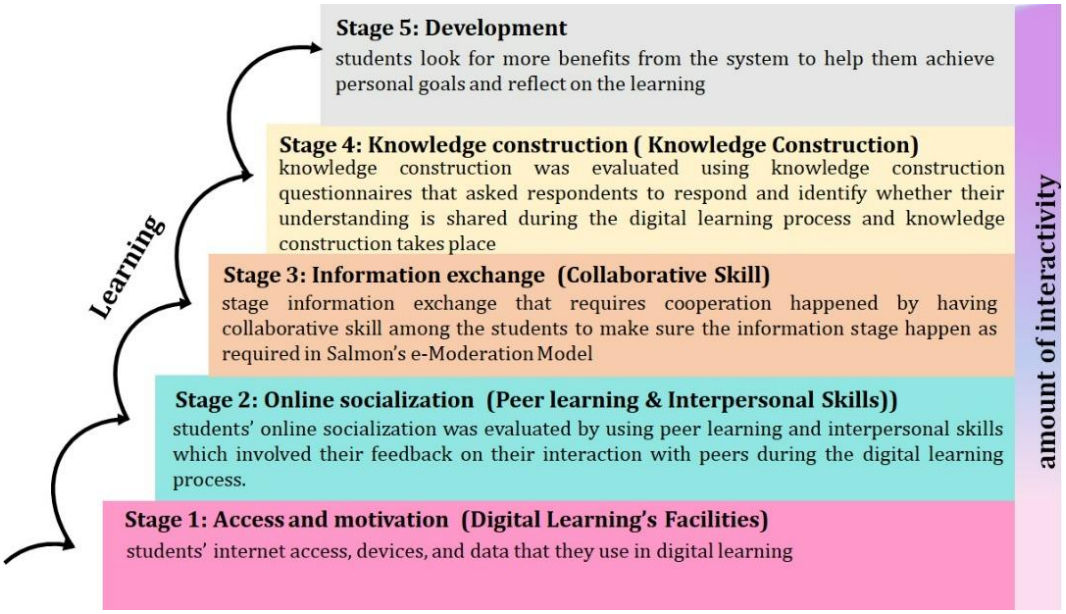


Figure 1. *Model of teaching and learning online (Salmon, 2003)*

Adopting the stages in Salmon's e-moderation model, this study explores educational ideals (peer learning, interpersonal skills, and collaborative skills) through socializing in digital learning. In stage 1 students need to have internet access, device, and data consumption. The peer learning variable was used to assess students' online socializing in stage 2, which included their input on their interactions with peers during the digital learning process. In stage 3, information exchange that necessitates collaboration occurred because of students' collaborative skills, ensuring that the information exchange stage takes place as required by Salmon's e-moderation model. Then, in stage 4, knowledge construction was evaluated using knowledge construction questionnaires to identify whether understanding is shared during the digital learning process and knowledge construction takes place. In stage 5, students are encouraged to seek out additional system benefits to further their pursuit of individual objectives and self-reflection. The research aim did not include stage 5 and, hence, stage 5 is not measured in this study.

3. Methodology

A survey method design was employed in this study to achieve the research objective. The population for this study is all students from the faculty of Management and Economics in higher education institutions (HEIs) in Malaysia. Students from four HEIs were the target population of this study and respondents were identified from them.

Courses were identified that encourage cooperation through online learning and utilize social network systems (SNS) as part of teaching and learning delivery, which include Facebook, WhatsApp, Telegram, Google Meet, Webex and Microsoft Teams. The course identification process was done by a representative from each institution. For corresponding purposes, only the departments of business, management, economics and accounting were involved. A total of 402 undergraduate students from the four institutions, who were majoring in accounting, business, and economics, and had completed four semesters of digital learning, served as the study's samples.

Using a stratified cluster sampling technique, 50 students from each university were selected. The samples chosen were all first and second year students who had enrolled in online courses. The respondents' age group was between 18–24 years old, and 78% or 314 students were female. In terms of academic programs, 43.2% were from business and entrepreneurship programs; 29.3% from management and economics; and 27.5% from accounting programs.

The instrument applied in this study was a 40-item, close-ended questionnaire with five Likert scales measuring the educational values expected from digital learning as depicted in the e-moderation model. The items were divided into four skills: interpersonal, peer learning, collaborative skills, and knowledge construction. These items were validated by two content experts for content validation. A reliability test was run in a pilot study involving 35 first year students. The reliability test shows a Cronbach alpha reading of 0.81.

