SUPERSTAR TEACHER TOOLBOX

MOBILE MESSAGING FOR LEARNING
1  Embracing mobile messaging for learning
2  Connectivity for effective mobile learning
3  Pedagogy of mobile messaging teaching
4  Ethical guidelines and boundaries
5  Planning teaching with mobile messaging
6  Content creation
7  Assessment via mobile messaging
8  Teacher support
9  Caregiver involvement
In today’s digital age, the ubiquitous presence of mobile phones offers educators a wealth of opportunities to transform the way they teach, and students learn. One cannot ignore the omnipresence of mobile phones in our lives. They have become an integral part of society, transcending geographical, cultural, and economic boundaries. The sheer number of individuals who use mobile phones on a daily basis is staggering. In many countries, mobile phone penetration has reached unprecedented levels, making them an accessible tool for the vast majority of the population. Mobile phones have become a preferred choice for learners.

The COVID-19 pandemic accelerated the adoption of mobile phones for education in many countries. Schools and educators turned to mobile devices and instant messaging solutions to ensure continuity in learning. Now, it is essential to reflect on the lessons learned during this challenging period and find ways to scale the knowledge gained. Embracing the changes brought about by the pandemic means recognising the fundamental shifts in education and being open to incorporating mobile devices into teaching practices.

Teachers play a pivotal role in championing the acceptance of mobile learning among students, parents, and government authorities. By highlighting the benefits and advantages of using mobile devices for educational purposes, teachers can encourage students to embrace mobile phones as a valuable learning tool. Their advocacy can also influence policies and investments in educational technology.
Acknowledgements

I extend my deepest gratitude to Ms. Leotes Lugo Helin, Education Manager, and Mr. Iñaki Alejandro Sánchez Ciarrusta, Education Specialist from the UNICEF Global Learning Innovation Hub, as well as Mr. Antti Peltoniemi, Digital Learning Expert at FinCEED/UNICEF Learning Innovation Hub. Their continual support, insightful guidance, stimulating questions, and fruitful collaboration have been invaluable throughout the writing process of this work.

Special thanks are also due to the following esteemed professionals from various Regional and Country level UNICEF Offices. Their engaging interviews, enlightening discussions, and insights into teacher and student needs, along with examples of mobile messaging in education, have significantly enriched this project: Rudranarayan Sahoo, Ph.D., Education Specialist, Quality & Learning, Nairobi Eastern and Southern Africa UNICEF Regional Office; Nora Shaban, Education Specialist – UNICEF Geneva Europe and Central Asia UNICEF Regional Office; María Luján Tubio, Regional Education Advisor (ad interim), South Asia UNICEF Regional Office; Faiza Nasery, UNICEF Afghanistan Country Office; Tillmann L. Guenther and Christopher Nkrumah, Education Specialists, UNICEF Ghana Country Office; Pramilu Manoharan and Sunisha Ahuja, Education Specialists, UNICEF India Country Office; Nicole Starkey, Education in Emergencies, Yanhong Zhang, Chief of Education, Myo Myo Win, Education Officer, Zar Zar Wint, UNICEF Myanmar Country Office, and Ei Mon Soe - Project Manager, and Khin SAN WIN, Handicap International, Myanmar; Elli-Noora Heino, Education Officer, UNICEF Nepal Country Office.

I am equally thankful to the numerous UNICEF representatives and personnel who attended my presentations and clinics, posed questions, and offered further information, helping to refine the content of the guidance on mobile messaging to better suit the needs on the field. Particularly Samip Gupta, UNICEF Regional Edtech Advisor on Learning Passport mobile use, and Frank van Cappelle UNICEF Senior Adviser on Digital Learning on use of mobile messaging in emergencies.

A special note of appreciation goes to the dedicated teachers who have innovatively used mobile messaging in their work during COVID-19 and thereafter in education in emergencies. Their commitment and impactful efforts in supporting the learning of millions of children is truly inspiring.

For the thorough proofreading, editing, and valuable suggestions, I am indebted to Felicity Harrison, Copy Editor with Sounds Interesting, Sweden. For the inspiring design, the look and feel of the tool I thank for collaboration; Marita Koivisto, Designer, Matti Ranki, Designer and Nawras Odda, Digital Producer from Adventure Club, Finland.

Finally, I would like to express my heartfelt thanks to my husband, Simo Taimela, for his unwavering support at home. His assistance in managing our household and taking care of our dogs during the many long evenings and weekends dedicated to researching and writing this guidance has been a pillar of strength and encouragement for me.

This acknowledgment not only reflects the collective efforts and support of all the individuals mentioned, but also serves as an encouragement for teachers and educators. I hope this guidance inspires and motivates them to embrace mobile messaging as a valuable tool in their educational endeavours, furthering the impact of their vital work in shaping the future of learning and addressing the global learning crisis.

Attribution:
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1 Embracing mobile messaging

EMBRACING MOBILE MESSAGING FOR LEARNING
Embracing mobile messaging

1.0 Introduction

The widespread use of mobile phones highlights their potential as impactful educational tools. According to the Digital 2023 Global Overview Report from DataReportal (Kemp, 2023), people access the internet more from smartphones than any other device. For example, a study in Ghana (Arthur-Nyarko et al, 2020) on digital learning preparedness in education found that of the 400 students surveyed, most were ready for digital learning, yet access to digital technologies was limited. Despite this, the majority of students had internet-enabled smartphones that they already used to access digital learning materials. Similarly, in 24 LMIC countries between 2018 and 2021, the poorest 20% of households largely lacked televisions, with only a quarter owning a radio, yet two-thirds had a mobile phone (UNESCO, 2023, p.31). In 2022, 95% of the global population was covered by 3G wireless networks and 88% by 4G technologies. Mobile phone subscriptions reached 108 per 100 people, with higher rates in some regions (UNESCO, 2023).

The COVID-19 pandemic saw a rise (see below for an example) in mobile learning devices’ popularity owing to their affordability, durability, and ease of portability, facilitating consistent communication between students, teachers, and parents, alongside the exchange of learning materials in these countries. Mobile phones, particularly in remote or crisis-hit areas, were pivotal in aiding children’s education. They provided a link to distance learning for disadvantaged children, primarily used to distribute educational resources and encourage interactions among students, peers, educators, and parents.

Given the affordability of mobile phones compared to traditional computers, mobile messaging in education offers an equitable solution that is particularly appealing to students from lower socio-economic backgrounds. Furthermore, mobile messaging platforms can be tailored to suit individual needs, and provide the flexibility for students to access educational content at their convenience, moving beyond the restrictions of the physical classroom.
Example 1

**WhatsApp use in Indonesian primary schools**

During COVID-19 (2020), an Indonesian Ministry of Education and Culture primary school survey found that out of 14,668 respondents, 70% reported learning through WhatsApp groups, and only 296 respondents (less than 0.1 %) reported learning through a website or a school platform, despite students being advised to use the latter.
1.1 General potential of mobile phone use in education

- **Ubiquity and accessibility**
  - Mobile phones are omnipresent in today’s society, making them easily accessible for most individuals.

- **Connectivity**
  - Even with no access to the internet, some of the functionalities of phones are still relevant. It is possible to use SMS messaging that relies on carriers and cellular networks.
  - Alternate access to internet-based messaging solutions can include the use of hotspots – e.g., at a community centre – where learning material can be downloaded for offline use at home.
  - Mobile phones transcend geographical, cultural, and economic boundaries, ensuring a wide reach.

- **Affordability**
  - Mobile phones are often more affordable than traditional computers or laptops.
  - Mobile phones provide an equitable option for accessing educational resources, especially for students from weaker socio-economic backgrounds.

- **Flexibility and convenience**
  - Students can access learning materials at their own convenience, breaking free from traditional classroom schedules.
  - Flexible use of mobile phones is especially beneficial for catch-up, remedial, and emergency education scenarios.

- **Diverse features:**
  - Mobile phones offer a range of features to be used as educational tools, from interactive quizzes to multimedia content.
  - Educators can leverage these features to create enriching experiences beyond textbooks.
1.2 Added value of using mobile phones for learning

🎨 Personalised learning
- Mobile learning caters to individual learning preferences and needs.
- Mobile apps and platforms can adapt to students’ pace and style, fostering motivation and engagement.
- Some mobile bulk messaging platforms can personalise the messages.

🤝 Collaborative learning
- Mobile phones facilitate collaborative learning through group chats, shared documents, and online discussions.
- Mobile phones promote peer-to-peer interaction and knowledge sharing.

⚡ Real-time Feedback
- Mobile messaging provides instant feedback, helping students understand their mistakes and improve.

📚 Resource availability
- Ability to use visual representations, audio, and video.
- Mobile phones provide access to a vast array of online resources, from e-books to research papers.

🌉 Bridging the digital divide:
- Given high rates of ownership, low cost, flexibility, durability, and portability, using mobile phones to support learning can help bridge the gap between privileged and underprivileged students.

♿ Support for learning disabilities
- Smartphones that have embedded accessibility and personalisation features, such as built-in screen readers, voice control, immersive readers, word prediction, and text-to-speech/speech-to-text tools, can facilitate learning for children with disabilities.

🚨 Emergency education
- In crisis situations, mobile phones can serve as a lifeline, allowing students to continue their education despite disruptions.
- Mobile phones are also sometimes the only way to reach students and provide education.
1.3 Potential risks in mobile messaging

Mobile messaging has brought about numerous benefits, such as instant communication, connectivity, and convenience. However, it also comes with its own set of challenges and negative effects. Acknowledging and addressing the potential adverse effects of mobile messaging among students is crucial.

