Social-Emotional Development amid Mobile Learning: Pros, Cons, and Actions

Carla O. Melodillar
University of the Philippines Los Banos, Philippines
cbortega@up.edu.ph

Abstract:

Mobile learning became one of the most prevalent forms of education during the peak of the COVID-19 pandemic. As a result of necessity, many young students gained access to mobile phones and utilized them for both educational and non-educational purposes. Research indicates that while mobile learning can enhance educational outcomes, it may also negatively affect the socio-emotional development of young students if used improperly. This paper examines the advantages and disadvantages of mobile learning and explores potential strategies to optimize learning and minimize, if not eliminate, its adverse effects. Key recommendations include integrating social-emotional learning (SEL), managing screen time, encouraging co-viewing, promoting moderate use of digital devices, early detection of socio-emotional disorders, and implementing relevant policies. Furthermore, incorporating moral training, character building, and habit formation is suggested as beneficial, especially for children.

Keywords: basic education, distance education, emotional development, mobile learning, social development, SEL

INTRODUCTION

Fostering socio-emotional development positively affects the learning process of children, which would benefit them until adulthood (Thompson & Virmani, 2012; Weissberg, 2016; Cristovao et al., 2020). This linkage is already evident as early as Plato's and Aristotle's time. The preparation for the Philosopher King started with childhood education, wherein suppression of emotions and desires is an integral part of moral training (Kraut, 2022). Aristotle, on the other hand, emphasized the development of reasoning habits that can be formed starting from childhood (Kraut, 2022). Other philosophers also highlighted the integration of character-building in education; that "goodness of man" transcends that of the physical, and more on promoting social, emotional, and even spiritual stability (McKay & McKay, 2023).

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Far from the classic philosophers' time, the advent of technology in the 21st century has changed the way children are educated. Modern technologies have been widely used to access information; facilitate communication; deliver instructional materials; promote interest and interaction; used as tools in teaching; and evaluate learning at all levels, including students with special needs (Al Emran et al., 2016; Domingo & Gargante, 2016; Raja & Nagasubramani, 2018; Valencia, et al., 2019; Haleem, et al., 2022). Dienlin and Johannes (2020) defined digital technologies as mobile devices that are being used for various purposes including those that were mentioned earlier. Mobile devices are electronic appliances that are of personal use, portable, and have on/off buttons such as smartphones and tablets, excluding laptops due to their speed in turning on or off (Crompton et al., 2017). The most consumed digital technology is the smartphone, which can be used for both social and nonsocial activities (i.e., reading, listening, watching, playing, etc.) (Dienlin & Johannes, 2020). Due to their affordability and functionality, smartphones and tablets are considered the best choice for students (Chou et al., 2012; Domingo & Gargante, 2016; Crompton et al., 2017; Chen, 2017; Perdana et al., 2022; Uzir et al., 2023).

The terms "e-learning", "online learning", "distance learning", "blended learning", "hybrid learning", and "mobile learning" emerged and materialized as non-traditional learning which encompasses space and/or time (Al-Emran et al., 2016; Domingo & Gargante, 2016; Marcial, 2018). Mobile learning or m-learning was one of the most used types of online and distance learning. It was defined as "*any type of learning that takes place in learning environments and spaces that take account of the mobility of learners, learning, and technology*" (Marcial, 2018). According to Al-Emran et al. (2016), m-learning emphasizes the use of hand-held, portable devices in learning and education (mobile devices). M-learning is commonly integrated into academic and training subjects such as Geomatics Information Systems (GIS) and Languages (Al-Emran et al., 2016); Science, Mathematics, History, and Arts (Crompton et al., 2017); and numeracy and literacy skills (Dorris et al., 2021). It revolutionized classroom learning, and is viewed positively by students due to the efficiency and entertainment it brings along with the learning experience (Marcial, 2018; Bacolod, 2022).

During the Coronavirus Disease 2019 (COVID-19) pandemic, the education sector was severely affected by school closures and lockdowns, thus, mobile learning was seen as a "solution" to address the academic challenges aroused during that time (Tadesse & Muluye, 2020; Tria, 2020; Talib et al., 2021; Haleem et al., 2022; Bacolod, 2022). Although studies about mobile learning were conducted as early as 2005, the appreciation for it has increased during the pandemic (Bacolod, 2022). The usage of digital technologies, mostly smartphones,

