

POTENTIAL OF VIBER MESSENGER TO FOSTER ONLINE SOCIAL PRESENCE AMONG BLENDED LEARNING STUDENTS

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ABSTRACT

The adoption of mobile apps in teaching and learning stimulates learner motivation and engagement, and as a result, can enrich the overall learning experience. This study explores how Viber messenger, an instant mobile messaging application, can be used to foster learner engagement and online social presence among blended learning students. A case study approach was used, and data were collected through a questionnaire and student focus groups. A total of 237 students enrolled in various undergraduate and postgraduate blended learning courses participated. Results showed students preferred technological tools that help them to receive easier and quicker communications and learning support. Results further revealed that Viber messenger can enhance student collaborations and can help maintain social presence within a blended learning community in a geographically dispersed context. Further findings and implications for teaching and learning are also discussed.

Keywords: *blended learning, social presence, Viber messenger, mobile apps, higher education*

INTRODUCTION

The proliferation of mobile technology and mobile apps have changed the way people communicate and learn (Crompton & Burke, 2018; Gikas & Grant, 2013) by providing multiple avenues to elevate teaching and learning to a different level (So, 2016). Mobile technology, thus, has attracted educators and educational institutions, not only in higher education but in K–12 classes too, to provide students with ubiquitous and personalized learning (e.g., Awada, 2016; Bere, 2018; Bere & Rambe, 2016). This type of learning is often facilitated through various mobile apps (Suana et al., 2019), which may include apps originally designed for gaming, business, education, lifestyle, entertainment, and utilities, to name a few.

Recent literature indicates that various mobile apps are used in different educational contexts for two main purposes: (a) to support teaching and learning (Bere & Rambe, 2016; Pimmer et al., 2018), and (b) to provide administrative and communication support (Hershkovitz et al., 2019). Many studies indicate that students generally hold positive attitudes toward using mobile apps for learning, and these apps can be effective

to improve learner experiences and achievements (e.g., So, 2016; Sun et al., 2018; Tossell et al., 2015).

However, there is little evidence on how mobile apps can help create and maintain social presence in learning environments in higher education, specifically in contexts where students have very limited face-to-face interactions. In addition, there have been calls for further research on the impacts of mobile devices and mobile apps on learning environments in higher education, and their added value to learning (e.g., Pimmer et al., 2019; Suana et al., 2019; Yang et al., 2015). The current study aims (a) to explore the mobile apps that are being used for learning by the Maldivian university students, (b) to understand students' perceptions of utilizing Viber messenger for educational use, and (c) to describe how Viber messenger can support social presence in blended learning.

BACKGROUND

Smartphones and Mobile Apps for Learning

Mobile technologies such as smartphones and tablets have enormous potential to facilitate teaching and learning, both in and outside formal education (Cheon et al., 2012; Yang et al., 2015).

The mobility afforded by smartphones and tablets, along with various apps used in these devices, provide learners with many opportunities to engage in learning activities and offer instant interaction and communication in real-world contexts (Alhassan, 2016; Gikas & Grant, 2013). Such technologies can support flexible learning that enables teachers and students to transform conventional classrooms into new learning spaces (Huan et al., 2014). The portability and mobility of smartphones and tablets may also facilitate one-on-one, personalized learning environments where students and teachers can have instant communication (Yang et al., 2015). Therefore, in recent times, smartphones and tablets have been used in teaching and learning around the globe.

The current generations of smartphones provide users with easier access to a range of web applications, along with bigger screens and many sophisticated tools and features. Often, university students can be observed using their mobile phones for a lengthy time for various purposes, both in and outside the classrooms (Crompton & Burke, 2018). These could be some of the reasons many educators have been attempting to extend classroom learning using these devices. Tossell et al. (2015) examined how iPhones were used among undergraduate students at a university in the United States. This study indicated that the majority of the students found smartphones useful for completing their study-related tasks.