The negative sides of mobile messaging

🎉 Cyberbullying

Cyberbullying refers to the use of electronic communication to bully or harass someone, typically by sending intimidating or threatening messages. Mobile messaging platforms can be a medium for such behaviour, leading to emotional and psychological distress for the victim.

❌ Sexting

Sexting involves sending sexually explicit messages, photos, or videos via mobile devices. It can lead to unwanted exposure, blackmail, and other potential dangers, especially if the content gets into the wrong hands. Sexting can lead to victimisation, exploitation, and susceptibility to cyberbullying. Both boys and girls engage in sexting, and it occurs both within and outside of relationships.

😟 Dependency and emotional distress

Rapid exchanges in messaging can lead to negative emotions like sadness, anxiety, anger, and guilt, especially when waiting for a reply. High dependency on messaging can exacerbate these feelings.

See this study from Japan for more: https://www.igi-global.com/gateway/article/239530.

🚶 Distraction

Turning on mobile phones during school hours and spending time on non-academic activities during learning can lead to distractions and negative messages.

1 Embracing mobile messaging

> Potential risks in mobile messaging

Excessive screen time

Excessive screen time refers to spending prolonged periods using mobile devices, computers, or watching television. With mobile messaging, the constant notifications, group chats, and the urge to stay connected can lead students to spend a significant amount of their day staring at their mobile screens, reducing, e.g., physical activity.

Language and literacy impact

The use of abbreviations and “textisms” in mobile messaging can influence language and literacy skills, especially among children – see: www.informingscience.org/Publications/2272.

Spread of misinformation

Messaging platforms can be used to spread false information or rumours, leading to panic, misconceptions, or even real-world harm.

Privacy concerns

Messaging platforms can be hacked, leading to exposure of personal information, conversations, and media. Mobile phones may also fall victim to unauthorised use.
Key considerations for using mobile phones in education

- Acknowledge the widespread use of mobile phones.
- Recognise that mobile phones are affordable.
- Understand how mobile phones cater to individualised learning, enhancing motivation and engagement.
- Emphasise the convenience and the portability of mobile phones.
- Explore the wide range of learning opportunities offered by mobile phone messaging solutions.
- Reflect on the lessons learned during the COVID-19 pandemic and find ways to incorporate mobile devices into teaching practices effectively.
- Recognise the pivotal role of teachers in advocating the use of mobile phones.
- Embrace the inclusivity of mobile learning, especially in rural and remote areas.
- Acknowledge that learners generally have positive attitudes toward technology and mobile devices for learning.
- Set up clear guidelines and rules for mobile use in educational context (see chapter 4 for more).
2 Connectivity for effective mobile learning

CONNECTIVITY FOR EFFECTIVE MOBILE LEARNING
Connectivity is crucial for mobile learning, enabling access to educational resources irrespective of the mobile device being used. Despite global strides, challenges persist with bandwidth and unconnected regions; as of 2022, around 2.7 billion individuals or a third of the world's population lacked internet access. School connectivity varies globally, with only 40% of primary, 50% of lower secondary, and 65% of upper secondary schools being internet-connected (UNESCO, 2023). Smartphones, laden with multiple features like high-quality cameras and GPS, serve as versatile educational tools. Although less feature-rich, feature phones also provide internet access, facilitating learning for those without advanced devices. With 92.3% of individuals accessing the internet via mobile phones (Kemp, 2023) – most using smartphones – the dominance of mobile devices as internet gateways is evident, underscoring the need for educators to ensure mobile-accessible educational content. Mobile learning technologies should be adaptable to various devices and media formats, ensuring a consistent, user-friendly learning experience regardless of device type or location. In regions with slow connectivity, offline access to educational content can mitigate disruptions, enabling continuous learning amidst connectivity challenges.
Mobile Learning and Connectivity Overview

Understand connectivity
Recognise the importance of connectivity for mobile learning.

Harness smartphone features
Utilise cameras, GPS, QR codes and other features for educational projects.

Feature phones and connectivity
Even basic phones can access platforms like WhatsApp.

Statistics to consider
92% access the internet via mobile phones, highlighting the dominance of mobile devices.

Adaptable mobile learning tech
Ensure compatibility across devices for a consistent learning experience.

Addressing slow connectivity:
Use hotspots, e.g. at a community centre, school, or learning hub. Mobile messaging can be used offline, provided the device is brought to the hotspot at regular intervals for content synchronisation.

Mobile phone penetration and education
Understand the correlation between phone subscriptions and gender-inclusive education.

Overcoming connectivity challenges
Provide offline access to resources for uninterrupted learning.
2 Connectivity for effective mobile learning

2.1 Types of messaging solutions

2.1.1 Short messages

Short message service, commonly abbreviated as SMS, is a text messaging service component of most mobile phones and other devices. It uses standardised communication protocols that let mobile devices exchange short text messages. There are services that can also facilitate a text-to-voice conversion to be sent to landlines.

The service allows users to send and receive messages of up to 160 characters to and from GSM mobiles. SMS offers flexibility, specific content delivery, study aids, student engagement, and a means of study support. It is a familiar and widely used technology among students, making it an effective tool for educational purposes. In addition to texts, one can also send photos and links to other mobile phones. Teachers sending SMS to their students should also be aware that some recipients might be charged for receiving SMS, so this should be used sparingly. Furthermore, short messages are not encrypted and thus are not secure.

To use SMS, one only needs a mobile phone contract with a text-messaging plan; SMS does not require an internet connection or a smartphone. SMS texts are sent and received via cellular networks, making it a more reliable communication channel in situations where internet connectivity is unstable or unavailable. SMS can be sent in bulk using separate bulk messaging service platforms.

2.1.2 Instant messaging services

Instant messaging services have revolutionised the way we communicate. These platforms offer real-time text and voice transmission over the internet, making communication more immediate, personal, and often more efficient than traditional emails or phone calls.

WhatsApp is the most popular instant messaging platform, but Facebook Messenger, Telegram, and Line also hold significant user bases. Their popularity can be attributed to their easy-to-use interfaces, feature-rich environments, and the ability to connect people across the globe instantaneously.

It is also possible to make use of Business Platform APIs to send instant messages in bulk and scale; they may also be integrated with bots or other platforms. This allows both freeform and template-based messaging, with the latter requiring an initial opt-in from users.
Example 2

**M-Shule SMS learning & training**

M-Shule leverages AI with SMS and WhatsApp to provide a versatile educational platform in Kenya, focusing on literacy, numeracy, and skill-building.
Table 1: Different mobile messaging platforms and features

<table>
<thead>
<tr>
<th>Platform</th>
<th>Ownership</th>
<th>Primary features</th>
<th>Unique attributes</th>
<th>Security and privacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whatsapp</td>
<td>Meta Platforms (USA)</td>
<td>Text, emoji, voice &amp; video messaging, file sharing, VoIP calls</td>
<td>Accessible from both mobile and desktop</td>
<td>End-to-end encryption</td>
</tr>
<tr>
<td>iMessage</td>
<td>Apple Inc (USA)</td>
<td>Text, image &amp; video messaging, file sharing</td>
<td>Exclusively for Apple devices</td>
<td>End-to-end encryption; even Apple cannot access content</td>
</tr>
<tr>
<td>Facebook Messenger</td>
<td>Meta Platforms (USA)</td>
<td>Text messaging, file sharing, voice &amp; video calls, bot interactions, games</td>
<td>Accessible from both mobile and desktop</td>
<td>Optional end-to-end encryption</td>
</tr>
<tr>
<td>Telegram</td>
<td>Telegram FZ-LLC (UAE or another Freezone)</td>
<td>Text, voice &amp; video messaging, file sharing, channels, stickers</td>
<td>Cloud-based</td>
<td>Optional end-to-end encrypted &quot;secret chats&quot;</td>
</tr>
<tr>
<td>Viber</td>
<td>Rakuten (Japan)</td>
<td>Text, image &amp; video messaging, VoIP calls, Viber Out for international calling</td>
<td>Desktop accessibility without mobile</td>
<td>End-to-end encryption</td>
</tr>
<tr>
<td>Signal</td>
<td>Signal Foundation &amp; Signal Messenger LLC (USA)</td>
<td>Text, voice &amp; video messaging, file sharing, group chats</td>
<td>Focus on privacy and minimal data retention</td>
<td>End-to-end encryption</td>
</tr>
<tr>
<td>WeChat</td>
<td>Signal Foundation &amp; Signal Messenger LLC (USA)</td>
<td>Text &amp; voice messaging, social media, photo/video sharing</td>
<td>Weixin for China and WeChat for international users</td>
<td>Censorship &amp; surveillance for Chinese Weixin users; data storage varies by region</td>
</tr>
<tr>
<td>Line</td>
<td>Line Corporation (Japan)</td>
<td>Text, image &amp; video messaging, VoIP calls, digital wallet, news stream</td>
<td>Wide range of integrated digital services</td>
<td>End-to-end encryption</td>
</tr>
</tbody>
</table>
Different messaging solutions used by UNICEF

Learning passport
Learning Passport is a digital learning platform developed by UNICEF and Microsoft, designed to provide high-quality, flexible education for children and youth. It offers both online and offline access to both global content and educational resources. The platform is adaptable for use as a national learning management system and includes personalised learning records for users. It also supports teachers and parents with resources and training. There is also a Learning Passport mobile app that can be integrated with instant messaging applications such as WhatsApp, Telegram, and other similar apps. When incorporating the Learning Passport app into your mobile messaging strategy, consider verifying users via their mobile phone number rather than email.