increased by 17%, wherein people spend 8.5 hours per day excluding school work (Haddock et al., 2022). The pandemic prompted a paradigm shift in the education system as educational institutions transitioned from traditional (face-to-face) to technology-based (remote and online learning) education (Talib et al., 2021; Haleem et al., 2022) despite the little time to prepare, adjust and adapt (Talib et al., 2021). The same was true in the Philippines as the suspension of classes "forced" the adoption of distance learning which is unusual in the country (Ignacio, 2021; BEDP 2022-2030). In a study by Malolos, et al. (2021), 16.8% of Filipino children were suffering from mental health problems before the pandemic. This number has increased during the pandemic due to various reasons including but not limited to: class suspension and disruption; shift from traditional to online classes; decrease of social support from peer groups; lack of in-person contact; domestic issues; quarantine protocols; and excessive use of learning technologies (Malolos et al., 2021; Ignacio, 2021; Barrot et al., 2021; Cortes-Albornoz et al. 2023). While everyone is affected by these circumstances, children's social and emotional development suffers greatly (Malolos et al., 2021).

The Philippines' Department of Education (DepEd) was expected to pave the way for how non-traditional learning modalities could be delivered so that learning would continue despite the challenges (Ignacio, 2021; BEDP, 2022-2030). Through the DepEd Basic Education Development Plan 2030, the use of blended learning and full distance learning modalities in the basic education sector was allowed, especially during the time of pandemic and disasters (BEDP, 2022-2030). According to the BEDP 2022-2030, DepEd launched their Digital Rise Program in support of their already existing DepEd Computerization Program; DepEd Commons; and DepEd Learning Management Systems to adapt to the changes in teaching and learning during the pandemic (BEDP 2022-2030). They further stated that the DepEd was able to distribute millions of gadgets (laptops, desktops, and tablets) to 93% of the teaching force of the Department. DepEd also provided internet access to public schools in the Philippines to support online, synchronous learning; and launched DepEd TV and DepEd Radio for the asynchronous learning modality (BEDP, 2022-2030). All of these efforts were part of the Basic Education-Learning Continuity Plan in response to the "new normal education" (Tria, 2020; BEDP, 2022-2023). While Modular Distance Learning was preferred by the majority of K-12 learners, a substantial number of K-12 students still engaged academically through Online Distance Learning (BEDP, 2022-2030). Nevertheless, the shift in the learning modality to adapt in a pandemic setting led to an increased need for mobile devices and internet connectivity (Tadesse & Muluye, 2020; Talib et al., 2021; Bacolod, 2022; Tria, 2020; BEDP, 2022-2030; Cortes-Albornoz et al., 2023). This led further to an increased behavioral manifestation of a heavy emotional burden for young learners who were having

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a hard time coping with the said changes (Tadesse & Muluye, 2020; Talib et al., 2021; Bacolod, 2022; Tria, 2020).

Despite being the top users of mobile devices, the social and emotional development of young learners were not given much focus (Al-Emran et al, 2016; Domingo & Gargante, 2018; Crompton et al, 2017; Marcial, 2018; Gotteschalk, 2019; Dorris et al., 2021; and Bacolod, 2022; Cuenca et al., 2023). Dorris et al. (2021) and Cortes-Albornoz, et al. (2023) stated that the overall impact of remote learning, particularly the use of mobile devices, on educational learning outcomes remains inconclusive as these factors are too broad and varied to depict; and its psychological effects to students needs more research (Perdana et al., 2022). Uzir et al. (2023) also pointed out that mobile learning has positive social and emotional impacts on higher education students, however, its impacts on the young learners were not completely explored. Considering these gaps, therefore, this paper aims to contribute by discussing and understanding the effects of mobile learning (as a form of remote learning) in the socio-emotional development of K-12 students. Specifically, it aimed to characterize the use of digital technologies in mobile learning under basic education; discuss the effects of mobile learning on the social and emotional development of young learners; and recommend actions that can be taken to optimize the use of mobile technologies in the learning process of young learners.

METHODOLOGY

The study employed a systematic review of literature about mobile learning and its impacts on the social and emotional development of learners at the basic education level (PK-12 or K-12). Relevant pieces of literature including journal articles, books, and book chapters were searched and collected from various sets of database including but not limited to: PubMed, National Library of Medicine, Scopus, Elsevier, Directory of Open Access Journals, OECD Education iLibrary; Educational Resources Information Centre; Wiley Online Library, among others, using an OpenAthens account. The keywords "*mobile learning*", "t*echnology and education*", "*social development*", *"basic education*", "*emotional development*", and "*social-emotional learning*" were used to filter from thousands of works of literature available. To further organize the literature selection process, exclusion-inclusion criteria were applied. Only journals published from 2012 to 2023, regardless of research design, were considered. In terms of participants and setting, studies conducted in the context of basic education were included. If the studies were a mix of participants and settings (i.e., basic education and higher education), only relevant data were extracted and included. Books and

book chapters were included to provide better contextualization and foundation of the concepts. The pieces of literature collected were further screened against Beall's List of Predatory Journals which is available online.

