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## Investigating the Pedagogical Values of Smartphones: Students' Experiences from Nepal's Rural Community Schools

Sunita Kandel and Govinda Prasad Khanal

### Abstract

The utility of smartphones for school-age learners has become much discussed and debated issue recently. Teachers, school administrators and students have their personal beliefs about the pedagogical value of smartphones. This paper aims to explore secondary-level students' lived experience of using smartphones to support content and language learning. It examines socio-psychological pressures experienced by learners in using smartphones, particularly in schools. This qualitative phenomenological study was conducted among sixteen rural secondary students (Grade 12) in the Central-Western Tarai in Nepal. The findings indicated the perceived pedagogical value of smartphones as the students could enhance self-learning when they were provided with proper guidance and support from their teachers. Although students experienced pressure from parents and teachers to avoid smartphone use, they found alternative ways of using them to support their learning. The findings implied that the students' increased access to technology can support enhancing the learning of the curricular contents and language.

**Keywords:** ICT, self-learning, smartphones, technological knowledge

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### Introduction

Integration of Information and Communication Technology (ICT) in teaching and learning has been much discussed in educational research. However, Nepal's history of ICT integration in teaching and learning is not so long. Although the first telephone service based on Magneto technology was introduced in 1913, email and internet service was initiated after 83 years (Nepal Telecommunications Authority, 2022b). Later, mobile phone service began in 1996 and was upgraded to 3G service after eight years (Nepal Telecommunications Authority, 2022b). To systematise the use of ICT as a tool of national development, the government issued *IT Policy, 2000* for the first time (Rana, 2018). Although the *National Curriculum Framework for School Education, 2005* planned to integrate ICT in school education for administrative and pedagogical purposes, the *National Curriculum Framework for School Education, 2007* identified some issues such as a lack of proper infrastructure and skilled human resources in schools for ICT integration (Parajuli, 2021). Other plans and policies have increasingly emphasised the integration of ICT in education to improve education and school administration. For example, the ICT Policy of 2015 intended to ensure internet access to

all Nepalis and proposed to ensure access to the Internet in all schools and public sectors to expand digital literacy (Ministry of Information and Communication, 2015).

Recent plans and policies have increasingly emphasised the use of ICT in education. For example, *the National Education Policy, 2019* accepted ICT as an integral part of teaching and learning activities and intended to make educational activities technology-friendly, practical, and result-oriented (Ministry of Education Science and Technology, 2019). Recent *Education Sector Plan, 2021-2030* identified major challenges in secondary education which included increasing access of teachers and students to ICT, enhancing teachers' efficiency and minimising the digital divide (Ministry of Education Science and Technology, 2021). Although Nepal's ICT policies intend to promote the use of ICT in pedagogical activities to develop technological knowledge and skills in learners to enable them to compete in the modern technological world, a gap exists between policies and practices (Rana, 2018).

The use of smartphones has become pervasive in business, communication, mass media, and education. According to the *MIS Report, Nepal Telecommunications Authority* 41, 272, 376 people are using mobile phones while 38, 007, 203 are using internet service (Nepal Telecommunications Authority, 2022a) which exceeds the total population of Nepal. We have observed the increasing use of smartphones among students and teachers to support their learning in the last decade. We frequently use smartphones in teaching English, in particular, to teach vocabulary, pronunciation, writing, and reading comprehension. When we asked the students to bring their smartphones to school to learn English vocabulary, they seemed to be happy and more curious to learn although some students complained that their parents do not allow them to take smartphones to school. Students tend to be more motivated to learn using smartphones rather than books. We have observed in my family that my 10-year-old daughter prefers using smartphones to learn linguistic and nonlinguistic skills such as English vocabulary, drawing, dancing, and karate. However, we have observed that some schools have restricted students from taking their smartphones to school and sometimes they are even punished.

Although frequent use of smartphones by adolescents generates various health issues such as psychological disorders, anxiety, and family conflict (Camerini et al., 2021), they can be helpful for students to access online resources and create flexible learning contexts (Yoon & Yun, 2021). Rather and Rather (2019) have reported the benefits of smartphone use in education, social life, and entertainment. Gene (2014) observed the use of digital technology including smartphones supports children in developing cognitive and social skills through recreational learning although parents often worry about socio-psychological health issues created by over use of smartphones. Mulyani, Razzaq, Ridho, et al. (2019) also claimed that smartphones can support learning when students make use of smartphones as a tool in learning activities. Despite the parents' awareness of the positive influence of smartphone use on learning useful content, they are worried about the time their children spend in recreational activities and the possibility of accessing harmful materials (Hwang & Hariyanti, 2020). However, we believe that when school administration and parents are less positive about using smartphones at school and home, the students might experience psychological pressures of various kinds and develop safe zones to use smartphones. In this context, we intend to explore secondary students' experiences of smartphone use as a supplementary learning device to learn content and language skills. This research intends to investigate the following research questions.