Mobile devices can provide students and teachers with several advantages in learning and teaching. For example, in a small-scale study in the United States, Gikas and Grant (2013) found mobile devices can be used for accessing academic information quickly, content collaboration, communication, and situated learning. Crompton and Burke (2018) conducted a systematic review about the use of mobile learning in higher education that included 72 articles published between 2010 and 2016. According to the authors, 70% of these studies reported mobile learning can increase students' overall learning experiences. Further, smartphones were used in various subject domains that included education, social sciences, second language learning, computer studies, engineering, and business (Crompton & Burke, 2018). These studies indicated that the use of smartphones in higher education is prevalent and they can be effective tools to

facilitate learning.

Teachers use various mobile applications to facilitate learning. So (2016), for example, explored how the mobile instant messaging app, WhatsApp, may support teaching and learning at a Hong Kong university. This study showed that mobile instant messaging can improve students' learning experience and students had a positive attitude toward the use of WhatsApp for learning. In similar studies, WhatsApp was used to facilitate learning in various learning contexts (e.g., Awada, 2016; Pimmer et al., 2019; Rosenberg & Asterhan, 2018).

Other popular social networking apps have been used to support learning in higher education. For instance, multiple studies show that Facebook can be a useful tool to supplement learning in university contexts (e.g., Awidi et al., 2019; Bowman & Akcaoglu, 2014; Moorthy et al., 2019). Twitter has also been used to facilitate teacher-student communications and learning (e.g., Chawinga, 2017; Evans, 2014). Table 1 shows how these apps are being used in higher education to better support learning.

Despite the pervasiveness of mobile technologies in education (as shown in Table 1), every tool or mobile app may not be accepted by learners. Research indicates that there are several factors that affect users' decisions to adopt technological innovations. Park et al. (2012), for example, found students' self-efficacy, attitudes toward mobile learning, and subjective norm had a direct effect on their behavioral intention of using a mobile learning system. In another study, Dumpit and Fernandez (2017) found that perceived usefulness, perceived ease of use, perceived playfulness, and subjective norms were strong predictors that explained students' social media usage behavior in the Philippines. In a more recent study, Sánchez-Prieto et al. (2019) found similar results; however, students' attitude toward technology was the main predictor that explained behavioral intention to use technology. These studies suggest that having access to applications or systems (i.e., Viber and/or LMS) may not be sufficient to get them adopted, but students' perceptions and attitudes about the technology often play a key role in adoption.

Viber Messenger and Its Use

Viber (<https://www.viber.com/>) is a free mobile application that allows users to send messages, make voice and video calls, and share images

Table 1: Use of Mobile Apps in Higher Education

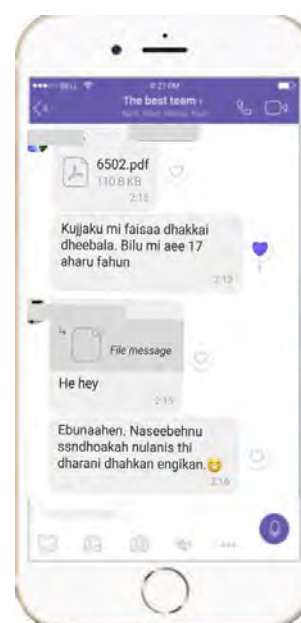
Mobile app	Use	Articles
WhatsApp	Sharing multimedia resources	(So, 2016),
	Teacher-student interactions outside class hours	(Awada, 2016),
	Formal academic communications	(Raiman et al., 2017), (Rosenberg
	Informal communications between students	& Asterhan, 2018),
	Group/class discussions with tutor	(Bere, 2018),
	Subject organization	(Pimmer et al., 2019),
	Formative assessments	(Mpungose, 2020)
	Brainstorming	
	Professional knowledge sharing within the field/discipline	
Facebook	Sharing learning resources	(Amador & Amador, 2014),
	Supplementary class discussions	(Bowman & Akcaoglu, 2014),
	Seeking academic advice	(Sarapin & Morris, 2015),
	Student-teacher communications	(Ramadan, 2017),
	Increasing social connectedness (students-students, students-teachers)	(van Schaik et al., 2018),
	Understanding user privacy concerns	(Awidi et al., 2019),
		(Moorthy et al., 2019),
Twitter	Sharing subject content and information	(Evans, 2014),
	Student-teacher communications	(Webb et al., 2015),
	Sharing multimedia materials	(Chawinga, 2017),
	Enhancing learning engagement	(Lackovic et al., 2017),
	Formative assessments	(Amanda et al., 2019)