From the pieces of literature reviewed, thematic analysis was done to identify key issues, points, and significant developments in the field of mobile learning and the social and emotional development of young learners. The pieces of literature were categorized according to the similarity of concepts and terms. They were clustered into major themes: the use of digital technologies and mobile learning in basic education; digital technologies and social-emotional development; and social-emotional learning. Another round of analysis was conducted to capture the most important points per major theme, which eventually led to the concepts discussed in the succeeding sections. The identified themes were validated by an expert and practitioner in the education sector. These themes were also presented to a group of education practitioners comprised of six members from the basic education and higher education sectors for further review and consultation. From the content validity process, minor and irrelevant themes were excluded, and therefore enhanced the focus of the study. The conceptualization, literature collection, review, analysis, as well as consultations with experts and practitioners were conducted from September 2023 to January 2024.

RESULTS AND DISCUSSION

Digital Technology Use and M-Learning in Basic Education

The "mobile technology" has become very popular, especially to students in all levels of education (Domingo & Gargante, 2016; Dienlin & Johannes, 2020). In the study of Al-Emran et al. (2016), 99% of the respondents (students) have smartphones; 81.5% of them used them in their learning activities. Mobile devices are being used mostly by elementary students (Kindergarten, Grades 1 to 3), followed by middle school (Grades 4 to 6); high school students (Grades 7 to 12); students under Special Education (SPED) programs; and Pre-Kindergarteners (Al-Emran et al., 2016; Crompton et al., 2017). Antonucci et al. (2017) stated that 90% of young people have phones and are "online" or connected to the World Wide Web via the internet. In a more recent study, Dorris et al. (2021) stated that 82% of children ages five to seven years old, and 99% of children ages 12 to 15 years old spend an average of 9.5 hours and 20.5 hours online per week, respectively. These data showed that indeed, 21st century children are advent users of technologies as mentioned by Chou et al. (2012), Gotteschalk (2019), and Uzir et al. (2023) in their respective researches.

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Domingo and Gargante (2016) observed the appropriateness of using mobile devices in primary schools. According to them, the use of mobile devices increased student engagement and interest in accomplishing tasks using them. They further stated that the use of mobile technologies eased up the process of data access, collection, processing, analysis, storage, and even retrieval. The easy access to information gave the students chances to support their ideas by looking up relevant information and therefore enabled them to contribute to class discussions, which was said to be one of the major contributions of mobile devices in the overall learning process (Domingo & Gargante, 2016). The same findings were expressed in the studies of Chen (2017), Perdana et al. (2022), and Uzir et al. (2023), adding that the use of mobile devices in primary education facilitated self-directed learning, and made education more inclusive and accessible. Because of the "anytime-anywhere" feature of mobile devices, students develop self-autonomy where they can control and direct their learning, and at times, even help their peers in the learning process (Domingo & Gargante, 2016; Chen, 2017; Perdana et al., 2022; Uzir et al., 2023).

Aside from enhancing learning, mobile devices were found to be useful in improving communication among students. Crompton et al. (2017) found that mobile phones and tablets were the most preferred mobile devices of PK-12 students. In their study, they emphasized that the use of mobile devices in education was said to have improved communication and knowledge sharing among students. Being portable, almost all people carry their mobile phones 24/7 (Wong et al., 2013 as cited by Crompton, et al. 2017), thus communicating with their classmates, colleagues, and/or peers has become easier. Because of this, updating and receiving feedback become instant (Al-Emran et al., 2016; Domingo & Gargante, 2016; Crompton, et al. 2017). Further, students who are already using mobile devices in their learning activities are motivated to use them over and over as they go along with their learning (Al-Emran et al., 2016).

Students with special needs also benefit from the use of mobile technologies in special education. In the study of Valencia et al. (2019), they highlighted the importance of using educational technologies in developing skills and facilitating learning of children with disabilities, particularly with Autism Spectrum Disorder (ASD). Although ASD is considered a cognitive disorder, students with ASD are having a hard time communicating, socializing, and expressing their emotions which leads to complexities in learning. The integration of technologies in the classroom improved the social skills (communication, interpersonal relationships), general skills, conceptual skills (learning expressions, thoughts, and feelings through words), and practical skills (healthcare, daily living, transportation) of the students with ASD. Several studies promote the use of modern technologies in

teaching students with ASD as they show a positive disposition toward it (Valencia et al., 2019).