- 1 How is secondary level students' experience of learning language and content using smartphones?
- 2 In what ways do secondary-level students manage the use of smartphones to support their learning?

### Literature Review

The literature review includes two themes: students' experiences of learning through smartphones and students' smartphone learning strategies.

#### Students' Experiences of Learning Language and Content through Smartphone

Several studies have reported the advantages of using smartphones in learning language and content. For example, Anshari et al. (2017) in Brunai found that smartphones supported students in learning language and content as they could watch videos, search materials through the internet, and access teachers more comfortably. They discovered that smartphones provided large access to e-resources for learning and could create online learning platforms among learners to share their learning experiences although they can increase dependency, and reduce capacity to calculate or write along with the possibility of health issues. Mulyani, Razzaq, Sumardi, et al. (2019) found that students enjoyed learning through games using smartphones and actively participated in searching for materials through an internet connection. Their study revealed that smartphone use improved learning achievement and developed critical thinking abilities through collaboration with other students. Another study (Ariel & Elishar-Malka, 2019) in Israel emphasised that coordination among teachers and students in classrooms about using smartphones use could create an improved learning atmosphere and help minimise concentration problems experienced by students.

Studies have also reported how smartphones influence students' learning achievement. For example, Han and Yi (2019) in their quantitative study in South Korea reported that students trained with the basic skills of smartphone communication developed positive learning attitudes towards mobile learning, which finally resulted in improved academic performance. Similarly, Nikolopoulou (2018) in Greece found secondary students' positive attitudes toward using smartphones in classroom learning and suggested a policy review to allow smartphones as learning tools in schools under teacher supervision to support students' learning. Earlier, reviewing the utility of smartphones, Ally and Prieto-Blázquez (2014) highlighted the need for the incorporation of mobile learning in the classroom as the new generations of youths preferred to get immediate access to information. They argued that smartphones would support learners to bring learning content through self-initiation and make them contextual, practical, and relevant.

Kim et al. (2013) in America found that mobile technology provided students with new learning experiences through active engagement in groups even outside the classroom and generated interaction that supported English language learning. They suggested the modification of traditional pedagogical practices by incorporating mobile technologies to make language learning more meaningful and practical. Another study by Kissinger (2013) revealed how mobile technology, particularly the use of mobile e-books, supported individualized learning and helped to build up confidence in having access to necessary learning materials. In a different context of Finland, Kärki et al. (2018) identified the effectiveness of mobile learning outside the technology classroom context where learners could actively collaborate for socially situated and contextual learning. An earlier study (Cochrane, 2010) reported that learning through smartphones would be successful if students were provided regular feedback and technology use was incorporated into the assessment system. A similar study (Oyelere et al., 2016) in Nigeria also reported students' positive perceived values of using smartphones in learning both language and content because they could interact with peers and teachers, and could access authentic resources for learning. These studies indicated that the use of smartphones supported students in creating interactive platforms both inside and outside the classroom and increased access to learning materials which supported to development of their linguistic and pedagogical knowledge and skills.

The above literature indicates that smartphones supported students to access learning materials through an internet connection and enhanced learning achievement through active participation and collaboration. Mobile technology provided students with new learning experiences through active engagement that helped to make learning meaningful and supported individualised learning that helped to develop confidence in learning.

### **Students' Smartphone Learning Strategies**

Studies have reported how students used smartphones in learning course contents within and outside the classroom. For example, Heflin et al. (2017) in America reported that students created collaborative learning groups and created self-learning opportunities using smartphones although students found it less critical when performing writing tasks on small screens. However, Taleb and Sohrabi (2012) suggested that the lack of appropriate technical infrastructure in educational institutions and quality devices with students in developing countries including Iran were detrimental to the effective use of smartphones in learning. A recent study (Antee, 2021) found that the pandemic situation increased the acceptability of mobile learning among students and suggested developing mobile-compatible learning courses and making mobile technology accessible to students to minimise the learning challenges created by the pandemic. Previously, Domingo and Garganté (2016) argued that the use of mobile technology could transform students into knowledge constructors by providing them with more opportunities to learn using smartphones.