- UNICEF, Learning Passport
  https://www.learningpassport.org

RapidPro
RapidPro is an open-source platform designed for building and scaling interactive messaging systems across various channels like SMS and Instant Messaging. TextIt manages all UNICEF RapidPro apps. It offers an intuitive visual interface and tools for creating user registration flows, polls, two-way communication, and campaign management. RapidPro integrates with multiple messaging services (WhatsApp, Telegram, Messenger, Line, Viber etc.,) and supports advanced features like automated message scheduling, customisable questionnaires, and analytics. It’s adaptable for diverse sectors and contexts, with capabilities for handling large volumes of messages and enabling API-based custom integrations.

- RapidPro App
  https://app.rapidpro.io

U-Report
U-Report is UNICEF’s digital platform to engage young people in social initiatives and emergency responses. It collects real-time data on issues affecting children, particularly the vulnerable, through SMS, WhatsApp, and Facebook Messenger. This data, gathered via weekly polls and contact group registrations, is displayed on public dashboards for analysis and action by decision-makers. U-Report also provides a separate dashboard for managing unsolicited messages and case tracking, ensuring comprehensive youth engagement and feedback utilization. U-report is powered by RapidPro.

- U-report
  https://ureport.in

Fundoo
Available on the U-Report platform in multiple languages, is a chat-based digital tool designed to enhance 21st-century skills among young people aged 14-24. It focuses on developing critical thinking, communication, emotional intelligence, creativity, along with providing career guidance and entrepreneurial insights. It covers topics like health, mental health, climate change, and gender-based violence. Users can access FunDoo through WhatsApp, Viber, Instagram, or Facebook Messenger. Engaging with a chatbot, users complete nine interactive tasks that combine learning with play. FunDoo is powered by RapidPro.

(Note: this is not the same as the mobile application Fundoo App on the app store, which is an entertainment concierge for travellers).
Checklist for choosing a mobile messaging platform

✔ **Privacy and security**: Consider the level of encryption and privacy policies. Apps like WhatsApp, Signal, Telegram and iMessage offer strong end-to-end encryption, ensuring your conversations remain private.

✔ **Platform compatibility**: Choose apps that are compatible with your device's operating system; e.g., iMessage is exclusive to Apple devices.

✔ **Features**: Determine which features are most important to you, such as the ability to send various media types, make voice/video calls, etc.

✔ **User base**: The popularity of the app in your location or among your contacts is also important, as it dictates how many people you can reach using the messaging app.

✔ **Platform integration**: Consider the need of bulk messages, automation, or use of chatbots, and choose such a platform for instant messaging that can be integrated with other platforms, e.g., Learning Passport, U-Report, RapidPro.

✔ **Data policy and storage**: Consider where your data is stored and how it is managed, especially if you are concerned about governmental oversight, as in the case of WeChat.
2 Connectivity for effective mobile learning  

2.2 Reaching out to the learner

Consent
Before implementing mobile learning, educators should obtain the consent of parents or parents. This step is crucial to ensure that all stakeholders are comfortable with the use of mobile phones for educational purposes. It's essential to maintain open communication with parents or caregivers, ensuring they are well informed about the learning materials and can voice any concerns they might have.

Prepaid phone numbers
Unique challenges may arise with prepaid phone numbers. In some regions, individuals frequently change their phone numbers due to the prepaid nature of their mobile plans. This constant change can disrupt the teaching and learning process, as teachers may lose contact with their students. To address this challenge, it is crucial for educators to establish clear communication channels to inform students and parents of any changes to contact information. Encourage learners and their families to promptly update their phone numbers with the school or educational institution to ensure uninterrupted communication.

Inclusive practices
To address the diverse contexts in which phone numbers are used, teachers should adopt inclusive practices. Here are some examples of how to navigate this:

- Use a parent/caregiver’s phone number: If a student does not have a mobile phone or uses a family-shared phone, teachers can communicate with the student’s parent or caregiver directly. This ensures that important information reaches the responsible party, who can then assist the student in accessing learning materials.

- Community centres: In some rural or remote areas, not every household may have access to a mobile phone. However, community centres or local leaders may possess phones that can serve as communication hubs. Teachers can coordinate with these centres to relay messages and learning instructions to students in the area.

- Inclusive practices: In certain cultures, mobile phone ownership might be skewed toward specific genders or age groups. Teachers should be sensitive to these cultural norms and adapt their communication strategies accordingly. For instance, if only males in a community have mobile phones, teachers can work with them to ensure that learning information reaches all students. There might be also sensitive contexts where mobile use might need to be established using the phone anonymously.

To harness the full potential of mobile phones for teaching and learning, teachers should proactively collect phone numbers from learners, parents, and fellow educators, whilst at the same time, considering privacy and security. These phone numbers serve as a direct line of communication, enabling teachers to share resources, provide guidance, and maintain a strong connection with their students. While phone numbers are valuable identifiers for learners, it is essential to consider whose phone number is being used. In some cases, the phone number provided may belong to a parent, caregiver, sibling, or community leader. In remote and economically disadvantaged areas, families may share a single phone number, and it may be owned by the parents or older family members.
In conclusion: phone numbers are the foundation of effective communication in mobile learning. While challenges like prepaid numbers and shared devices may arise, educators can address them through proactive communication and flexible strategies. By understanding the context of phone numbers and adopting inclusive practices, teachers can ensure that no student is left behind in the journey of mobile learning.

Remember

✔ Proactively collect phone numbers from learners, parents, and fellow educators to maintain a strong connection and share resources. Consider mobile phone number verification in Learning Passport.

✔ Consider the ownership of the mobile phone. Be aware that the phone number provided may belong to a parent, caregiver, sibling, or community leader. This may impact message content.

✔ Obtain necessary consents and permissions from students or parents/caregivers when using mobile devices for educational purposes.

✔ Adapt inclusive practices in diverse contexts by using alternate phone numbers, community centres, and being culturally and contextually sensitive to ensure education for all students.

✔ Address issues related to prepaid phone numbers by establishing clear communication channels and encouraging timely updates to contact information.
3 Pedagogy of mobile messaging teaching

PEDAGOGY OF MOBILE MESSAGE TEACHING
3 Pedagogy of mobile messaging teaching

T
eachers should ensure that the use of mobile 
messaging solutions to support teaching and learning 
are accompanied by a pedagogical approach and 
an educational framework that enhances the educational 
process. Instead of simply replacing traditional tools 
with technological ones, teachers should adapt techno-
logical tools to specific educational objectives and to 
the learners’ environment.

Mobile devices offer the advantage of portabil-
ity, allowing learning to extend beyond the classroom. 
Teachers can encourage students to use portable devices 
both inside and outside the classroom, at home, and even 
while exploring their surroundings to enhance their learn-
ing experiences. Mobile learning allows teachers to pro-
vide students with access to educational resources, tools, 
and materials at any time and from any location using a 
mobile device. Materials, once sent to the mobile phone, 
can often be also accessed offline, since mobile devices 
have the capability to store and retrieve information.

3.1 Pedagogical approaches in mobile messaging
Pedagogical approaches suitable for mobile messaging teaching

Active learning
This is a teaching method that actively involves students in the learning process. Instead of passively receiving information, students are engaged in activities such as inquiry, discussion, or problem-solving to promote analysis, synthesis, and evaluation of class content. Mobile devices can easily support active learning, since mobile phones are portable, and via mobile phones, teachers can facilitate group work, discussions, and collaborative projects, allowing students to engage actively in their learning process.

Inquiry-based learning
This is a form of active learning where students pose questions, problems, or scenarios, and they determine the solutions through investigation. It’s closely linked to Active Learning as it requires students to be actively engaged in their own learning process. In Inquiry-Based Learning, students can use mobile phone messaging to gather information and share it with others, as well as other active learning methods.

Flipped learning
This is a pedagogical approach where the traditional homework and lecture elements of a course are reversed. Students view lectures or read materials outside of class, and then use class time for exercises, projects, or discussions. It’s connected to both Active and Inquiry-Based Learning as it promotes active participation and allows for in-depth exploration during class time. In Flipped Learning, students engage in pre-class activities using mobile devices and then participate in interactive discussions and collaborative activities during class time.

Student-centred learning
This is an approach where students take active responsibility for their own learning. The teacher’s role is to facilitate and support the learning process. It’s linked to all the other methods as they all promote a student’s active role in the learning process. Mobile learning offers a student-centred and personalised approach to education. Teachers can tailor their lessons and activities to meet the individual needs and preferences of their students, making the learning process more engaging and effective.
Pedagogical considerations for teachers

✔ **Focus on individual needs:** Teachers should adopt a teaching modality that is more focused on the individual needs of students. This means tailoring the learning experience to meet the specific requirements of each student.

✔ **Self-management and time management:** Mobile learning provides the flexibility for learners to manage their workload and time effectively. This allows learners to customise their learning experience and engage with the content at their own pace, enhancing their overall learning outcomes. Mobile devices can help students track and monitor the time they devote to self-regulated learning, improving their time management skills. Students can use mobile apps and tools to set goals, create study schedules, and track their progress, promoting effective time management and self-directed learning.