In terms of teaching pedagogies, Domingo and Gargante (2016) found that combining new media with mobile learning creates a good instrument to improve teaching pedagogies. Crompton et al. (2017) categorized learning into: behaviorist, constructivist, situated, and collaborative. Most of the teachers use mobile learning in a "behaviorist" model of learning, particularly in presenting learning materials, obtaining responses, and providing feedback. On the other hand, only a few use them for constructivist (discovering concepts independently and participating in the learning process using appropriate tools); situated (integrating concepts with community practice); and collaborative (facilitating classroom interaction) learning models (Crompton et al., 2017). It was stated further that when students (or teachers) contribute something useful, which would eventually be adopted by their peers, it will boost their self-confidence and happiness (Domingo & Gargante, 2016; Crompton et al., 2017). Both studies agreed that increased "affordances" would result in increased utilization of mobile technologies and devices in learning. Affordances pertain to portability, interactivity, context sensitivity, connectivity, and individuality of mobile technologies (Domingo & Gargante, 2016). With classroom integration, the use of mobile technologies promotes collaborative learning, and interactivity, facilitates cooperative learning, and increases students' engagement with the class activities (Domingo & Gargante, 2016; Crompton et al., 2017).

Other significant findings were: that ICTs were able to transform the learning process from teaching-centered to student-centered; stimulate students; impact the acquisition of knowledge; eliminate geographical limitations; expose students to technologies; decrease educational costs in terms of travel expenses through distance education (Khan, et al., 2015; Raja & Nagasubramani, 2018; Wali & Popal, 2020; Talib et al., 2021).

On the other hand, the use of digital technologies in learning also has adverse effects. It was observed that students' writing skills and focus have declined, while incidences of cheating have increased with the advent of technology (Raja & Nagasubramani (2018). While the use of technology in the classroom is good for sustaining interest and student engagement, it cannot substitute for actual hands-on training, especially in the fields of Health, Science and Technology, Engineering, and Mathematics (Talib, et al., 2021). Poor internet connection, lack of infrastructure support, and low quality of communication can also be noted as one of the disadvantages of integrating ICT into education (Talib et al., 2021). Another factor is the reluctance of teachers to use these technologies in their teaching. Wali & Popal (2020) stated that while students have mostly positive

acceptance towards technology, the teachers might not see them the same way. Numerous teachers find it hard to integrate technologies in their classrooms as operating them requires a certain level of mastery and creativity (Crompton et al., 2017; Wali & Popal, 2020; Perdana et al., 2022). The same was true for students who find it hard to use mobile devices. The less they believe that those devices will be helpful, the less likely they will use them in their classrooms (Domingo & Gargante, 2016; Crompton et al., 2017).

Further, these ICTs cannot ensure the quality of education, such as possessing too many entertaining features that may overlook the educational purpose it must serve (Dienlin & Johannes, 2020). The dependence on these technologies may also harm the development of higher-order thinking skills (i.e., critical thinking, understanding, and problem-solving) as everything is made available in one click (Antonucci, et al.,2017). Most importantly, when these devices are used for non-educational purposes, it may hinder the learning process (Wali & Popal, 2020); and improper use may trigger mental and behavioral disorders later on (Antonucci, et al.,2017; Dienlin & Johannes, 2020; Haddock et al., 2022).

The increasing use of mobile devices in education also resulted in a deepening socio-economic divide among classes (Gottschalk, 2019). Well-off parents can implement co-viewing with their children, while low-income, uneducated parents are less involved in their children's daily activities, with a higher tendency to let their children watch TV so they may continue their economic activities (Gotteschalk, 2019). Aside from the socio-economic divide, Ignacio (2021) and Cortes-Albornoz et al. (2023) mentioned that the digital divide was also present. They stated that before the shift in learning modality, there was already a disparity between the disadvantaged members of the population in the country; it was heightened during the pandemic. Despite the efforts of the DepEd mentioned earlier, there were still remote areas in the Philippines that have limited access to the internet; students sharing mobile devices; teachers and learners who have limited knowledge in using digital technologies; and unequal access to these kinds of technologies being used in online and distance learning (Ignacio, 2021; Cortes-Albornoz et al., 2023).

Digital technologies, specifically the use of mobile devices, pose both opportunities and threats in the education sector. Most of the advantages can be found in its practical use in learning and communicating aspects. It can also be observed that in maximizing the use of these mobile devices for educational purposes, external support such as infrastructures and connectivity is necessary. Since mobile devices were found to be appropriate for educating young learners based on the studies cited above, they seemed to be more exposed to the

negative impacts of it as well. The succeeding section discussed the implications of mobile learning on the social and emotional development of young learners.