and files between individuals and within groups. Viber is compatible with Android, iOS, Microsoft Windows, and MacOS, thus the messaging app can be used on almost any current mobile devices such as smartphones, laptops, iPads, and tablets. In addition, it can be installed to desktop platforms and users can link their Viber accounts across multiple platforms. Figure 1 illustrates the interface of the Viber.

Despite Viber being originally developed for interpersonal communications, it has been used in various learning contexts, not only in the Maldives but in other countries as well. In recent years, many teachers have found ways to incorporate various modes of instructional and communication technologies within learning (e.g., Bere, 2018; Kim et al., 2019; Mpungose, 2020), and Viber can be one of them. The current generation of university students heavily rely on mobile devices, social media, and communication tools (Tuncay, 2016), so these can be an avenue for teachers to explore to enhance accessibility and learner interactions. For example, Aleksandrova and Parusheva

(2019) investigated the use of social media for communication and knowledge processing in higher education in Bulgaria. This study, in which

Figure 1: A Group Conversation in Viber Messenger



students from bachelors and master's level participated, revealed that Viber was one of the tools students used for interpersonal communication and knowledge sharing. In another study, Stiopca et al. (2020) investigated students' online learning experiences in Moldova during the COVID-19 pandemic. This study, in which 303 vocational students participated, showed most of the students (34%) preferred Viber as a mobile learning tool over some other applications such as Google Classroom and Messenger. Additional studies have also reported the use of Viber (e.g., Gorgoretti, 2019; Tuncay, 2016), indicating that Viber can be utilized in education.

Social Presence

Social presence is “the ability to project one’s self and establish personal and purposeful relationships” in an online community (Garrison, 2007, p. 63). It is how students present themselves in an online learning environment in order to maintain human interactions and to build interpersonal relationships by socially and emotionally engaging with others through a medium of communication (Garrison et al., 1999). According to Garrison (2007), there are two main components or dimensions of social presence, (a) open communication and (b) group cohesion. In a later work, Garrison et al. (2010) identified three dimensions of social presence, namely, “identifying with the community,” “communicating purposefully” in a trusting environment, and “developing interpersonal relationships” (p. 7). However, the authors concluded that these dimensions are fundamentally the same as the ones described in Garrison (2007). Indicators of these dimensions may include learners doing things such as maintaining affective expressions, asking questions within the group, and addressing or referring the learning group by using inclusive pronouns such as *we* and *our* on an online platform (Joksimović et al., 2015).

Social presence helps to create learning environments that help learners to execute critical thinking and achieve higher learning outcomes (Kozan & Caskurlu, 2018). Cohen and Holstein (2018) examined factors that contributed to the success of massive open online courses (MOOCs) by analyzing five high-rated (5/5) MOOCs that were selected from the CourseTalk.com website. The study revealed that the online group atmosphere increased students' motivation and made learning

materials more interesting and easier to follow for learners.

In another study, Joksimović et al. (2015) investigated the relationship between indicators of social presence and academic performance. This study analyzed over 1,700 messages posted by students over a period of 12 weeks to a discussion forum of a master's level online course at a Canadian university. The results showed some indicators of social presence (i.e., self-disclosing, continuing a thread, asking questions, using vocatives, and complimenting/expressing appreciation) were significant factors to predict students' final grades. Further, Garrison et al. (1999) argued that social presence plays an important role in maintaining cognitive presence in a learning community, as cognitive presence can easily be sustained “when a significant degree of social presence has been established” (p. 95). Therefore, many research efforts are being made to explore the crucial role of social presence in learning, specifically in online learning contexts to explore factors that influence effectiveness of online learning (e.g., Çakıroğlu & Kılıç, 2020; Cohen & Holstein, 2018; Keles, 2018).