4. Data Collection Procedure

Digital learning platforms in this study are common SNS used by students, such as Facebook, Telegram, WhatsApp, Google Meet, Webex and others. The courses selected were those that encourage cooperation through online learning. Information on class activities was collected through department representatives before the administration of questionnaires. Students were required to answer the online survey created using Google Forms.

The first and second year students happened to be studying online for four semesters during that time due to the pandemic. These samples were chosen because they had more experience with digital learning than their seniors did. This stage is carried out to regulate the homogeneity of samples with the assumption that group projects were necessary for most business faculty courses. There were 28 target courses for sampling from the four institutions.

The representatives of each institution were given links to distribute questionnaires using Google Forms. The Google Forms link was included in 500 emails, of which 402 of them received responses.

5. Findings

The efficiency of internet-based learning was impacted by several issues during the COVID-19 disaster, including internet connectivity, lack of devices, and adaptability. The study started with a descriptive output on the accessibility of the internet among the students. Access to the internet and computer availability among students are fundamental in digital learning. The findings of the study showed that most undergraduate students have moderate access to the internet in their digital learning; when they were asked to rate 1 (difficult) to 5 (easy), more than half of the respondents (66%) chose 4 and 5. Only 3% of respondents chose 2 and 31% chose 3 out of 5. The internet connection disparity was shown to be influenced by location, favoring students who live in urban areas.

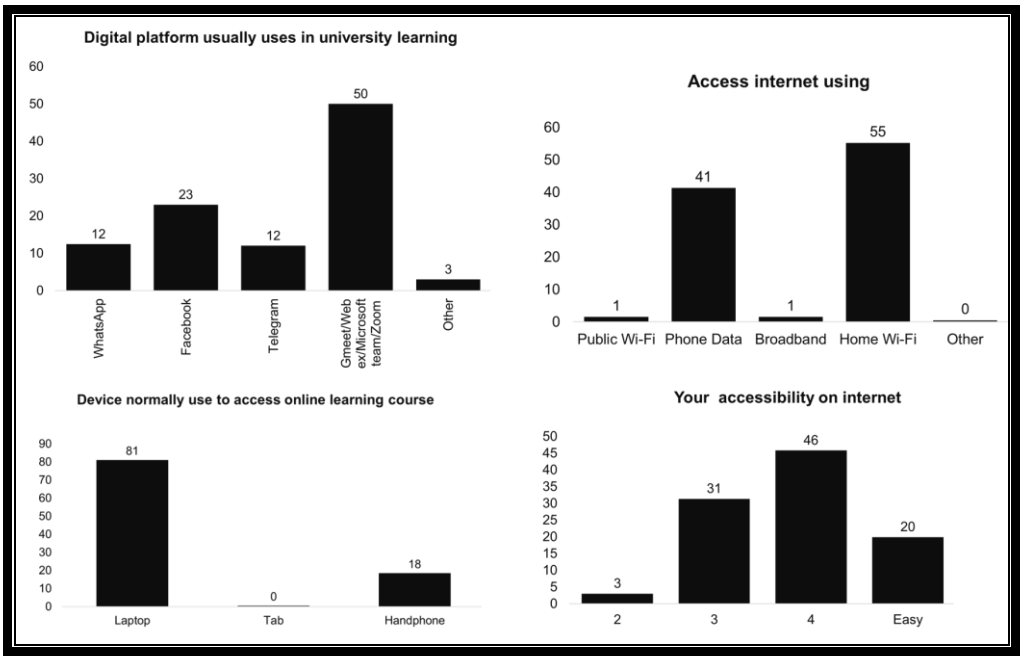
According to the background data collected from the respondents, 55% of students in this survey use home Wi-Fi; 41% use phone data; 1% use broadband; and 1% use public Wi-Fi to access the internet. These findings are supported by Bahrom 2020, who discovered that one of the challenges Malaysian educators face in fully implementing online learning methods is that some students arrive late to the virtual classroom due to internet problems, and others are unable to download the lesson materials from Google Classroom because their data plans have run out.

The results revealed that 50% of students use online platforms Google Meet, Webex, Microsoft Teams, and Zoom; 23% use Facebook learning platforms; 12% use Telegram; 12% use WhatsApp; and 3% use other platforms as their digital learning platforms. This result is in line with Bahrom (2020), that the online learning platforms commonly used are Google Classroom, YouTube, video, WhatsApp, voice message, Google Meet, and email.