Socio-Emotional Development and M-Learning

Children, being the top consumers of mobile devices (Al-Emran et al., 2016; Crompton et al., 2017; Gotteschalk, 2019), are highly vulnerable to its adverse impacts, particularly on their social and emotional development and well-being (or psychological well-being in other literatures) (Antonucci et al., 2017; Dienlin & Johannes, 2020; Ruggerie et al., 2020; Haddock et al., 2022). "Feeling good" and "functioning well" are the two important elements of well-being (Ruggerie et al., 2020). Well-being can be in terms of overall physical health, but often used synonymously with positive mental health. It is highly linked with improved pro-social behaviors, positive relationships, creativity, effective learning, and increased work productivity (Ruggerie et al. 2020). Although the variable "well-being" is difficult to measure, most studies linked it, specifically psychological well-being, to physical health, wise financial decisions, and improved academic performance (Ruggerie et al., 2020). As the child physically and physiologically matures, so does their social and emotional growth (Thompson & Virmani, 2012). According to Thompson and Virmani (2012), socio-emotional development occurs throughout one's life - from infancy to adulthood, with emphasis on children being highly emotional. They found out that emotions are rooted in the evolution of species, an innate feature of human functioning, and a complex "neurobiological phenomenon". These link socio-emotional development with cognitive development (Thompson & Virmani, 2012). Emotional regulation is a crucial foundation of morality, social competence, social understanding, social interaction, and self-awareness. Emotions and society cannot be separated as *"emotional reactions influence social behavior, and how social experiences affect emotional growth"* (Thompson & Virmani, 2012, page 504). Socio-emotional development and well-being are highly related to mental health as most mental health issues are triggered by social and emotional disturbances experienced by a person of any age (Dienlin & Johannes, 2020; Malik & Marwaha, 2022; Haddock et al., 2022).

How to determine the socio-emotional growth of a person? Erik Erikson, a psychoanalyst, developed his theory on Psychosocial Development in 1956. Earlier reports were also made by him indicating that a person undergoes psychosocial crises during his lifetime. These crises were divided into eight stages, and every stage corresponds to certain crises which when resolved would lead to virtues; failure would result in mistrust, guilt, role confusion, and

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despair (Mcleod, 2023). According to Maree (2021), the first five stages pertain to early child development, while the remaining three stages occur throughout one's lifetime. He further stated that any problems that occur in any of the stages may influence the overall identity development and result in an "identity crisis" (Maree, 2021). Similarly, Malik & Marwaha (2022) discussed the respective social-emotional status a child must achieve at a certain age. Healthy children follow a trajectory as expected, thus making it easier to determine whether a child is socially or emotionally disturbed. As early as two months of age, a child can already show emotions and be able to regulate these emotions by three months of age. Social-emotional milestones go along with physical and psychomotor development: pride, empathy, and self-consciousness (15 months); autonomy (18-24 months); turn personal emotions to socially acceptable gestures, sharing and cooperation (school age, around 3-4 years old); learn adult social skills (5-6 years old); understanding rules and regulations, relationships and responsibilities, moral development (7-8 years old); and independence from family and decision-making (9-10 years old). The independence will continuously increase as the child moves to the adolescence stage (Malik & Marwaha, 2022). By age 9-18 years old, adolescents experienced major social and emotional changes. This is when they develop their identities; become more social- and peer-oriented; impulsive; and individualistic; experience strong and unpredictable moods and feelings; and self-consciousness, among others. In exercising increased independence, they tend to argue frequently with others and be involved in conflicts (Dienlin & Johannes, 2020). Any deviation from these standard social-emotional developments could indicate a clinical psychological or behavioral disorder and corresponding treatments and therapy are recommended (Malik & Marwaha, 2022).

In general, the actual mobile devices cannot directly cause socio-emotional harm to the students, but it depends on how these devices are being used (Antonucci, et al., 2017). Antonucci et al. (2017), Dienlin and Johannes (2020), and Haddock et al. (2022) all agreed that the proper use of technologies indeed promoted the well-being of the students and teachers, and general users; enhanced communication, collaboration, socialization, impulse control, social connection, creativity; and developed visual-spatial attention skills. However, Gotteschalk (2019) stated that too much and too little engagement and exposure to these technologies are detrimental to the well-being of children. In her study, Gotteschalk (2019) used the variable "screen time hours" to determine the impacts of technology on children. According to her, uninterrupted and prolonged exposure of children aged two to 12 years old to television screens is not advisable. Increased screen time would mean decreased participation in productive activities, thus would result not only in physical health issues but

also in changes in moods and interaction with others. Reportedly, long-term, overuse of technologies during childhood results in behavioral, attentional, and psychological issues in adolescents (Gotteschalk, 2019).