Effective Learning Management Systems

A learning management system (LMS) is an information system that is typically used to facilitate online teaching. This facilitation can include content delivery, managing students' assessments, and teacher-student communications, along with the administration associated with them. Adoption of LMSs has been prevalent in higher education, but the success of learning management systems can vary within and across universities depending on how they are used (Klobas & McGill, 2010).

An effective LMS must have certain characteristics. It needs to be able to provide students with active engagement, easy communication, and meaningful connections between course components along with formative feedback (Rubin et al., 2010). It also needs to be easy to use and useful (Islam, 2013), because technology that is perceived as useful and easy to use is more likely to be adopted by users (Cheung & Vogel, 2013). LMS adoption is typically not optional for students but is mandatory (i.e., to access learning content and submit assignments). However, if the LMS is difficult to use or perceived as less beneficial, it is likely that students would use the LMS at a minimal level (Islam, 2013). Instead, they may use other modes

of communications such as Viber and social media tools to maintain social presence and to fulfil their learning needs.

This study aims to explore how social presence is supported by Viber in a blended learning context in the Maldives. Blended learning is an instructional approach that integrates face-to-face learning with technology-mediated instruction to maximize access to learning, increase learning flexibility, and enhance learner engagement (Ali, 2019; Tshabalala et al., 2014; Xu et al., 2020). The objectives of the current study are (a) to explore mobile apps that are being used for study purposes by Maldivian university students, (b) to understand students' perceptions of utilizing Viber messenger for educational use, and (c) to describe how Viber messenger can support social presence in learning.

METHODS

Research Approach

A case study approach was used in this study because a case study is a way to understand real-world situations and their distinctiveness as part of a wider context. In addition, case studies can provide a thorough understanding of a phenomenon (Yin, 2009). According to Yin (2012), case studies are appropriate when the research is guided by descriptive questions and research data are collected from natural settings. Previous studies have used a case study approach in blended learning settings to understand student perceptions (Truitt & Ku, 2018), describe various types of blended in hybrid learning (Lai et al., 2016), and explore how mobile instant messaging can enhance students' language proficiency (Avci & Adiguzel, 2017).

This study focuses on a single university setting, in particular the use of a mobile app in blended learning within a context of dual-mode delivery. The study describes students' use of Viber messenger for learning and how it helps students to create online social presence within a learning group. Student focus groups were used to provide detailed descriptions about their perceptions in relation to use of Viber messenger to communicate with each other and its overall value in learning. It also highlights the uniqueness of the learning context, specifically how the mobile app enhances online social presence among blended learners. Data from the questionnaire were utilized for triangulation purposes as triangulation methods help strengthen

the reliability of the findings of case studies (Flick, 2009).

Context and Participants

The study was conducted at a Maldivian university that offers several flexible learning programs (i.e., blended learning). The Maldives is an archipelago that consists of 185 inhabited islands. These islands are separated by sea that covers nearly 99% of the area of the nation (Ali, 2016). Despite the dispersion, there is no reliable public transport system for commuting between the islands. Higher education institutions are thus forced to find alternative approaches to reach the isolated community using technology-integrated instructional methods such as blended learning.

Blended learning has been used in the university since 2010. Students in blended courses are typically expected to attend two or three intensive face-to-face classes every semester. After each face-to-face class, students travel back to their islands, and typically have no physical contacts with their teachers and peers. They are, however, required to complete weekly online tasks in-between the face-to-face classes. Students can communicate with each other using Moodle (the LMS) and their personal mobile phones. The participants were 237 students who were enrolled in five different blended learning courses in the second semester of 2017. The students' course majors included social policy, nursing, education/teaching, and management.