Dukic et al. (2015) in Hong Kong reported that students preferred to use smartphones to perform simple activities such as playing games, searching materials, using a dictionary, checking assignments, and communicating with others. Moreover, they reported that smartphones were not appropriate for academic activities such as reading and writing although it would be comfortable to access information quickly for their characteristics of being handy and accessible. In a different context of Australia, Henderson et al. (2017) realia concluded that students try to find appropriate use of digital technologies in their contexts although incorporation of ICT in education could not transform traditional pedagogical activities. However, Farley et al. (2015) discovered teachers' dilemma about allowing students to use smartphones in classrooms despite students' positive attitudes towards using smartphones to learn course content. They also suggested the development and practice of technology-friendly pedagogies based on social constructivism and connectionism. Matsumoto (2021) in America emphasised that smartphones could promote self-learning and learner agency when students could afford appropriate devices. However, Ramamurthy and Rao (2015) found that learners' effective use of smartphones depended on teachers' instruction and collaboration despite having access to the resources.

Learners' inability to handle digital devices could sometimes frustrate learners and hamper their learning. For example, a Malaysian study by CH'NG (2019) reported that the lack of digital literacy, and inexperience, particularly in using the internet and computers, generated emotional problems and frustrated the learners, which could be minimised through enhanced interaction with teachers. A study by Putranta and Setiyatna (2021) in Indonesia revealed that despite high school students' preference for using smartphones to enhance their learning, they were likely to misuse smartphones to entertain themselves in different ways diverting their attention in content learning, and therefore, suggested that teachers should develop relevant rules to control possible misuse of smartphones in classrooms. However, Chua and Mazmanian (2021) in America revealed parent-children tension about smartphone use where parents insisted their children adopt strategies of smartphone use which could enhance learning through collaboration with friends and become self-reliant rather than being engaged in social conversations, but children believed such activities as a part of seeking collaboration. Moreover, they suggested the adoption of flexible strategies which could minimise value conflict between parents and their children.

In the context of Nepal, Shrestha et al. (2022) revealed that the popularity of using digital devices including mobile phones increased after the COVID-19 pandemic. They reported that the use of digital devices supported to creation of a learning community, collaboration, and sharing of content. However, they claimed the challenges of using mobile phones in learning including students lacking access to suitable digital devices and technological skills in learning using digital devices. Parajuli (2016) suggested that effective use of mobile technology in learning would require the development of technology-friendly pedagogy, and proper institutional support for students. Shrestha (2011) claimed the challenges of using mobile phones in learning such as negative attitudes of the administration towards mobile use, inaccessibility of mobile phones for all students, and lack of mobile-friendly digital content for learning language.

The above literature revealed how students attempted to utilise smartphones as a learning device in their context despite concerns from teachers and parents about their possible misuse. The literature indicates parents and teachers lack confidence about the positive consequences of smartphone use by students which would create various psychological pressures upon them about proper utilisation of smartphones. In particular, the existing literature pictured a clear absence of research on secondary students' experience of mobile learning management in Nepali schools in the context of the growing use of ICT in education in the post-pandemic era.

### Methodology

We have used a qualitative research approach to explore the secondary students' experiences of using smartphones in their learning. Informed by Cohen et al. (2018), we followed the interpretive research paradigm as secondary students would have diverse experiences of learning using smartphones. We selected the interpretive research paradigm believing that the research participants had different experiences of learning using smartphones. Therefore, getting ideas from Denzin and Lincoln (2018), we have explored how participants constructed multiple realities based on their lived experiences because phenomenological research aims to describe, explain, and interpret a phenomenon, situation, or experience understood by participants. We selected sixteen secondary-level students (Grade 12) from four schools in the Banganga Municipality of Kapilvastu district for the study. We maintained gender balance but asked for their voluntary participation after obtaining informed consent from the gatekeepers and students. The students who raised their hands first showing willingness to participate were selected for the interviews.