✔ **Learning styles and differentiation:** Incorporate mobile learning activities that align with students' learning styles, as this increases motivation, engagement, and achievement. Take into consideration the diverse needs of students, e.g., cultural and linguistic issues. Teachers can create different versions of mobile learning solutions to cater to various learning needs and preferences. This allows students to use different devices for different tasks, such as searching for information or listening to podcasts, while also engaging in traditional activities like drawing on plain paper.
3 Pedagogy of mobile messaging teaching

3.2 Teaching methods

Face-to-face teaching

This is the traditional form of teaching where the instructor and students are physically present in the same location. Face-to-face teaching can take place in formal or informal settings, i.e., in schools, classrooms, community centres or other facilities like libraries. In some remote and rural areas, face-to-face teaching also takes place outside, so this form of teaching does not require anything except the teacher and the students to be in the same place at the same time. Mobile phone messaging solutions can be used in face-to-face teaching in several ways: for conducting polls and quizzes, getting immediate student feedback, using the messaging solutions in group work assignments for inquiry and discussions, and allowing introverted students to answer via messaging (anonymously).

Distance teaching

Distance teaching is conducted remotely, where students and teachers are not physically present in the same location. Distance teaching requires platforms and devices that enable remote teaching and learning. A teacher conducting teaching remotely can create a group chat for students on a messaging app. There are multiple ways to use mobile messaging solutions when teaching remotely, sending announcements, sharing lesson materials and assignments, encouraging discussions etc. Several examples will be introduced later.

Hybrid teaching

Hybrid teaching combines both face-to-face and distance teaching methods. Students might attend some classes in person, and others remotely. Remote lessons can be via mobile phone messaging solutions. Teachers can send updates about which sessions are in-person and which are remote. Students working on group projects can coordinate both in-person meetings and virtual collaborations through messaging apps. After a remote session, teachers can ask for feedback via messaging to improve future face-to-face sessions.

There are several teaching methods on how to use mobile phones in learning: face-to-face, distance, or hybrid (and blended).
Hybrid or blended learning?

Blended learning
Blended learning, also known as "mixed-mode" or "hybrid learning", typically refers to a teaching and learning approach that combines traditional face-to-face instruction with online or digital components. In a blended learning environment, students may attend physical classes or sessions with an instructor, but they also engage in online activities, discussions, or assignments.

The division between in-person and online components can vary widely, with some courses being predominantly face-to-face with minimal online elements and others being mostly online with occasional in-person meetings. Blended learning allows for flexibility and often integrates technology to enhance the learning experience.

Hybrid learning
Hybrid learning is a broader term encompassing various combinations of instructional modalities, not limited to just in-person and online components. It can involve a mix of different approaches, such as synchronous (real-time) and asynchronous (self-paced) online learning, remote instruction, in-person classes, and other flexible learning options. A defining aspect is the combination of different delivery methods to meet the needs of students and provide them with diverse learning experiences, which can be tailored to the specific goals and requirements of a course or educational program.

In summary, while blended learning often specifically refers to the mix of in-person and online instruction, hybrid learning is a broader term encompassing multiple instructional methods and delivery modes. The choice of terminology can depend on the institution, context, and the specific mix of approaches being used in an educational setting. Both approaches aim to provide students with more flexibility and a diversified learning experience.

Blended learning and hybrid learning are often used interchangeably, but they can have slightly different meanings depending on the context. The terms can vary in interpretation, but here are some common distinctions:
3.3 Real-time or self-paced messaging

Distance learning can be either real-time (synchronous) or self-paced (asynchronous), meaning it can take place with the teacher and student simultaneously using the mobile messaging solution and communicating in real-time, or at different times. Real-time distance learning requires participants to set up and schedule a specific time when students and teachers can engage in live discussions and exchanges. When teaching and learning asynchronously, the teacher can send student assignments at one time, and students can access the information at another time more suitable for them.

Real-time use of mobile messaging in education

- Use mobile messaging to enable instant and immediate exchange of text, audio, video, and informational records. This 'live' communication promotes interactive and dynamic learning experiences.
- Use mobile messaging to provide instant feedback on assignments, quizzes, or class discussions. This timely feedback enhances the learning process and helps students make necessary adjustments.
- Encourage students to ask questions and participate in discussions with their peers in real-time. This facilitates deeper understanding and clarifies doubts on the spot.
- Encourage collaborative student activities. Students can collaborate on group projects, brainstorm ideas, and engage in live debates or problem-solving exercises. These activities foster teamwork and critical thinking skills, all while using familiar and accessible communication tools.

Self-paced use of mobile messaging in education:

- Provide students with educational materials, assignments, and resources so they can use them at their convenience. This flexibility allows for self-paced learning, which is particularly beneficial for individuals with varying schedules and commitments.
- Support students’ independent study. Students can review previous discussions, revisit shared resources, and engage in reflective learning both on and offline.
- Collaborative projects can still be engaging, even when asynchronous. Students can see each other’s messages at their convenience.

The key to effective mobile message usage in education is finding the right balance between real-time and self-paced approaches, when applicable. While real-time communication fosters interaction and immediate feedback, self-paced methods promote flexibility in learning time. Educators should consider the nature of the content, the learning objectives, and the preferences of their students, as well as the students’ learning environment and accessibility to the internet, when deciding which approach to employ.
Key pedagogical considerations

When deciding which pedagogical approach to use in a mobile messaging context, consider the following:

✔ Making sure that mobile learning activities align with the curriculum and educational standards.
✔ Effective mobile learning is rooted in sound pedagogical principles. Choose a pedagogy that aligns with learning objectives.
✔ Activities are interactively designed to actively engage with the content.
✔ Multiple pathways are offered for students to achieve learning objectives, to differentiate learning, and to suit individualised learning.
✔ Tasks promote collaborative learning by using mobile messaging solutions that facilitate group work and peer interaction.
✔ Understand the learning environment and students’ access to devices, as well as to the mobile network and internet.
✔ Clear ethical rules and boundaries will ensure the establishment of safe spaces for collaboration and open dialogue.
✔ Tasks and content should be age appropriate. Nevertheless, there are also contexts when teachers must modify the assignment level: for example, if there are emergencies or traumas. Read more about this later.
ETHICAL GUIDELINES
AND BOUNDARIES
Educators should underscore the significance of digital citizenship, including the rights and responsibilities students have in the digital realm. Conversations pertaining to online etiquette, respectful communication, and digital safety are instrumental in fostering responsible behaviour when students employ mobile messaging for educational purposes. To create a productive and safe learning environment, teachers must establish clear guidelines and boundaries for the use of mobile phones, particularly in the context of messaging applications.

Guidelines for mobile use

Establish clear guidelines for mobile phone use in the classroom or during distance lessons, as well as in hybrid modes. Communicate your expectations to students regarding when and how they can use their phones for educational purposes. Also encourage and promote a healthy balance between online and offline activities. Equally important is discussing the consequences of guideline violations, thereby creating a structured and disciplined learning environment. Guideline clarity serves as a cornerstone for managing expectations and promoting responsible mobile learning.

Promoting respectful messaging

Engage students in discussions that emphasise respectful behaviour and the importance of proper mobile phone messaging etiquette (see below). Such dialogues foster responsible conduct and help students grasp the significance of using their phones considerately.
4.2 Etiquette for mobile messaging

Communication tone and clarity

Think before you send a message
Before writing and sending a message, take a moment to reread it and consider how others might perceive it.

Avoid SHOUTING
Writing in all capital letters is considered shouting in the online world and can come off as aggressive or rude.

Use proper grammar and spelling
Strive for clear and correct language, especially in more formal settings.

Avoid excessive abbreviations
While abbreviations are common in casual texting, avoid overdoing it in learning tasks and group communications.

Mind the tone
Be clear and cautious with your intentions, as tone can be hard to convey online, resulting in jokes or sarcasm being misinterpreted.

Use emojis thoughtfully
Emojis can help convey tone, but use them appropriately based on the context and recipient.

Check before sending
Always reread your message before sending, checking for clarity and potential errors.

Respect and consideration

❤ Respect and kindness
Treat others with respect, just as you would in face-to-face interactions.

(Packet) Respect privacy
Don’t share personal information without permission.

🚫 Respect different opinions:
It’s okay to disagree, but do so respectfully.

🚫 Avoid cyberbullying
Never engage in or support online harassment or bullying.

🌙 Respect “do not disturb” times
Avoid sending messages late at night or very early in the morning.
Relevance and brevity

Stay on topic
Keep your comments relevant and clear to the topic at hand.

Group chat etiquette
In group chats, stay on topic and avoid sending messages that might only be relevant to one person.

Accountability and correction

Acknowledge and correct mistakes
If you’ve made an error or offended someone: apologise and amend the situation.

Respond in a timely manner
Try to respond within a reasonable time frame if someone messages you. Cultural norms and the specific context of the message can greatly influence what’s considered a reasonable response time. For instance, what’s acceptable in one country might be too slow in another. On messaging platforms, people often expect answers more quickly, since messaging is more personal.

Content sharing and usage

Avoid spam
Don’t send excessive or irrelevant messages.

Be wary of sharing content
Always give credit to original sources and avoid sharing copyrighted material without permission.