Data Collection

Data were collected using a questionnaire and focus group interviews. Five focus groups were conducted to understand students' perceptions of using mobile apps in general and specifically the use of Viber messenger in their academic activities and how it supports social presence. A questionnaire (Appendix A) was developed to collect descriptive statistics in relation to students' use of mobile phones and mobile apps for study purposes. With the assistance of teachers who worked as liaisons in the faculties, 300 questionnaires and consent forms were distributed among the students of the target courses. Out of 300 questionnaires, 237 (79%) were returned. Students who volunteered to participate in the focus groups were contacted to arrange the interview times, and semi-structured questions (Appendix B) were used for the interviews.

Data Analysis

Student interviews were transcribed verbatim and coded using open, axial, and selective coding methods. Open coding breaks down the interview content and helps the researcher to understand the interview content (Flick, 2009). Axial and selective coding can be used to relate all the coded subcategories to their relevant groups and identify potential core concepts and look for further evidence related to the themes (Flick, 2009). The transcribed interviews were read multiple times and relevant parts of the interviews were grouped for potential codes. Then the subcategories were linked to each other to form the main content patterns, and all the emerging patterns were collapsed into categories to form the overarching themes. For the questionnaire, students' responses were entered into Microsoft Excel and simple descriptive statistics were calculated. As the questionnaire was utilized mainly for data triangulation purposes, no inferential statistical analysis of the questionnaire was carried out.

RESULTS AND DISCUSSION

The following sections present the results and discussion of the study. Following the descriptive statistics, the first subsection highlights common mobile applications that are used in blended learning by Maldivian university students. The second and third subsections describe students' perceptions about using Viber for educational purposes and how Viber can support social presence.

Descriptive Statistics

Participants of this study were 237 blended learning students. Of these, 170 (71.7%) were female and 67 (28.3%) were male, and 44.7% of the students were under 25 years of age, 22.4% were 26–35 years, 17.7% were 36–45 years and 4.2% were over 45 years of age. The students were enrolled in three levels of courses: 19 students (8%) were enrolled in master's level courses while 139 (58.6%) and 78 (33.3%) were bachelor's degree and diploma and below. All the students owned cell phones and nearly all of these (99.2%) were smartphones. Most of the students' (44.5%) spend five hours on their cell phones daily. Overall, the majority participants were mature-aged students who had relatively high smartphone usage.

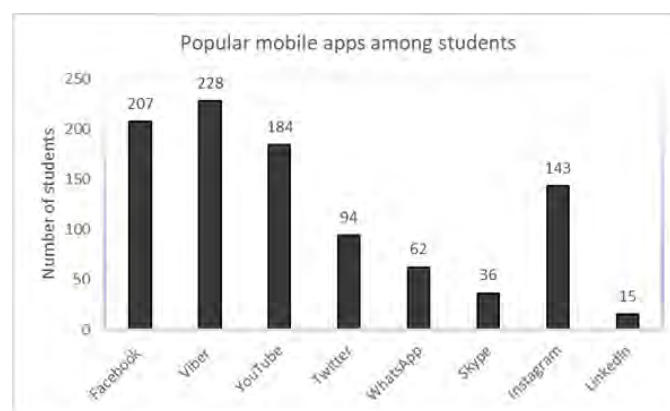
Commonly Used Mobile Apps

As the descriptive statistics show, smartphone

possession is extremely common among university students in the Maldives. Results also showed that the overwhelming majority of students (98.6%) often browse the internet using their smartphones. These results indicate that for this student cohort, smartphones can be a possible learning tool, and the telecommunication infrastructure of the country can be sufficient for mobile learning.

Results revealed that students commonly use several mobile applications, predominantly common social media apps such as Facebook, Twitter, Instagram, and YouTube. Figure 2 shows the mobile apps that are commonly used by the students in the Maldives.

Figure 2. Commonly Used Mobile Apps by Blended Learning Students



As Figure 2 shows, 228 (97.9%) students use Viber in their everyday life followed by Facebook ($n = 207$; 88.8%) and YouTube ($n = 184$; 79%). Skype and LinkedIn are the least popular apps among this student cohort, with 15.1% ($n = 36$) and 6.3% ($n = 15$), respectively. Results showed Viber was ranked at the top, but this is not necessarily unique to the students in the Maldives. In fact, the communication app is exceptionally popular, and perhaps can be the most heavily used instant messaging app among the general population of the country. Even though the purpose of using Viber is predominantly communication, the usage can be extended to entertainment, business, and education.