Table 1

*Participant Schools and Students*

School	Students	Gender
Buddha	Sumitra	Female
	Pranita	Female
	Bimal	Male
	Krishna	Male
Mayadevi	Pari	Female
	Anju	Female
	Balaram	Male
	Dipendra	Male
Gautam School	Srijana	Female
	Puja	Female
	Narayan	Male
	Suraj	Male
Lumbini School	Nima	Female
	Karina	Female
	Nimesh	Male
	Bibek	Male

Following Cohen et al. (2018) we used phenomenological design to explore the lived experiences of the secondary level students regarding smartphone use in learning. Being accustomed to the participants, we took informed consent informing them that they would be voice-recorded but need not worry about its exposure. To get appropriate information for the study, we conducted semi-structured interviews as suggested by Denzin and Lincoln (2018). After getting permission from the school administration, we created a comfortable and friendly atmosphere to develop trust and confidence so that the participants would share their understandings and experiences of learning using a smartphone. We collected information from the participants meeting them physically multiple times in the natural setting of schools. The interviews were audio recorded on a smartphone and were analysed generating relevant themes based on the interview data (Braun & Clarke, 2006).

### **Results**

Based on interviews with the participants, the secondary students in rural schools in Western Nepal Tarai, this section presents findings on three themes, which are related to students' experiences of smartphone use as a language and content learning resource, mobile learning management and learner awareness, and initiatives for value transformation on smartphone use.

#### **Smartphones as Language and Content Learning Resource**

The participants reported their learning experiences of using smartphones with Wi-Fi connections. They shared their real experiences of how they utilised smartphones to support their learning. Most of the participants reported that they enjoyed learning through smartphones because they could search for relevant learning materials through online resources at any time. For example, Sumitra from Buddha School said:

This is the age of technology. Everything is available on YouTube. When I don't know something or when I cannot ask my teacher for clarification on some content, I can search and learn from YouTube videos. When I cannot understand watching YouTube videos, I ask my teachers saying that I tried this way but could not understand. Then, they support me learn. Smartphones have supported me learn both language and content.

Her remarks indicated how the use of smartphones supported students to search and learn web-based materials to reduce confusion arising in the classroom. Moreover, the participant students utilised smartphones to develop self-efficacy in learning and compensate for what they missed from their teachers in the classroom. For example:

It is quite interesting. We can get all the information that we missed in the class.  
(Balram from Mayadevi School)

I feel excited to learn through smartphones. It helps my learning. We can get access to learning material easily to avoid confusion. (Pari from Mayadevi School)

It is much more pleasing to learn from YouTube videos on mobile phones. They make effective videos. They are comprehensible. They are more effective than classroom instruction. I feel so. (Bimal from Buddha School)

These remarks are an indication of how students used smartphones to search for learning materials to develop an understanding of the content presented in the classroom. They found online resources effective because they included audio-visual content with artistic presentation. They used

mobile phones to search for content from various subjects such as English, Social Studies, Finance, and Accountancy. For example:

I feel good to learn from mobiles. I feel happy somehow to learn what I did not understand at school. I search on Google and YouTube and learn, so it's good. It is helpful. Sometimes it saves time as well. I use it to support my study. Especially, I use it for Finance and Accounts. I also use it in learning English.  
(Krishna from Buddha School)

Krishna's remarks indicated how students' technological knowledge supported the development of content knowledge along with English and encouraged them to learn by making learning materials more accessible to a wider extent. However, Narayan from Gautam School shared that the vastness of content on online resources created confusion among the students about the relevancy of materials they required to learn:

When I learn using a book, I have to learn what is given in it. YouTube supports quick learning. But, when I search from Google, it is sometimes confusing because I have to dig down and I cannot decide what to learn and what to leave. I cannot get the exact meaning.

Narayan's remarks are an indication of the challenges students experience when learning through online resources in comparison to course books, which provide systematically selected and graded materials. In particular, the vastness of content displayed through web searches made it difficult for the students to decide the relevance of learning materials. Moreover, students used smartphones to promote self-learning as reported by Pranita from Buddha School:

When I did not have a mobile phone, I had to wait until the next day to ask my teacher if I didn't know something. Now if I don't know or if I have to complete my notes, I can use it and learn immediately. So, it is very useful now. I can explore and learn something new and inspire myself.

Her remarks revealed how smartphones provided a useful means to learn content in the absence of teachers and promoted their learning. They used them to develop notes to prepare for their examinations. They also assisted them in exploring new knowledge, which motivated them to further learning.