Dienlin and Johannes (2020) emphasized that excessive use of digital technologies affects long-term life satisfaction of all ages, but adolescents are the most vulnerable. Increased use of technology would not only result in an increased sense of connectedness but also increased levels of anxiety and loneliness as it affects the "hedonic well-being" among adolescents (Dienlin & Johannes, 2020). According to Dienlin and Johannes (2020), hedonic well-being refers to temporary emotions such as affection, pleasure, satisfaction, anger, etc. As adolescents go through the process of self-development as discussed previously, unpleasant social and emotional experiences encountered via increased screen time may trigger isolation, depressive symptoms, bullying, psychological stress, ADHD-related behaviors, negative thinking, decreased life satisfaction, and potential health risk in adulthood (Antonucci et al., 2017; Dienlin & Johannes, 2020). Gaming disorders due to addiction to online games were also observed in most adults, though were also evident in children and adolescents (Gotteschalk, 2019). Dienlin and Johannes (2020) also added that existing psychological and behavioral problems may increase with inappropriate use of technology, which would later result in a decrease in life satisfaction. Extreme digital use may be a symptom of an underlying socio-psychological problem (Dienlin & Johannes, 2020).

The COVID-19 pandemic hyped the use of mobile devices especially for educational purposes (Tadesse & Muluye, 2020; Talib et al., 2021; Bacolod, 2022). During this time, there was an increased screen time among children and adolescents in the United States of America to catch up with their academics, fear, and panic of the pandemic, isolation, and loss of jobs and life - which all added to the existing social and emotional stress that children were experiencing (Abramson, 2022). In a matter of six months (March to October 2020), there was an increase in mental health-related emergencies among children ages 5-11 years old (24%), and ages 12-17 years old (31%). By October 2021, child and adolescent mental health was declared a national state emergency (Abramson, 2022). Similar findings were also reported by Cortes-Albornoz, et al. (2023) who mentioned that more than three hours of screen time per day increased emotional and behavioral problems among children aged six to 11 years old. These problems led to a decline in the child's academic performance, motivation, and focus (Cortes-Albornoz et al., 2023). In the Philippines, the shift in online classes combined with poor connectivity aggravated cases of anxiety and depression among students from remote and marginalized areas (Barrot et al., 2021). COVID-19 was also said to have lasting consequences on children's education, social life, and physical

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and mental health based on the study of Agbing et al. (2022) among children aged six to 12 years old. The sudden lifestyle changes among children prompted them to become screen-dependents which eventually impacted their cognitive, social, and emotional development (Cortes-Albornoz et al., 2023).

The use of smartphones and tablets for educational and entertainment purposes is at its peak, with the pandemic as an enabling factor for its increased consumption. Ironically, negative impacts of excessive use of mobile devices were observed in K-12 learners, yet they are the top consumers of it. With these things in mind, something must be done to at least minimize the adverse impacts of mobile devices on young learners. The succeeding section discussed the actions being taken by other countries, and what can be applied in the Philippines' basic education setup.

A Call for Action

Following Erikson's Psychosocial Development, the first five years of a child's growth are considered crucial for their social and emotional development (Darling-Churchill & Lippman, 2016). The introduction of social and emotional learning at home plays an important part. Before entering formal school, parents must provide support and establish a secure attachment with their children (Darling-Churchill & Lippman, 2016). This kind of bonding enables children to experience and regulate a variety of emotions appropriately, which is critical for their success in school and later in life (Darling-Churchill & Lippman, 2016). As the child enters K-12, the integration of Social-Emotional Learning (SEL) in the school setting becomes necessary (Tabalanza et al., 2022; Cuenca et al., 2023).

In recognition of the importance of the social and emotional well-being of students in academic success, the SEL movement is being advocated around the world (Cristovao, et al., 2017). As early as 1994, the concept of SEL was introduced and defined (Cristovao, et al., 2017) as *"strategy to nurture students' social and emotional competencies by way of explicit teaching… student-centered approach that encourages student participation in the learning process and the development of analytical communication and collaborative behaviors"* (Cristovao et al., 2017, page 2)

The Collaborative for Academic, Social, and Emotional Learning (CASEL) was also created to advocate the SEL movement, particularly to enable children to become lifelong learners, self-aware, and responsible decision-makers (Cristovao et al., 2017). They aim to establish high-quality socio-emotional learning based on empirical shreds of evidence, and by targeting cognitive, affective, and

behavioral domains (Cristovao et al., 2020). According to CASEL (n.d.), SEL has been an effective approach in improving the academic performance of students and decreasing the levels of substance abuse, emotional distress, and disruptive behavior that interfere with learning and development. SEL is an integral part of education and human development which offers an opportunity to properly identify emotions and provide necessary behavioral, social, and emotional support through mental health services and early childhood SEL programs (Tabalanza et al., 2022; CASEL n.d.). As a process, SEL focuses on the acquisition of relevant knowledge, skills, and attitudes associated with areas of socio-emotional learning competencies. These areas are (CASEL, n.d.):