Results showed most of the students (95.7%) had dedicated Viber class groups. In addition, Viber was ranked not only as the preferred communication app but the most helpful mobile application for learning ($n = 97$) too, following YouTube ($n = 61$)

and Facebook ($n = 43$). Even though Viber is not an official platform for university learning, Viber class groups typically consist of all the enrolled students of a subject/course and their teachers. Often a Viber class group is a platform for teacher-student and student-student communication and sharing learning resources. This can make Viber more useful for students and can be a reason for high rates of adoption. Research showed technology that is perceived as useful is typically adopted by users (e.g., Gao et al., 2020; Yoon, 2016).

Students' Perceptions about Viber

Results revealed that students had positive perceptions about the use of mobile applications for learning, in general and Viber messenger in particular. Students felt that despite having a learning management system (Moodle) to use for the online component of blended learning, the use of Viber was easier and quicker to receive help. A diploma level business student who often seeks help through their Viber class group described how helpful the application is to get support.

Typically, it [a response in Viber] would be very quick. Often it would take a few minutes to get a response from someone. And the response would be quite helpful. Sometimes lecturer responses [are] too, and the other times students do so. If someone explains something incorrectly, other students often start commenting to correct them.

As the interview excerpt shows, students valued the ease of use and the immediate support that they received through Viber, which is possible in the Maldives because the app is commonly used across the general population of the nation. In addition, students generally get almost immediate assistance, at least from one of the members of the group, if they ask for help in a Viber class group. Therefore, unlike a typical online forum that occurs in Moodle, Viber can facilitate easier and quicker learning support for this cohort of students. This finding is in line with the previous research that showed mobile applications can help students quickly access information and interact with peers and course content (Gikas & Grant, 2013). Similar findings were reported in a recent study that reported how mobile apps allow students

to review supplementary study materials and complete in-class activities and assessments (Li et al., 2018).

Results indicated that having easier and quicker access to class communication was the main factor that impacted students' decision to use Viber instead of their official LMS. Students' expressions such as "often it would take a few minutes to get a response from someone," . . . "we can instantly contact others," and "can easily clarify things when we have doubts, unlike Moodle . . .," indicate how much students valued easy and quick access to communications and learning materials. The quicker access afforded by Viber generally makes it more useful for students and thus their perceptions and attitude toward the app was more positive in comparison with Moodle. The literature shows that when users perceive a technology to be easy to use and useful, they will likely adopt it (e.g., Dumpit & Fernandez, 2017; Park et al., 2012).

Another possible factor that can impact students' decision to choose Viber can be the high acceptance of the application among the adult population of the nation. The widespread use of the app can make students more familiar with the application in general, and consequently can be relatively comfortable using it for educational purposes. Research showed users are typically receptive and willing to use digital technology that they are more familiar with and is user friendly (Razmak & Bélanger, 2018; Yoon, 2016). Furthermore, due to the widespread use of Viber in the community, students may have some social influence to use the app for daily purposes. Prasad et al. (2018) found social influence was a strong factor that impacted behavioral intentions to use digital technology by university students in an Australian university context.

Interview analyses showed that Viber was helpful not only for easy and quick access to learning, but it was also useful for students to brainstorm and discuss learning. A student from an education course described how they think Viber helped them to keep up to date while living on a remote island:

In our course we have a Viber group for each subject. In those class groups students sometimes ask about the progress of the online tasks and assignments. Through those discussions, we get some

updates and ideas about the [online] tasks which are helpful.

Students valued how online interactions occur among learners in Viber while they live on separate islands. They believed that help and reminders that they receive through Viber in relation to their studies stimulate learning motivation and success. These findings resemble those of Northey et al. (2018), which showed that informal social media interactions outside the classroom are useful for students to maintain learner collaboration. This resulted in a positive influence on learner behavior, engagement, and academic performance (Northey et al., 2018). Similar findings were reported in Amanda et al. (2019), which showed that social media tools such as Twitter can be used to increase student engagement with learning content and can enhance the overall learning experience.