It is reflected from the above remarks that students utilised smartphones to search for relevant learning materials online to improve their learning. Smartphones supported students to develop self-efficacy helping them to increase linguistic, technological, and content knowledge. They also motivated self-learning and pace learning by increasing access to learning materials although the vastness of content available online sometimes confused them in the selection of appropriate learning content.

### **Mobile Learning Management and Learner Awareness**

The participants in the interviews reported how they managed their learning using smartphones. Most of the participants reported their awareness of proper use of smartphones to support their learning although their parents and teachers warned them against overuse of smartphones. However, they attempted to convince them that they were using smartphones to learn the contents of their curriculum. For example:

When I use it when I don't have my exam, they say nothing as such, but I have to use it during my exam too. In that case, they say "Why are you playing with your mobile phone when you have an exam"? As they think I am using Facebook or TikTok, I play videos louder even when I am using the Guruba App. Then only they believe that I am learning something from the mobile phone. (Pranita from Buddha School)

Yes, my parents allow me. I don't use it much and they believe me. I can easily convince my parents. I never lie to them, so I don't have any pressure from my parents. (Nima from Lumbini School)

These remarks indicated the parents' awareness of their children's habits of excessive smartphone use although they showed more concern during examination periods. As the parents believed that their children were engaged in social sites and gaming on mobiles, the children had to justify that they were using them to learn curricular content. Moreover, many students were found self-aware of the proper utilisation of smartphones, and parents and teachers did not have to interfere with them. For example:

Yes, when I had a mobile in the beginning, I used to make TikTok videos and many of my friends did so. I would not know how quickly time is spent. I would think I could study later. I would spend the whole day making TikTok videos and pay little attention to my studies. (Sumitra from Buddha School)

It depends on how we use it. When we use it excessively it has negative results but when we control ourselves and use it for special need, then it is very fruitful. (Dipendra from Mayadevi School)

Phones don't spoil people, but people are damaging their phones because of addiction to phone use. It depends on people how they use it. (Anju from Mayadevi School)

These remarks indicated how students gradually transformed their habits of smartphone use from entertainment and communication to content learning. Although they spent more time on social sites in the early days of their smartphone possession, later they tended to realise that they could be used as learning devices. It is depicted from the above remarks how students learn to manage their learning as they experience learning in new contexts of technological advancement. In particular, the students gradually learn to minimise the negative effects of technological devices and their applications when they are permitted to experience real learning contexts.

#### **Initiatives for Value Transformation of Smartphone Use**

Participants in the interviews shared how they could transform the values of smartphone use and transform both language and content learning. The learners' beliefs on the perceived value of mobile learning initiated to transform particularly when their teachers encouraged them to search and learn curricular contents of various subjects such as English, and Accounts from different online resources including learning apps and YouTube. For example:

Sometimes my English teacher asks me to search for some content on YouTube and when I do so, my father complains that I'm using my mobile phone again after coming back home from school. (Sumitra from Buddha School)



Our school allows us to take mobile phones to school. Teachers encourage us to use our phones in creative ways, like downloading learning apps, and dictionary that enable us to learn English and other subjects. (Srijana from Gautam School)

I came to know that we can use them in learning course contents as well as gaining general knowledge. My teachers encouraged me to use it to search for content related to my courses. (Suraj from Gautam School)

These remarks indicated that teacher encouragement helped students to transform their habits of smartphone use by assigning them tasks that required online and offline searches on mobile devices. Moreover, permitting smartphone use in the classroom under teacher supervision to access learning materials supported students to change their perceived learning values of smartphones. The participants also reported how they managed to learn from web-based resources despite not having personal devices and internet connection at home. For example:

Yes, I have my smartphone but no Wi-Fi connection at home. We have a Wi-Fi connection in our school. I download the materials I need and study at home whenever I need them. (Dipendra from Mayadevi School)

I don't have a personal phone. My brother sometimes allows me to use his phone. I take data whenever I need internet access. (Balram from Mayadevi School)

It is evident from the above remarks that students gradually learned to manage their learning through smartphones by transforming the value system about utilizing smartphones to support learning of language and content when they realised that excessive use of smartphones hampered their learning. In particular, they transformed their habit of using smartphones for recreation to learn curricular content when teachers encouraged students by assigning activities requiring the use of online resources. This increased students' perceived value of smartphones as learning devices and were able to convince their families to access smartphones. Indeed, smartphones provide useful alternative means to enhance linguistic, technological and content knowledge.