Be cautious with multimedia
Ensure the recipient is okay with receiving photos, videos, or voice notes, especially if the content is large, might use up their data, or the internet connectivity is slow. For some users, the receiver might also be the one paying for both receiving and retrieving the large multimedia content, particularly for prepaid users.

Also remember the etiquette of mobile use in public spaces. Teachers need to remind their students to be mindful of their surroundings, avoid having loud phone conversations in public spaces, respect privacy, and keep personal and sensitive information confidential.
4.3 Safeguarding measures

Key actions include

• **Training and education:** Ensure comprehensive training on appropriate phone usage for teachers, facilitators, parents, and students. This training should encompass an understanding of potential risks and methods to mitigate them. The training can be done e.g. by creating tutorial videos.

• **Inclusive practices:** Develop practices that prioritise the inclusion of marginalised groups and solicit feedback from community leaders to ensure that safeguarding measures align with the local context.

• **Encourage open dialogue:** Create a safe and welcoming environment for students to openly discuss anonymity and secrecy. Fostering an atmosphere of open communication allows educators to better address any challenges that may arise in these areas.

• **Child protection:** During phone calls or communications involving children, aim to involve both the caretaker and the child concurrently. By ensuring that a parent is present, this approach maximises educational support while providing an additional layer of child protection.

• **Privacy and security:** When employing SMS or messaging applications, prioritise privacy and security. Obtain consent from students and their parents or parents before starting the messaging. Utilise secure platforms or services to safeguard students' personal information. Be aware of data privacy protection laws that need to be taken into consideration.

When incorporating mobile phones into education, prioritising safeguarding measures is imperative. Check UNICEF guidelines on protection of children online.

www.unicef.org/protection/violence-against-children-online
Here's a detailed guide to enhancing the security and privacy of mobile messaging.

**A. General security and awareness**

**Awareness and education:**
- Stay updated about the latest threats related to mobile messaging.
- Understand potential risks and the best ways to mitigate them.
- Educate all users, whether students or parents, about online safety, cyberbullying prevention, and responsible digital behaviour.

**System limitations:**
- Remember that no system is entirely foolproof. Classical system challenges may include connectivity, memory, and power issues, as well as user errors.
- Cultivate good cybersecurity habits even when security measures are in place.

**Privacy considerations:**
- Familiarise yourself with data privacy regulations.
- Ensure messaging related to sensitive topics, such as education, complies with these regulations.
- Consider the message recipient: is it a parent, the student, or somebody else?

**Digital well-being:**
- Take regular breaks from the screen to rest the eyes and stretch the body. Encourage active learning of students so that even if they are in distance education, all activities do not need to be done on phone. Engage learners with games, plays, and inquiries.
- Allocate specific times or days where mobile messaging is minimised or avoided.
- Use features that reduce blue light emission during the evening to minimise sleep disruption.
- Limit notifications to essential communications to reduce constant interruptions.
B. Technical security measures

Messaging security:
- Choose messaging apps with end-to-end encryption, like Signal, WhatsApp, or Telegram (secret chats).
- This encryption ensures that only the sender and the recipient can read the messages.
- Use possibilities of editing messages or emptying message history when applicable.
- Remember that in group chats, participants can see each other’s phone numbers and profiles. There are only a few messaging platforms where one can use them in total anonymity. In education, transparency is recommended and that is why the etiquette and other safeguarding measures are important.

Device and software maintenance:
- Keep your phone and apps updated to benefit from the latest security patches.
- Regularly review permissions granted to apps and ensure no app has undue access to personal data.

Authentication and access:
- Enable two-factor authentication (2FA) for added security when using the phone (and thus the access to message content).
- Secure mobile phones with strong passcodes, fingerprint, or facial recognition.
- Log out from unused sessions, especially in apps that allow multi-device access.

Online safety:
- Use a VPN (Virtual Private Network) to encrypt online activities, especially when on public Wi-Fi.
- Beware of phishing attempts and avoid unsolicited messages or links.
- Block and report any harassing or spamming contacts within the messaging platform, and be cautious with messages from unknown sources.

Data management:
- Use search mechanisms to search message history.
- Use timing of disappearing messaging of conversations if applicable.
- Encrypt and securely store any message backups, whether in the cloud or locally, or delete large data (if not needed to be stored).
- Backup wisely to ensure data integrity and security.

Additional resources
UNICEF, Violence against children online
www.unicef.org/protection/violence-against-children-online
UNICEF, Online protection advocacy Brief. Child Online protection, 2021
C. In-depth safeguarding in education settings

Training and awareness:
- Train teachers, parents, caregivers and students about appropriate phone usage and potential risks; for example, the dangers of cyberbullying, the risks of sharing intimate content, and the importance of maintaining language standards. See above UNICEF guidance on child online protection.
- Promote positive online behaviour and etiquette.

Child protection:
- Include a caretaker in calls involving children to ensure safety and maximise educational support.
- Foster open communication to address concerns related to anonymity and secrecy in digital communication.
- Provide support for anonymous use of mobile messaging solutions when needed. This can require anonymous registering of phone number and separate measures when registering to the app store to download the messaging app.

Consent and privacy:
- Secure consent from both students and their parents before sending any educational messages. Define the purpose of messaging when requesting consent.
- Familiarise yourself with data privacy regulations and ensure compliance, especially when discussing sensitive topics.
- Avoid sharing compromising content, especially with strangers or in public groups.
- Set boundaries for messaging times to avoid constant checking and reduce dependency.
- Encourage learners to share read receipt function for teacher to see if the messages have been read.

Digital etiquette and behaviour:
- Encourage proper language use and grammar in messages.
- Encourage regular breaks from messaging apps to reduce dependency.
- Encourage avoiding texting while walking, especially in busy areas or crossings.
- Use voice commands or hands-free options when necessary.

Information verification:
- Do your best to attempt to verify information before sharing.
- Use fact-checking tools and platforms to ensure the accuracy of shared information.
- Report and block sources spreading false or misleading information.

Personal security:
- Avoid sharing sensitive personal information over messages.
- Use end-to-end encrypted messaging platforms for added security.
- Regularly update apps to benefit from the latest security patches.
- Encourage users to report bullying incidents and use in-app monitoring tools to flag and block offensive content or users.
5 Planning teaching with mobile messaging
Like any other planning, using messaging for education can be a tedious and time-consuming process. As such, it is important to first understand the possibilities of messaging solutions features, followed by a clear planning process.

The diverse educational opportunities offered by mobile messaging range from interactive quizzes to multimedia content and collaborative platforms. Educators can leverage these tools to provide a comprehensive learning experience that isn’t limited to textbook knowledge. Mobile messaging offers a convenient solution for virtual learning, especially where other resources are scarce. It promotes inclusivity, especially in rural and remote areas with limited traditional infrastructure. Through mobile messaging, educators can foster a student-focused learning environment that breaks geographical barriers, elevating the quality of education for all.

Table 1 serves as a guide for educators, helping them understand and utilise the technological features of messaging platforms to enhance the educational experience. It details different messaging features and their potential pedagogical uses, aiming to enlighten educators about the various features available in messaging services and how they can be harnessed for pedagogical purposes. It also lists different messaging features commonly found in communication platforms, provides a brief description of each feature, and shows how the given feature can be employed in an educational setting to enhance teaching and learning, offering practical examples of how the feature might be used in pedagogical contexts. By providing practical examples, it offers a hands-on approach for teachers to integrate these features into their teaching methodologies.
### Table 1: Different mobile messaging platforms and features

Select the appropriate educational tool and feature by using this table.

<table>
<thead>
<tr>
<th>Category</th>
<th>Feature</th>
<th>Explanation</th>
<th>Pedagogical use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td>Text messaging</td>
<td>Exchange of written communication</td>
<td>• Teachers sending reminders or instructions&lt;br&gt;• Students asking questions&lt;br&gt;• Announcements&lt;br&gt;• Clarification&lt;br&gt;• Discussion on assignments and lesson content</td>
</tr>
<tr>
<td></td>
<td>Emojis</td>
<td>Add emotional depth and expression to text messages</td>
<td>• Quick feedback&lt;br&gt;• Mood check for emotional well-being in remote learning settings&lt;br&gt;• Using for learning content&lt;br&gt;• Enhancing student engagement</td>
</tr>
<tr>
<td></td>
<td>Stickers</td>
<td>Add emotional depth and expression to text messages</td>
<td>• Using for decoration or expression&lt;br&gt;• Instant feedback&lt;br&gt;• Motivation and positive reinforcement to encourage student and to celebrate their achievements.&lt;br&gt;• Enhancing memory and recall</td>
</tr>
<tr>
<td></td>
<td>GIFs</td>
<td>Add emotional depth and expression to text messages</td>
<td>• Conveying emotions or reactions&lt;br&gt;• Visual aid for explanation of complex concepts&lt;br&gt;• Learning new vocabulary in a fun and memorable way</td>
</tr>
<tr>
<td></td>
<td>Audio messaging</td>
<td>Sending audio clips or voice messages</td>
<td>• Making communication more personal&lt;br&gt;• Providing verbal feedback or explanations for learners&lt;br&gt;• Pronunciation examples and practices&lt;br&gt;• Reading out short stories or paragraphs&lt;br&gt;• Oral assignments submissions</td>
</tr>
<tr>
<td></td>
<td>Video messaging</td>
<td>Enables sharing of visual content through video messages or clips</td>
<td>• Sharing short video presentations (by teacher/expert)&lt;br&gt;• Demonstrations&lt;br&gt;• Student projects</td>
</tr>
<tr>
<td></td>
<td>Voice calls</td>
<td>Calling</td>
<td>• Individual consultations&lt;br&gt;• Discussions for clarification</td>
</tr>
<tr>
<td>Category</td>
<td>Feature</td>
<td>Explanation</td>
<td>Pedagogical use</td>
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<td>--------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Sharing</td>
<td>Sharing documents</td>
<td>Sharing of documents (Word, PDF, etc)</td>
<td>• Sharing learning materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Students submitting assignments</td>
</tr>
<tr>
<td></td>
<td>Sharing links</td>
<td>Resource Sharing</td>
<td>• Sharing links to websites</td>
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<td></td>
<td></td>
<td></td>
<td>• Sharing articles</td>
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<td></td>
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<td></td>
<td>• Sharing videos</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Sharing other online resources</td>
</tr>
<tr>
<td></td>
<td>Images</td>
<td>Allows users to share visual content</td>
<td>• Sharing diagrams</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Sharing charts</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Sharing photos of student work</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Sharing other visual aids</td>
</tr>
<tr>
<td></td>
<td>Video calls</td>
<td>Real-time, face-to-face interaction through the app</td>
<td>• Conducting virtual classes</td>
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<td></td>
<td></td>
<td></td>
<td>• Tutorial sessions</td>
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<td></td>
<td></td>
<td></td>
<td>• Virtual office hours</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Guest speaker invitations</td>
</tr>
<tr>
<td></td>
<td>Sharing contacts</td>
<td>Allows users to exchange contact details</td>
<td>• Networking</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Connecting students for group projects</td>
</tr>
<tr>
<td></td>
<td>Sharing user location</td>
<td>Enables individuals to pinpoint their geographical position</td>
<td>• Organising field trips</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Organising meetups</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Geography Lessons incorporating real-time location sharing</td>
</tr>
</tbody>
</table>
## Instant messaging features for teaching and learning