Overall, results showed Viber was perceived a trusted medium of communication that ensures two-way communication for both teachers and students. One of the interview participants mentioned:

We do have a Viber class group. All the class students and the lecturer are also there in the group. They post almost all the study related information to the group. For example, they post announcements like block class schedule updates and other study related information.

Results showed teachers often use Viber class groups to pass study-related information to students, even though the same messages are typically posted to Moodle. One possible reason could be that students are not checking Moodle course announcements daily, and therefore lecturers may want to make sure all the study-related information is passed onto students in a timely fashion using alternative tools such as Viber. The survey results supported this finding and showed that rather than using Moodle, 83.6% students preferred to use Viber class groups to clarify doubts with classmates. It also showed 77.4% students discussed their assignments and group work in Viber groups, while 72.6% students used the app to view teachers' announcements.

In summary, Viber was perceived to be an effective tool for students to use in blended learning. It

enabled students to have easier and quicker access to class communications and learner support. It was also a convenient tool for remote learners to interact with peers and to stay up to date in terms of course progress while they had very limited opportunities for face-to-face interactions. Overall, students were in favor of using Viber for communications and support seeking over their official learning management system, Moodle.

Viber: Supporting Social Presence

Interview analyses revealed that Viber can support social presence among the blended learning students in the Maldives. The app can be used to stimulate social presence among learners through informal communication, and group collaborations. Overall, results revealed students can interact with each other through Viber in various ways that can help them to maintain social connectedness in their blended learning environment.

Interview analyses showed Viber class groups are used for formal communications among blended learning students. In addition to these official class groups, it also revealed that students often create their own subgroups for informal conversations. These groups are often created purposefully by an individual for a specific group of students (friends), but not necessarily to include everyone or the majority of a class. One of the students mentioned:

We usually have two Viber groups. One is the official class group in which all the students and the subject lecturer and the course coordinator [are] in. Another group is a private group, often a group of students who work together in relation to our study work. Sometimes we make some jokes in this group, but we do discuss study related things in this group too.

Students found these informal groups were a *comfort zone* for them to have small talks and chit-chats. As these students are geographically isolated and typically do not see each other in-person very often, these small groups are often a contributor to establishing personal and purposeful relationships within the learning community, which are

some of the indicators of social presence (Garrison, 2007). Having such informal interactions is a crucial part of an online learning community as it can enable students to have a sense of belonging and, as a result, build a stronger learning community. Informal interactions in online courses are crucial to reduce students' sense of isolation and increase collaborative learning and learner satisfaction (Beins, 2016; Contreras-Castillo et al., 2004). In the Maldives, this informal communication is pivotal, because most of these students live in remote islands that immensely reduces the chance of having regular physical interactions outside the classroom. In fact, they physically meet only two or three times in a semester during their intensive face-to-face classes. That can explain why students valued the use of Viber for informal communications.

Another aspect of Viber helping to leverage social presence among students was group collaborations. Students often use Viber class groups (both formal and informal) to brainstorm and organize group presentations and assignments. Again, this was their preferred method of communication as it generally helps them to get quicker responses from each other and enable them to be more efficient in terms of completion of group assignments and other collaborative work. One of the students who lives in Malé city but interacts with their classmates who live on various islands mentioned:

If we have a group work or an assignment, we then create a subgroup for that particular task and discuss separately about the task. For example, if we have a group presentation, there will 3–4 students in that group, and we discuss about the presentation in that group.

As the interview excerpt shows, Viber is perceived a mediator that can help students to manage group assignments and be more organized. Overall, students felt they can easily work in small groups in Viber where they often plan, delegate, and complete group tasks. This way, they can work together to achieve a group target, which is an indicator of group cohesion. Group cohesion is, according to Garrison (2007), maintaining effective group communications between the members of the group to achieve successful outcomes in collaborative tasks in online learning.