In terms of devices, 81.09% of the respondents use laptops, 18.41% smartphones, and 0.5% use tablets in digital learning. In contrast, a study in South America by Asio et al. (2021) found 96% of the respondents used smartphones in contrast with tablets (2%), laptops (12%), and personal computers (3%).

The summary of the respondents' background related to the internet connectivity, devices, and SNS platform used in their digital learning is shown in Figure 2.

Figure 2. *Summary of respondents' internet connectivity and choice of devices*



The participants responded to a 40-item, close-ended questionnaire with five Likert scales measuring the educational values developed from online socialization in digital learning. The scales measured four skills: interpersonal, peer learning, collaborative skills, and knowledge construction. The reading on the items showed a moderately high reading on a scale of five, such as interpersonal skills, students "can communicate effectively when using social media" (mean 3.69, s.d. .92), and "learn more when they seek information on things they want to learn" (mean 4.04, s.d. .82). They did quite well on collaborative skills, for examples, "feel a sense of community when they learn through social media" (mean 3.62, s.d. 88); "increase my participation in classes when I am allowed to contribute through social media" (mean 3.68, s.d. .89); and "I can post information that might be of interest to other people" (mean 3.72, s.d. .91).

Collaborative learning may begin when learners feel a sense of community and start to participate, exchange, gain and develop new knowledge and skill through the process. Peer learning took place in online socialization with many respondents providing positive responses such as "able to get faster feedback from my peers when using social media" (mean 3.72, s.d.94); and "When using social media, I can connect with peers more easily than face-to-face" (mean 3.60, s.d.1.02).

Knowledge construction, as one of the expected outcomes of the learning process, scored high means on items such as "When using social media, "I am able to get faster feedback from my instructor" (mean 3.62, s.d. .95); "I use Internet communication technology to keep current on topics related to my field of expertise" (mean 4.03, s.d. .78); and "more classroom learning should include interactive communication technology experiences" (mean 4.05, s.d. .77). The list

of items and the respective means in the four dimensions of skills is provided in Appendix 1.

The levels of the four skills are listed in Table 2. The table shows the level of interpersonal skills (M = 3.79, SD = 0.65); collaborative skills (M = 3.77, SD = 0.71); peer learning (M = 3.73, SD = 0.77), and knowledge construction (M = 3.96, SD = 0.70) at a moderately high level where the mean value are more than 3.33, which is considered a high level.

The interpretation guideline applied is low (1-2.34), medium (2.34 – 3.67) and high (3.68-5.00). The results are in line with Altinay (2017), where participants are comfortable with technology, online groups and being reflective in their online learning process. The skills were developed when the students were encouraged to question and discuss issues in groups using collaborative learning strategies. The results were supported by Davidovitch and Belichenko (2018), who found that learning through Facebook groups can facilitate communication between students and foster a positive social climate with creating dialogue and sharing learning materials among group members. Students who are afraid to talk are more likely to join in online conversations, according to research by Murugaiah and Thang (2010). This indicates that online learning improves students, especially in their social interaction and teamwork.

The findings showed there was a significant positive relationship between peer learning and level of knowledge construction [r (402) = .711, p = .000]. There was a significant positive relationship between level of collaborative skill and level of knowledge construction [r (402) = .745, p = .000]. These findings are supported by Kummel et al. (2020), who found both individual learning and communal knowledge building are dependent on knowledge-related activities and, thus, social engagement and communication can lead to learning. The findings are supported by Aladsani (2021), who found SNS, such as Telegram, provide unlimited space for cloud storage and are found useable to enhance students' educational interaction.

When people connect specialized information from a variety of sources around them, digital learning occurs. People frequently rely on web browsers, search engines, Wikipedia, online news, discussion, and social networks, all of which can significantly enhance the learning experience. Through readily-available, high-quality content, students will be able to comprehend, navigate, recognize, and make decisions based on the information provided (Wahid 2020). These findings are supported by Dafoulas and Shokri (2016) who found the use of a social learning network triggered a significant increase in student participation in learning activities delivered over Facebook. Consistent findings by Bozanta and Mardikyan (2017) revealed peer interaction and course engagement have a positive significant effect on collaborative learning. Similarly, So and Brush (2008) indicated that student perceptions of collaborative learning have statistically positive relationships with social presence and satisfaction perceptions. Students with a high level of collaborative learning tended to be

more satisfied with their distance courses than those with low collaborative learning levels.

The summary for the means of IPS, CS, PL, and KC is listed in Table 1.