<table>
<thead>
<tr>
<th>Category</th>
<th>Feature</th>
<th>Explanation</th>
<th>Pedagogical use</th>
</tr>
</thead>
</table>
| Interactive learning | Polls and surveys  | Allows users to create and participate in quick surveys or votes            | • Gathering student feedback  
• Gathering student opinions and preferences  
• Gathering understanding of a topic  
• Making quizzes  
• Assessment |
|                   | Creating groups     | Enables communication among multiple users in a single chat                | • Creating student/parent/teacher groups  
• Announcements  
• Discussions  
• Group work |
|                   | Screen sharing      | Allows users to share visual content                                       | • Presenting slides  
• Demonstrating processes during a call  
• Collaborative editing  
• Technical support |
|                   | Chat bots           | Automated, AI-driven chat agents that can provide information and assistance | • 24/7 assistance for immediate responses to common questions  
• Interactive learning through interactive lessons or quizzes |
### Instant messaging features for teaching and learning

<table>
<thead>
<tr>
<th>Category</th>
<th>Feature</th>
<th>Explanation</th>
<th>Pedagogical use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security and</td>
<td>Privacy</td>
<td>Securing and protecting personal data</td>
<td>• Protecting from unwanted communications&lt;br&gt;• Securing personal information</td>
</tr>
<tr>
<td>management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Encryption</td>
<td>Keeping information exchanged confidential</td>
<td>• Ensuring unauthorised parties cannot access or decipher private information</td>
</tr>
<tr>
<td></td>
<td>Message scheduling</td>
<td>Composing messages to be sent at a specific time</td>
<td>• Time management through scheduling reminders&lt;br&gt;• International collaboration</td>
</tr>
<tr>
<td></td>
<td>Read receipts</td>
<td>Notifies when messages have been read by the recipient</td>
<td>• Accountability through tracking of read announcements&lt;br&gt;• Student engagement tracking</td>
</tr>
<tr>
<td></td>
<td>Message recall</td>
<td>Allows recalling, modifying, or deleting of sent messages</td>
<td>• Correction of errors in sent messages.&lt;br&gt;• Privacy protection through recalling sensitive information</td>
</tr>
<tr>
<td></td>
<td>Data Usage Monitoring</td>
<td>Tracking data consumption</td>
<td>• Monitoring to avoid excess data consumption&lt;br&gt;• Ensuring efficient use of resources</td>
</tr>
</tbody>
</table>
5.2 Planning the learning process

Teachers need to carefully consider how to effectively implement and continually improve mobile learning experiences. Planning, iterating, and developing mobile learning strategies is a dynamic process that requires careful consideration of pedagogical principles, scheduling, and regular communication. By evaluating the effectiveness of mobile learning and making informed decisions, educators can create engaging and effective learning experiences for their students. Teachers should also stay informed about the latest trends in educational technology and adapt their approach accordingly to promote responsible and meaningful use of mobile messaging solutions in education.
Checklist when planning mobile messaging teaching

1. Learning goals and objectives:
✔ Define the learning goals and objectives for mobile learning.
✔ Ensure alignment with curriculum and educational standards.

2. Lesson design:
✔ Establish routines and clear times for lessons. Consistency is key.
✔ Design interactive activities for active student engagement.
✔ Tailor lessons for diverse learning styles and abilities.
✔ Provide multiple pathways for learning objectives.

3. Assessment:
✔ Develop mobile-friendly assessment strategies (see more on assessment later).
✔ Consider formative assessments like quizzes, polls, and discussions.

4. Technical setup:
✔ Determine the availability of mobile phones and internet access among your students.
✔ Check device compatibility with chosen messaging platforms.
✔ Ensure reliable internet connectivity or offline alternatives.
✔ Assist in app installation and setup, when necessary, e.g. via Google or the Apple App Store.
✔ Help students create user accounts and profiles, when necessary.

5. Communication:
✔ Establish clear guidelines for mobile messaging.
✔ Maintain regular communication, with fixed intervals, to sustain interest and motivation to learn.
✔ Address the etiquette of mobile messaging.
✔ Outline communication schedules and routines.

6. Content delivery:
✔ Plan and design content delivery methods.
✔ Incorporate interactive elements like quizzes and discussions.
✔ Establish a feedback mechanism for students.

7. Accessibility:
✔ Design inclusive activities for diverse backgrounds and needs.
✔ Establish routines for those students sharing the same devices.
✔ Incorporate offline activities like inquiries.
✔ Consider the impact of low internet speeds and other potential connectivity issues.

8. Privacy and security:
✔ Understand and comply with data privacy regulations.
✔ Obtain necessary consents and permissions.
✔ Educate students on online safety and responsible digital behaviour.

9. Evaluation:
✔ Develop methods to evaluate mobile learning effectiveness.
✔ Gather feedback for continuous improvement of the process and the lessons.
✔ Reflect and adapt based on outcomes and feedback.

10. Community engagement:
✔ Engage with community leaders and families for better understanding and support.
✔ Inform parents and the community of the learning objectives and structures, and how they can support the students. This also helps to develop trust.

11. Continuous professional development:
✔ Stay updated on the latest trends in educational technology.
✔ Establish teacher support messaging groups for sharing best practices.
Example 3

**EdoBEST@Home: Mobile remote learning in Nigeria**

EdoBEST@Home is a mobile-based remote learning program in Nigeria, aimed at ensuring educational continuity for students from pre-primary to junior secondary during the COVID-19 pandemic.

**Key features**

- **Target audience:** Students from pre-primary to junior secondary in Edo state, Nigeria.
- **Technological tools used:** Mobile phone technology, WhatsApp groups.
- **Content and delivery:** Digital lessons aligned with the curriculum, delivered daily through WhatsApp, including interactive audio lessons and quizzes.
- **Unique approach:** Tailored remote learning, supported by teacher training and parent engagement.

**Impact and outcomes**

The program successfully reached 2.1 million parents and a significant percentage of the student population, demonstrating the effectiveness of mobile-based learning in crisis situations.

**Adaptation tips**

- ✔ Assess digital access among the target audience and provide alternative solutions where needed.
- ✔ Develop engaging, curriculum-aligned content for mobile delivery.
- ✔ Train teachers for remote teaching and engage parents to support learning at home.
6 CONTENT CREATION
Mobile learning can be used for various purposes: complementary education, supplementary teaching, tutoring, remedial teaching, and catch-up support, which are all terms used in the field of education to describe different types of educational interventions or support. These terms can be used differently in various educational contexts and regions, and their exact meanings may vary. Additionally, the choice of terminology often depends on the specific goals and strategies of an educational institution or program.
6.0 Introduction

Supplementary teaching
Supplementary teaching takes place in an out-of-school learning setting and is particularly focused on providing additional support for curriculum subjects. It can be defined as providing extra lessons or materials that enhance student understanding, as well as helping students who are ahead or those who need more help. By providing additional instruction or resources to support students in mastering specific topics or skills, supplementary teaching can reinforce classroom learning through the provision of materials, resources, or additional teaching sessions.

Complementary teaching
Complementary teaching involves extracurricular activities or classes that complement what students learn normally and take place in an out-of-school setting. Extra lessons or materials are supplied to enhance the students’ skills and knowledge, and it is often offered as an additional opportunity to engage with learning that is not usually provided in the school.