1. Self-awareness - ability to understand own emotions, personal goals, and values
2. Self-management - ability to regulate one's emotions and behaviors
3. Social awareness - ability to see things from the perspective of other people
4. Relationship skills - tools that children need to establish and maintain healthy and rewarding relationships
5. Responsible Decision-making - ability to consider ethical standards, safety concerns, and accurate behavioral norms

Acquiring age-appropriate social and emotional skills would lead to social and emotional development, which improves academic performance which may persist until adulthood (Tabalanza et al., 2022; Cuenca et al., 2023). In their studies, they emphasized that early and consistent SEL intervention has positive effects that can go beyond academics. Thompson and Virmani (2012) stated that socio-emotional development relates to school readiness as self-control signifies growing emotional maturity among children. Weissberg (2016) stated that understanding the role of social-emotional development promotes learning success. Weissberg (2016) further mentioned that, *"Social-emotional learning provides a foundation for safe and positive learning, and enhances students' ability to succeed in school, careers, and life"*. (https://www.edutopia.org/blog/why-sel-essential-for-students-weissberg-durlak-domitrovich-gullotta featuring the Handbook of Social and Emotional Learning: Research and Practice).

Similarly, Cristovao et al. (2020) and Cuenca et al. (2023) emphasized that emotions and emotional intelligence can facilitate or impede children's academic performance, commitment, and engagement since relationships and emotional processes affect what and how to learn. According to Cristovao, et al. (2020), teachers are emotional leaders of their students, therefore, they should be skilled in recognizing, understanding, and managing even their own emotions. Tabalanza

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et al. (2022) added that SEL decreases behavioral problems, psychological distress, anxiety, and depression.

According to CASEL (n.d.), SEL program must be integrated into the schools as a preventive framework to optimize its benefits. The schools must also invest time and resources in implementing them. Classroom teachers must be involved in the program implementation by following its prescribed activities (CASEL, n.d.). The duration, scope, and leadership and policy support of SEL implementation must also be considered (CASEL, n.d.). Teachers might need training and pedagogical changes to be able to integrate SEL in their classrooms (Cristovao et al., 2020; Tabalanza et al., 2022; Cuenca et al., 2023). Further, effective SEL is a collaborative effort of various institutions such as schools, families, and communities. These SE skills are not only beneficial for students but also for a person, in general (Weissberg, 2016).

Promoting SEL in education was found to increase not only the academic performance of the students but also help them develop social behavior, reduce depression and stress, and improve attitudes towards school. Despite having empirical pieces of evidence that established the positive impacts of SEL on education, unfortunately, it has not been implemented in the Philippines yet. However, the DepEd has recognized the need to nurture the well-being of Filipino students and protect their mental and psychosocial health, especially in times of disaster. According to the BEDP 2030, the DepEd included the provision of mental health and psychosocial services, and alternative learning delivery modes in their disaster response mechanisms, as well as amplifying child protection policies and advocacies.

SEL is just one of the ways to improve the socio-emotional development of children. Gotteschalk (2019) recommended applying the “Goldilocks” principle in limiting screen time in children, which means moderate and supervised use of technologies for children. The Goldilocks principle was inspired by the fairytale with the same title, which emphasizes the “just right amount” concept (Gotteschalk, 2019). Twenty-first-century children will benefit from the exposure to technologies as it will prepare them for the labor market later on (also mentioned by Crompton et al., 2017), however, parents must guide their children in using them, allowing only educational TV programs and the right amount of screen time. Co-viewing (parents join their children in watching television or visual devices), and combining screen time with off-screen time and physical activities, are also advised (Gotteschalk, 2019). As children cannot comprehend yet the educational value of the media materials they see on screens, it is the responsibility of the parents to discuss it with them. Older children still need guidance, especially in protecting their online

privacy and personal data as they use the internet (Gotteschalk, 2019). Similar to Gotteschalk (2019), Dienlin and Johannes (2020) and Haddock et al. (2022) also recommended the moderate use of digital technologies to obtain only the positive results mentioned above.

In addition, Valencia et al. (2019) and Malik and Marwaha (2022) both emphasized the importance of early detection in providing early intervention. Early detection of disabilities and disorders in students would enable educators to adjust the curriculum and make it more inclusive and conducive for the learners and the overall learning experiences (Valencia et al., 2019).