Table 1. Summary level of students' KC, PL, CS, IPS
Levels of interpersonal, collaborative, peer learning and knowledge construction

Level	*M*	*SD*
IPS	3.58	.56
CS	3.77	.71
PL	3.73	.77
KC	3.96	.70

*(IPS—Interpersonal skills, CL—Collaborative skills, PL—Peer learning, KC—Knowledge construction)

The results of multiple regression analysis in Table 2 showed that, for this sample size (n = 402), interpersonal skill, collaborative skill, and peer learning were significant predictors [F (3, 398) = 212.35, p <.05] for knowledge construction. These three predictor variables accounted for 61.5% (r = .79) of the variance in the criterion variable (R = .615), of peer learning (β = .27, t = 5.11, p<.05), interpersonal skills (β = .17, t = 3.42, p<.05), and collaborative skill (β = .41 t = 7.91, p<.05). The result is consistent with the findings of various research which stated that it is possible to achieve student satisfaction in online learning by positive online teacher learning activities (Baloran & Herman 2021). The results concur with Dafoulas and Shokri (2016), who found a positive impact of social learning, where 78% of FEI students stated they could cooperate with others, and 85% of students said using social media improved their feeling of social involvement and belonging on a specific project.

Humans learn via encounters, according to thinkers like Piaget and Vygotsky. Online socialization encourages students to work together in teams to share information and provide their personal views on situations. Previous research findings supported the social learning theory elements of social networking, peer support (Mohammed et al., 2015), and peer community (Zher et al., 2016). These values inspire and add value to learning when technology is applied (Zher et al., 2016). These results are supported by Kümmel et al. (2020), who indicated that knowledge construction is a collective process depending on knowledge-related activities that arise through socio-cognitive conflicts between learning (as an individual process) and knowledge construction (as a collective process). Thus, communication and social interaction may trigger learning and knowledge construction.

Table 2. Multiple regression results PL, IPS, CS toward KC

Variable	Beta	t	Sig.	R^2	F	Sig. F
PL	.268	5.105	.000	0.615	212.35	.000
IPS	.172	3.419	.000			
CS	.414	7.907	.000			

Observations on the overall digital learning provide interesting insights and findings on digital learning. Firstly, accessibility to the internet and devices among students for digital learning is an issue that is being addressed

continuously. More than 90% of students in the universities have access to the internet and devices. It can be challenging for those in rural areas; thus, the university students' affairs unit takes care of this situation by giving the students from rural areas the option to stay on campus. Accessibility to the internet and devices is supported by the Malaysian Ministry of Higher Education (MOHE) which has begun several approaches and solutions to help students who are experiencing connectivity challenges.

Secondly, the development of the three important skills of interpersonal, collaborative and peer learning is highly related to the teaching and learning activities and the types of supporting materials used during class. The use of audio-visual aids, such as photos, videos, graphical images and diagrams, encourages students' participation and improves the skills and values in digital learning. This active participation leads to knowledge construction through digital learning. These results are supported by Mohammed et al. (2015), that online peer learning has a strong influence on the use of technology, which leads to greater academic achievement.

5. Conclusion

Students at higher education institutions are frequently associated with a variety of social online learning settings. Students are urged to share their ideas and work with others, which helps to increase communication between them and their professors, while also minimizing paperwork. Students posting their thoughts and ideas on social media is normal. Digital learning eliminates geographic borders and saves time, allowing for immediate connection and feedback. With the use of interactive communication technologies, students may easily study, explore, and get quick, direct information from their instructors. SNS offers an effective platform of social learning which far exceeds the capacity of online learning. Effective learning happens through information and experience sharing, which leads to knowledge construction. Activities that require students' interaction and sharing of ideas can promote a deeper level of learning.

According to this study, students at higher education institutions have reasonable access to internet connectivity and devices. The platforms that educators utilize to offer teaching and learning in higher education are highly diverse. Given their popularity and the environment they provide for social learning, SNS are quickly evolving into educational tools. Online socializing is proving to be a successful method of learning that promotes the growth of critical abilities, including interpersonal, collaborative, and peer learning skills. Information exchanges prove to be crucial contributors to knowledge construction.

According to the literature, SNS's involvement in education has produced some generally favorable results. Thus, SNS's role and activities should be further investigated. These findings point to the need for universities to further investigate strategies to leverage widely available digital technologies to promote students' digital learning, and achieve exceptional results in their

studies. Digital learning plays a vital role in the current learning environment and mechanism.