Tutoring
Tutoring refers to a one-on-one or small-group instructional session where a tutor provides personalised assistance to a student. Tutoring aims to help students improve their understanding of specific subjects or topics, reinforce what they have learned in class, and address individual learning needs. It can be proactive (to enhance understanding) or reactive (to address difficulties) and can take place in real-time or asynchronously as communication between educators, students, and parents. Tutoring enables teachers to provide direct, individualised learning support, such as assistance with homework, test preparation, and overall academic skill development. This approach can be combined with other resources such as text or voice message tutoring, nudges to students and parents, and access to educational content via mobile messaging.

Remedial teaching
Remedial teaching is a form of instruction designed to help students who are struggling academically or who have fallen behind their peers. It focuses on identifying and addressing specific gaps in a student’s knowledge or skills, and often involves targeted interventions and specialised resources to bring a student up to grade-level proficiency. Remedial teaching can happen during or out of school hours.

Catch-up support
Catch-up support is a term used to describe programs or interventions aimed at helping students bridge gaps in their learning, typically in situations where they have missed significant instruction or fallen behind. It can encompass a range of strategies, including additional classes, resources, or personalised attention to help students catch up to their expected level of academic achievement. Mobile messaging can bridge gaps between formal and informal educational sectors, allowing for more flexible and continuous learning experiences. It can also be used to reach vulnerable groups and individuals in remote or rural areas, fostering equality in education access and enhancing the quality of teaching and learning. Mobile messaging is particularly beneficial in developing countries with limited resources and large populations scattered among different regions.
Create the content to support the benefits of mobile messaging

- To facilitate knowledge construction and to support in developing competencies.
- To enhance both oral and written communication skills.
- To assist in finding solutions to challenges encountered during lessons.
- To support in problem-solving.
- To boost student motivation, autonomy, self-efficacy, and confidence.
- To foster cohesion and a sense of belonging within the class group, encourages collaboration and cooperative learning.
- To enable knowledge sharing along with access to resources.
- To promote learning beyond the classroom and extracurricular activities.
6.1 How to start teaching via mobile messaging?

Starting teaching via mobile messaging can be a novel and effective method to reach students, especially in remote or online learning scenarios. Here's a step-by-step guide on how teachers can introduce themselves and the course material before diving into actual teaching.
STEP 1: Technical setup
- Choose the messaging platform and get familiar with its features and possibilities for teaching.
- Create a brief tutorial or guidelines on how students should use it effectively for learning; also think of strategies and ways parents or parents can support the students.
- Ensure that privacy settings are correctly configured to create a safe and secure learning environment.
- Check if it is possible to use the platform from your desktop or laptop, as sharing (copy/paste) pre-developed content straight from your computer as a message can save time. Download the desktop application of the messaging platform to your computer and follow the set-up prompts.

STEP 2: Planning and content creation
- Create guidelines and schedules.
- Create a syllabus.
- Start creating content for the messages and learning assignments (as messages) in advance.
- Remember that content needs to be packed into short messages.
- Use emojis, audio, bold (*txt*) or italics (_txt_) in your text, make it readable and concise by using “Enter” or “Return” to start a new line.
- Create the content so that you can store it on your computer in files e.g., according to subject, age group, date etc.

STEP 3: Start contacting your students!

**Introduction:**
- Begin with a personal introduction, including your name, qualifications, and a brief background. Share what drives you as a teacher and possibly a fun or interesting fact about yourself to make the introduction more engaging.
- Provide your contact information, establish the communication channel (messaging application), and explain to your students the best times to reach you for queries or assistance.

**Introduction to the course:**
- Introduce the schedule of the teaching and learning, and possible assignment deadlines.
- Share the title of the course and a brief description, outlining what the course is about and what students can expect to learn.
- List the learning objectives clearly so that students understand the learning goals.
- Introduce your students to messaging etiquette.
- Introduce the assessment criteria. Clarify how students will be assessed, how to “hand in” assignments via messaging, and what they need to do to succeed.
- Establish a method for collecting student feedback and be open to adjusting to improve the learning experience.

**Sharing information:**
- Share with students and parents a syllabus that includes a breakdown of topics, readings, assignments, and assessments. This will give students a clear roadmap of what to expect throughout the course.
- Provide students and parents with a list of required resources such as textbooks, readings, and other resources. If possible, share links to where students can access these materials before the actual learning starts.
- Conduct a simple icebreaker activity to help students get to know each other and foster a sense of community.
- Start your teaching and provide information and resources.
- Provide engaging assignments at the right level.
- Create an open forum for students to ask questions and discuss course material. Encourage students to help each other and foster a collaborative learning environment.
- Provide instant feedback where possible and ask for feedback from students when appropriate.
- Send regular “nudges” updates and reminders about upcoming deadlines, changes in the schedule, or other important information to keep students informed and engaged.
6.2 One-way messaging: Nudging

Nudging is a "push" model in which reminders and notifications are sent to users via SMS or mobile messaging solutions. In a push model, the teacher dictates which information is sent and at what time; the student is often not provided the opportunity or requested to reply – communication is one-way.

Teachers can, for instance, use SMS or mobile messaging to notify students about upcoming assignments, exams, changes in the class schedule, or important deadlines. This can help students stay organised and on track with their studies, ensuring they don’t miss any important tasks. Nudges are often limited to motivational and preparatory elements of the lesson plan.

When to use nudging?

- To complement teaching and learning.
- To remind and notify students of upcoming tasks, schedules, and deadlines.
- To reach bigger groups of students or parents at the same time, you can utilise the ‘bulk messaging’ or ‘group message’ feature of your messaging platform – see below.

Checklist for using SMS or mobile messaging for nudging:

✔ Be clear! Make sure that your message is clear and easy to understand. Use accessible words, and if needed, describe terms shortly. Include all relevant details like date, time, and location.

✔ Be timely! Send your message well in advance so that recipients have enough time to plan accordingly.

✔ Be consistent! Send reminders regularly so that parents know what to expect.

By using a bulk SMS service or group messaging, teachers can send out mass texts or voice messages, allowing for quick and efficient communication that saves time and effort. Bulk messaging services can also be used as a content provider for learning tasks of supplementary assignments.

Methods
- F2F
- Distance
- Hybrid

Times
- Asynchronous

Contexts
- Urban
- Rural
- Emergency

Purposes
- Tutoring
- Remedial
- Catch-up
- Teaching
Here are the steps to follow

1. Choose the bulk service provider. There are many bulk SMS services available online that allow you to send messages to a group of people at once. Some bulk SMS service providers also have features that can integrate mobile messaging platforms (WhatsApp, Viber etc.) and enable voice messaging as a bulk service. With mobile messaging solutions, you can also send bulk messages if you have created a dedicated group. There are different providers according to location or the features offered, such as overseas messaging. Look for a service that is easy to use and beginner-friendly and addresses your needs.

2. Create your message and remember the above checklist tips on keeping the message short and to the point.

3. Choose your recipients. You can choose to send your message to all students or parents, or just a specific group.

4. Schedule your message. Choose the date and time that you want your message to be sent.

5. Send your message. Once you have scheduled your message, it will be sent automatically at the specified time.
Remote learning program in Botswana

A remote learning program in Botswana sought to deliver educational activities to children in low-income households using SMS, WhatsApp messages, and phone calls, with a particular focus to ensure continued learning during the COVID-19 pandemic.

**Key features**

- **Target audience**: Primary school children in low-income households, typically without personal phones.
- **Technological tools used**: Bulk SMS messaging, WhatsApp, and phone calls.
- **Content and delivery**: Weekly bulk SMS messages to parents containing simple numeracy problems, designed for children to solve with parental assistance.
- **Unique approach**: Utilising basic technology to provide accessible education, with an emphasis on parental involvement in the learning process.

**Impact and outcomes**

The program demonstrated a significant increase in numeracy (up to 31%) at a cost-effective rate (less than $14 per child), showcasing the effectiveness of remote learning via SMS messaging in resource-limited settings.

**Adaptation tips**

- Identify the target group.
- Design simple, engaging content suitable for SMS delivery.
- Employ bulk SMS or instant messaging platforms for widespread content dissemination to parents.
- Encourage parental involvement and emphasise their role sharing and engaging with the educational content.
- Offer additional support through phone calls and regularly track progress.

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**Read more**

6.3 Interactive messaging

Mobile messaging is inherently interactive, allowing for real-time interaction. This immediacy fosters a dynamic exchange of information, making the learning process more engaging and efficient. Mobile messaging in education offers a blend of flexibility, immediacy, and interactivity. It bridges the gap between educators and students, making the learning process more collaborative and adaptive. Mobile messaging can be used for personal one-to-one interaction, as well as group discussions.
6.3.1 Community of learners

Creating a safe and inclusive space is paramount. Such spaces allow students to interact with their peers, fostering a sense of belonging and community. The essence of these learning communities lies in their clear goals and objectives. By articulating the purpose and desired outcomes of the learning community, educators can guide discussions to be both productive and aligned with educational objectives. This clarity of purpose is further enhanced when students are encouraged to actively participate, sharing their unique knowledge, experiences, and resources. Such active participation not only nurtures a sense of community, but also elevates the collective learning experience. Mobile messaging also serves as a bridge between learners and teachers, enhancing their interactions. Empowerment is a two-way street. While educators facilitate, it’s equally vital for students to be proactive. In communities of learners, other members can also provide feedback, encouragement, and guidance. Peer support can make them feel valued and supported in their learning journey.