Vanderlinde et al. (2014) also emphasize that to be able to maximize the benefits of ICTs in the primary education of children, policies must be put in place to be able to institutionalize their use. In their study, they pointed out that using technology in education is not only a concern for the teacher but also in the school in general. The schools must provide professional development opportunities for their teachers. While teachers may have different pedagogies and teaching philosophies, the presence of organizational-level policies may guide them in integrating technologies into their classes. It can be reflected in the school's vision and mission, or by having an ICT plan. Actual technological infrastructures to support these policies and statements offer a great help to teachers as well (Vanderlinde, et al., 2014; Wali & Popal, 2020; Tabalanza et al., 2022).

CONCLUSIONS

For the past ten years, studies on the effectiveness of mobile learning have shown a huge improvement in the way teachers teach and students learn. Generally, positive effects were seen in the areas of education, communication, pedagogies, and knowledge management. On the other hand, the majority of the adverse effects can be traced in the areas of social and emotional development, especially among young students. Antonucci, et al. (2017) stated that the problem occurs in how people use the device. Mobile devices contain features of almost everything you need; therefore their uses exceed that of educational matters. Children are highly at risk especially when they are unsupervised, are left to spend longer screen time, and be able to access explicit and inappropriate materials which could result in mental, psychological, or behavioral disorders later on in their adult life. Thus, the recommendations of Darling-Churchill and Lippman (2016) on introducing social and emotional development early on; and Gotteschalk (2019) on co-viewing and the application of the "Goldilocks principle" in giving screen time to children (as defined earlier) highlight the importance of the role of the family in the overall well-being of their children. Moreover, the integration of SEL

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in the education sector (as recommended by Cristovao et al. (2017), Cristovao et al. (2020), Tabalanza et al. (2022), and Cuenca et al. (2023) give importance to the role of the community in strengthening the social and emotional skills of young learners which have started from their respective homes towards better and lasting academic outcomes.

Another contributing factor is the decrease in the quality of social relationships nowadays. Thompson and Vermani (2012) mentioned that social and emotional development works in two ways and cannot be separated, and it relates to cognitive development. However, based on the data, teachers, parents, and students integrate digital technologies to improve the cognitive and psychomotor domains in education, but not the affective domain. While giving mobile devices to children allows parents and teachers to do other tasks, it is important to build and maintain healthy parent-child or student-teacher relationships.

Based on the review, it can be concluded that mobile learning and social-emotional development are not mutually exclusive. The advancement of mobile learning, as one of the learning modalities, has mixed effects on various learners. While it positively affects higher education learners, young learners have shown otherwise (Uzir et al., 2023). Thus, the guidance and the collaborative effort of the family and the school community on the proper use of mobile devices for educational purposes are necessary to ensure that these devices support the social and emotional development of K-12 learners. Aside from these, moral training and character-building should still be integrated into the learning process of young students. SEL is also a very important step, advocacy, and legacy for the future of young people. Meanwhile, employing a quantitative research design to study relationships between the variables discussed is open for other researchers to explore.

In the 21st century, where almost everything is fast, instant, and digitized, everything is made accessible. We can click without thinking, get the information we want; make judgments; change emotions and perceptions; talk to other people; access inappropriate materials; among others. Establishing morality and strengthening one's values system starting from childhood would guide a child in the responsible and proper use of mobile devices not only for learning but for other purposes. Of course, this requires collaborative and consistent efforts from adults, but it would go a long way. Even with modern technologies, I think Plato's moral education in children, and Aristotle's reasoning habit formation still applies today. As the famous saying goes, "*Train them young*".

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ETHICAL STATEMENT

The study used a systematic literature review and thematic analyses only; no human or animal subjects were involved. Nevertheless, the author highly adheres to the research ethics principle and assures compliance with it whenever necessary.

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ABOUT THE AUTHOR

Carla O. Melodillar is a University Researcher at the University of the Philippines Los Banos (UPLB). She is a Registered Professional Forester and a Licensed Professional Teacher with research interests on the fields of education, extension education, agricultural and forestry extension, and rural development studies. Her research involvements include learners' motivation and participation, adoption and technology transfer, and assessment and implementation of extension programs. She is currently pursuing her Doctor of Philosophy in Extension Education degree at the College of Public Affairs and Development, UPLB while serving as one the Project Leaders of the Farmer-Scientist Research, Development, and Extension Training Program being implemented nationwide. She is also a member of the National Research Council of the Philippines, Philippine Extension and Advisory Services Network, Inc., and Forest and Natural Resources Research Society of the Philippines.