Peer learning is a type of learning that takes place among peers and involves the use of social media to help and exchange knowledge. Learners may utilize social media to interact with their peers more efficiently and cost-effectively. There are few studies on online peer learning and, thus, more research is needed to broaden and better understand this concept. To enhance their teaching and learning, educators might take advantage of social networks' specific features and complementing aspects. Higher education institutions may consider offering faculty professional development programs to help lecturers build abilities that would enable them to cope with activities, as online education and technology learning may be challenging. The common online socializing and information-sharing activities seen in SNS have strong educational components that should be included in digital learning, which is the future of education. Particularly, the digital era is inextricably linked to the field of education and has accelerated its advancement.

Acknowledgment
This study has been supported by University Pendidikan Sultan Idris Research Grant Kod Projek / Project Code: 20200297.

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Appendix 1. Means of each item: Interpersonal skills, collaborative skills, peer learning skills and knowledge constructions

Items	Mean	s.d.
IPS1 (Interpersonal Skill) [When using social media learning becomes interactive.]	3.73	.897
IPS2 (Interpersonal Skill) [I can communicate effectively when using social media.]	3.69	.923
IPS3 (Interpersonal Skill) [I learn more when I regulate my own learning experience on the things that I want to learn about.]	3.84	.850
IPS4 (Interpersonal Skill) [I learn more when I seek information on things that I want to learn about.]	4.04	.819
IPS5 (Interpersonal Skill) [I use Internet communications for self-expression.]	3.78	.894
IPS6 (Interpersonal Skill) [I use other technology tools for self-expression.]	3.70	.938
IPS7 (Interpersonal Skill) [I would like to be a participating member of an online community.]	3.70	.837
IPS8 (Interpersonal Skill) [I learn best in a traditional classroom setting.]	3.82	.899
CS1 (Collaborative) [When using social media, I feel a sense of community.]	3.62	.886
CS2 (Collaborative) [I increase my participation in classes when I am allowed to contribute through social media]	3.68	.899
CS3 (Collaborative) [I post information that might be of interest to other people.]	3.72	.907
CS4 (Collaborative) [Collaborative learning experience in the computer-mediated communication environment is better than in a face-to-face learning environment.]	3.28	1.091
CS5 (Collaborative) [I felt part of a learning community in my group.]	3.68	.871
CS6 (Collaborative) [I actively exchanged my ideas with group members.]	3.91	.866
CS7 (Collaborative) [I was able to develop new skills from other members of my group.]	3.95	.828
CS8 (Collaborative) [I was able to develop new knowledge from other members of my group.]	3.98	.838
CS9 (Collaborative) [I was able to develop problem-solving skills through peer collaboration.]	3.94	.803
CS10 (Collaborative) [Collaborative learning in my group was effective.]	3.84	.822
CS11 (Collaborative) [Collaborative learning in my group was time-consuming.]	3.71	.909
CS12 (Collaborative) [Overall, I am satisfied with my collaborative learning experience in this course.]	3.90	.861
PL1 (Peer Learning) [When using social media posting questions to my peers helps me understand my reading better]	3.86	.826
PL2 (Peer Learning) [I am able to get faster feedback from my peers when using social media]	3.73	.942
PL3 (Peer Learning) [I like to share interests online.]	3.70	.928
PL4 (Peer Learning) [I like to share reflections online.]	3.65	.920
PL5 (Peer Learning) [When using social media, I am able to connect with peers more easily than face-to-face]	3.60	1.024
PL6 (Peer Learning) [I learn many things by interacting with other Internet users.]	3.88	.857
KC1 (Knowledge Construction) [When using social media, I am able to get faster feedback from my instructor.]	3.62	.951
KC2 (Knowledge Construction) [I use Internet technology to explore topics of interest.]	4.09	.765
KC3 (Knowledge Construction) [I like to take classes from good professors.]	4.04	.875
KC4 (Knowledge Construction) [Internet technology helps me be successful in my college classes.]	3.98	.792
KC5 (Knowledge Construction) [I like to enroll in classes to continue my education.]	3.94	.833
KC6 (Knowledge Construction) [I use Internet communication technology tools when I want to learn about something new.]	4.05	.788
KC7 (Knowledge Construction) [I use Internet communication technology to keep current on topics related to my field of expertise.]	4.03	.782
KC8 (Knowledge Construction) [More classroom learning should include interactive communication technology experiences]	4.00	.777
KC9 (Knowledge Construction) [The things I need to know are taught by instructors in the classroom.]	3.89	.825