### **Discussion**

The findings of this study revealed the relevance of using smartphones in learning because students were more motivated to search for learning materials online on their mobile phones with an internet connection. Indeed, their access to smartphones increased their accessibility to a wide area of content although they found it challenging to select appropriate learning content for their purpose. Most importantly, they supported self-learning (Matsumoto, 2021), enhanced instant learning, and provided learning security because they could learn what they missed in their regular classes. It is evident from the study that smartphones supported students in developing content knowledge through the effective utilisation of technological skills which aligns with (Rana et al., 2022) who argued that ICT could support the integration of technological, pedagogical, and content knowledge to enhance effective classroom learning.

The present study revealed students' experiences of how they could use smartphones to learn language as well as contents from mathematics. For example, they tried to learn English vocabulary, grammar, reading comprehension, and writing skills using learning through Google search and various learning apps, which increased their access to learning materials and became supportive to enhance their knowledge of curricular content. This finding aligns with Anshari et al. (2017) who reported that smartphones with internet connection increased students' access to vast amounts of open learning

resources and supported improved learning although it sometimes increased dependency on software and decreased capacity to think critically. Although students enjoyed searching for learning materials with their smartphones (Ariel & Elishar-Malka, 2019), this study revealed that students' vastness of search materials displayed on their screens increased confusion because they could not judge the relevancy of the content they needed to learn. Similar to the findings of Han and Yi (2019), this study also found that students valued smartphones as valuable learning devices although their parents were skeptical of their habit of using smartphones and complained that they were hampering learning. Further, this study revealed that school administration did not allow students to bring smartphones into the classroom although some teachers encouraged them to use them to support learning, which supported them to value mobile phones as important pedagogical devices. This study also revealed how smartphones increased interaction with teachers and materials making them accessible outside the classroom context and making learning more contextual, which increased the positive perceived value of smartphones for learning (Oyelere et al., 2016).

The findings of this study revealed how students' perceived value of a smartphone as an entertaining device can change gradually into a learning device. In particular, teacher encouragement to search for learning materials through smartphones supported their learning by increasing their capacity to explore learning materials. As reported by Domingo and Garganté (2016), the use of technology can transform students from knowledge receivers to knowledge constructors and increase self-efficacy by increasing accessibility of content both online and offline. The findings revealed students developed strategies to support their learning of language, mathematics, and content subjects by utilising dictionaries, Google search, YouTube, and learning apps despite lacking sufficient support from schools and families although Dukic et al. (2015) reported that smartphones were not appropriate for developing reading and writing skills. It is evident from the study that student develop ways of accessing ICT resources despite not having their personal devices and internet connection when they realise their pedagogical utilities of technology. As reported by Farley et al. (2015), although the administration was not positive and teachers were in dilemma about allowing smartphones in classrooms, students could convince senior members of the families to transform their perceptions about the misuse of smartphones and use them to support their learning when teachers encouraged them to learn from online resources. In particular, the supportive role of teachers could transform students' habit of using smartphones as an entertaining device into a pedagogical device that develops students' potential for learning.

### **Conclusion and Implications**

There is a consensus that smartphones have pedagogical utilities if they are used rationally. The findings of this study revealed secondary students (Grade 12) perceived the value of smartphones in learning. The study found that smartphones supported the development of pedagogical and content knowledge and made them more independent learners. In particular, technological skills practised through smartphones enhanced the pace of learning as the students could search for relevant content themselves and learn at their own speed. This allowed students to work independently and could compensate for learning that they missed in regular classes. Indeed, smartphones increased access to learning materials for students although many participants did not have their personal devices and internet access and yet they borrowed devices from senior members of their families and used publicly available internet to search and download learning materials.

The study findings discovered that parents were often skeptical about the pedagogical values of smartphones and intended to minimise their use by their offspring. However, students adopted strategies to convince their families to seek support for using smartphones to learn curricular content. It

is evident from the study that teacher guidance and support can increase the pedagogical values of smartphones for students and can transform their use from everyday communication and entertainment to learning language as well as curricular content including mathematical operations. Although there are challenges of access to technology for many students and their parents and school administration worry about their proper use, students have begun to value their pedagogical implications. It is concluded that engaging students with smartphone technology followed by proper guidance and support from teachers can enhance self-learning by increasing access to learning materials.

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