Garrison (2007) highlighted two main categories

of social presence: (a) open communication and (b) group cohesion. Students reported that they often asked questions, exchanged ideas and learning materials, and participated in many small and friendly talks. Through these collaborations, they often refer to the learning group using inclusive pronouns such as “we” and “our,” as reported by multiple students. These are some of the indicators of social presence (Joksimović et al., 2015). According to Keles (2018), participants of an online community projecting their personal characteristics into the community indicates the occurrence of social presence. In such a learning community, “participants establish relationships based on mutual trust” (Keles, 2018, p. 204), which was observed among the blended learning students in the Maldives. In summary, the results showed that Viber was a mediator that can facilitate social presence among blended learning students where learners are located at several remote islands in the Maldives.

LIMITATIONS AND FUTURE RESEARCH

The purpose of this study was to explore students' perceptions of using mobile apps for learning, specifically Viber messenger, and how Viber can help maintain social presence in a geographically dispersed learning context. Therefore, no course grades were collected and compared, nor was a comparison between the LMS and Viber made to determine how strong the effect of Viber was on student academic performance, which is a limitation. Future research is therefore needed to evaluate and validate the effect of Viber on learning outcomes. Furthermore, looking into various academic disciplines and levels of study in relation to the use of mobile apps can also be helpful for educators and instructional designers to understand how to provide more personalized instructions to various student cohorts and maintain stronger social presence in learning groups using mobile apps such as Viber.

CONCLUSION

With the advancements of digital technology, mobile devices and apps have been adopted and used in education to facilitate teaching and learning in various contexts (e.g., Evans, 2014; Pimmer et al., 2018; Thai et al., 2019). The goal of this study was to explore how Viber messenger can support blended learning and how the mobile

application can be used to stimulate social presence in a blended learning context.

This study showed Viber messenger can be a valuable tool for student-teacher communications in a blended learning context when they have limited face-to-face interactions during the semester. Overall, Viber was perceived as a tool that can make communication and support seeking easier and quicker for students. Further, the results showed that Viber can be helpful for students to organize group work/assignments, share learning materials, ask questions, and clarify doubts, along with a range of informal communications. These interactions can create a sense of belonging and can reduce feelings of isolation among blended learners, which otherwise would not likely occur. Therefore, students opted for Viber over Moodle, their learning management system. In the current times of a COVID-19 pandemic, the findings of this study offer a timely insight into learning technologies that enhance learner engagement in online learning environments. While this study was carried out to explore the effectiveness of Viber in increasing social presence in a blended learning context, the findings can be relatable and applicable to other similar mobile apps and learning contexts. However, the full potential and long-term impact of mobile phones and mobile apps such as Viber for learning in higher education is yet to be determined.

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APPENDIX A: STUDENT QUESTIONNAIRE

1. What is your age?
2. What is your sex?
3. What is your level of studies?
4. Do you own a mobile phone?
5. If you own a mobile phone, does it have a touchscreen?
6. How much time do you usually spend on your mobile phone in a day (in 24 hours)?
7. Do you browse the internet from your mobile phone?
8. If the answer for the question 7 is “Yes,” what type of internet connections do you use?
9. How often do you browse the internet from your mobile phone for your academic related activities?
10. If you use the internet from your mobile phone, for what use you browse the internet?
11. What are the mobile applications you use?
12. When do you usually use your mobile phone for academic related activities?
13. What are the most helpful mobile applications for your studies?
14. Do you have a Viber class group to discuss your study related matters?
15. How do you use Viber Messenger in relation to your studies?

APPENDIX B: STUDENT FOCUS GROUP PROTOCOL

1. What are the mobile applications that you use on your smartphone?
2. How beneficial are the mobile apps that you use for your studying/learning?
3. How often and for what do you browse the internet using your mobile phone?
4. How about the internet speed/bandwidth that you get from the island?
5. What are the main benefits that you get from Viber in relation to your studies?
6. How do you share information resources like internet links and other resources via Viber?
7. Overall, how beneficial is the mobile phone for your studies?