Creating a cohesive learning environment

- **Establish a safe space:** It’s essential to create safe spaces that allow for peer interaction. This fosters a sense of belonging among students, enabling them to feel part of a larger community.
- **Set clear goals:** Clearly communicate the goals and objectives of the learning community. This ensures that discussions remain focused, productive, and aligned with the intended learning outcomes.
- **Use dedicated messaging groups:** For optimal focus, create separate mobile messaging groups for each class, school, cluster, district, or even family. Avoid reusing existing groups to prevent distractions and unrelated discussions.
- **Encourage student participation:** Encourage students to actively engage by sharing their knowledge, experiences, and resources. This not only fosters a sense of community, but also enhances the overall learning experience.
- **Offer diverse participation methods:** Offer students various ways to participate, including anonymously if desired, ensuring inclusivity.

Empowering students:

- **Open discussions:** Use mobile messaging to spark discussions, encourage critical thinking, and promote active participation in the learning process.
- **Discussion forums:** Initiate topic-specific discussions, prompting students to share their perspectives and insights.
- **Study groups:** Allow students to form groups where they can discuss thematic subjects, share resources, and collaborate on projects.
- **Feedback mechanism:** Use messaging to provide feedback and support, helping students feel motivated and supported in their learning journey.
- **Catch-up sessions:** Ensure that students who miss classes can catch up with their peers or teachers through mobile messaging.

Note:

Mobile messaging can also be used in face-to-face classroom settings. Teachers can create group chats for each class or subject. During lessons, they can send questions or polls to the group, and students can respond in real-time. This promotes active participation.
6.3.2 Traditional learning assignments

Mobile messaging can be used for traditional teaching, often called the "chalk and talk" method. It is a conventional instructional approach that has been the mainstay in educational settings for centuries. Rooted in a teacher-centred paradigm, traditional teaching emphasises the role of the teacher as the primary source of knowledge and the students as recipients of this knowledge.

Key considerations for traditional teaching

- **Focus on suitable materials for mobile devices**: Teachers should focus on creating educational materials that are suitable for small screens and can be easily accessed and used on mobile phones. This includes using emojis, icons, game formats, photos, and animations to make learning engaging and motivating.

- **Keep messages short and bite-sized**: Be mindful of limitations on messages. Short messages are also easy to understand. Sending students small pieces of information can help distribute cognitive load over time, helping to ensure that important concepts covered in the lesson are remembered.

- **Resource sharing**: Teachers can share additional reading materials, videos, or relevant articles through messaging platforms. This supplements the traditional teaching materials and provides students with a broader perspective on the subject. Students can also access learning material outside of school hours.

- **Leverage spaced repetition**: Research has shown that spaced repetition improves learning. By utilising mobile messaging, teachers can provide students with repeated exposure to material, increasing the likelihood of retention.
Example 5

**WhatsApp education in Indore Division, Madhya Pradesh**

WhatsApp education in Indore Division, Madhya Pradesh, India, is an innovative approach to continue education during challenging times, using WhatsApp to facilitate learning for high school students.

**Key features**

**Target audience:**
High school students in Indore Division, Madhya Pradesh.

**Technological tools used:** WhatsApp.

**Content and delivery:**
Daily educational materials and assignments shared via WhatsApp groups.

**Unique approach:** Utilising a widely accessible platform to maintain structured learning environments.

**Impact and outcomes**

Enabled consistent educational engagement for a large number of students during the lockdown, with alternative solutions for those without access to WhatsApp.

**Adaptation tips**

✔ Establish instant messaging groups for content distribution
✔ Develop and share engaging, curriculum-aligned content.
✔ Explore alternatives for students lacking digital access.
6.3.3 Active learning assignments

Mobile messaging solutions can encourage collaborative and active learning, providing students with meaningful interaction and engagement opportunities. Whether it’s capturing real-world activities, facilitating inquiry-based learning, or promoting student-centred learning, the potential of mobile messaging in transforming traditional classroom teaching is immense.

Checklist for active learning assignments:

- **Interactivity**: Incorporate quizzes, discussions, and group projects to foster active participation, and encourage student groups to participate in the conversations. This way, students feel more connected and are more likely to approach teachers with questions and concerns. Interactivity builds and strengthens feelings of community and student motivation.

- **Real-world activities**: Use mobile phones for capturing real-world data, conducting interviews, or field trips. Mobile messaging can share locations, record interviews, etc.

- **Inquiry-based learning**: Pose open-ended questions and encourage student-led discussions.

- **Flipped learning**: Share materials (text, audio, video, a link) before the lesson and use lesson time for interactive sessions or discussions.

- **Student-centred learning**: Encourage students to share resources and lead discussions based on their interests.

- **Feedback mechanism**: Set up a system for timely feedback on student performance.

Examples:

- **Debates**: Share a topic and ask students to research and present their arguments in the group chat. This promotes critical thinking, active participation, and knowledge sharing among students.

- **Current events**: Post a news article via a link about a recent global event and initiate a discussion, asking students to analyse and share their viewpoints.

- **Think-Pair-Share**: After sharing a video lecture on photosynthesis, ask students to discuss the topic with a partner, and then share their insights in the group.

- **Encourage creative expression**: Encourage students to express their thoughts and ideas through various features of messaging solutions (like emojis or gifs). This can promote creativity and critical thinking skills.

- **Promote data collection and analysis**: Encourage students to collect and analyse data using mobile devices, fostering their data literacy and analytical skills.

- **Out-of-class activities**: Assign a task for students to observe different issues in their locality. Students can take a photo of the plant with their mobile phones and share their findings in the group chat.
Example 6

**BridgeIT: Mobile innovation in Tanzania**

BridgeIT, known as “Elimu kwa Teknolojia” in Kiswahili, is a transformative project in Tanzania integrating mobile technology to enhance education with digital video content.

### Key features

**Target audience:** Students in Tanzania.

**Technological tools used:** Mobile technology, 2.5G/3G networks.

**Content and delivery:** Educational video content delivered to classroom televisions via mobile phones.

**Unique approach:** Utilising basic technology to provide accessible education, with an emphasis on parental involvement in the learning process.

### Impact and outcomes

Expanded to 150 schools, demonstrating effective use of mobile technology in classroom learning and teacher training. It has had positive effects on student motivation, reduced teacher planning time, and helped alleviate overcrowding in classrooms.

### Adaptation tips

✔ Leverage local mobile networks for content delivery.
✔ Invest in teacher training and curriculum development aligned with technology.
✔ Scale up gradually, ensuring local ownership and sustainability.
6.3.4 Subject-specific examples

There are several examples of how SMS can be used in teaching. One example comes from a study conducted by Cavus and Ibrahim (2009), where SMS was used to support the learning of new English language words. The students received a series of text messages over the course of nine days, which helped them to learn and reinforce the vocabulary.

- **Mathematics:** Mobile learning has been proven to have positive effect on learning mathematics (Güler et al., 2022). Teachers can visualise mathematical tasks by emojis on messaging platform. Students can share complex equations in a group chat, and peers or educators can help solve them, explaining the process.

- **Science:** Teachers can share videos of experiments, and students can discuss their observations and conclusions.

- **Languages:** Language teachers can send audio clips to improve pronunciation, and students can practise by sending their audio messages back.

- **Arts:** Students can share their artwork or performances and receive feedback from both educators and peers.

**Language learning**

- **Writing skills:** Teachers can encourage students to write paragraphs using mobile messaging. This can help improve their writing skills and facilitate both incidental and social learning.

- **Virtual book clubs:** Creating virtual book clubs through mobile messaging can provide platforms for students to discuss and debate the themes, characters, and ideas presented in the books they are reading. Teachers can facilitate these discussions by posing questions and encouraging students to share their interpretations. Stories and poems can also be sent as a voice message, i.e., read out loud or there can be a QR code sent that will take the recipient to a book text.

- **Grammar instruction:** Teachers can use mobile messaging for grammar practice and feedback. Creating a group for learners to engage in grammar discussions and activities can enhance their grammar proficiency.

- **Vocabulary:** The use of digital word cards through instant messaging has been found to be effective for vocabulary learning and retention. This technique combines deliberate vocabulary learning, which is considered a potent strategy with the benefit of unlimited repetition opportunities to enhance the effectiveness of vocabulary acquisition and retention (Balcı and Kartal, 2021).

- **Enhance speaking skills:** Mobile learning has been shown to have a beneficial impact on improving learners’ speaking skills. The privacy provided by mobile learning allows instructors to identify individual strengths and weaknesses by listening to students’ voices attentively. Mobile learning can reduce learners’ stress and embarrassment, particularly in activities that require speaking skills.
6 Content creation

Key features

Target audience: Students in Malaysian secondary schools.

Technological tools used: SMS technology

Content and delivery: Regularly scheduled SMS messages with English lessons, allowing students to learn and practice at their own pace

Unique approach: Empowering autonomous learning and flexible study schedules tailored to each student’s needs.

Impact and outcomes

Supported independent learning, providing efficient and flexible study opportunities that accommodate varied student schedules.

Adaptation tips

- Focus on the target group’s specific learning needs.
- Create engaging, concise lessons suitable for SMS delivery.
- Schedule regular lesson delivery for consistent learning.
- Utilise SMS for immediate feedback to aid quicker learning and corrections.
- Regularly monitor and adapt content based on individual learning progress.

Example 7

SMS-based English learning in Malaysia

A program in Malaysia seeking to enhance English language learning in schools through SMS technology, providing accessible, bite-sized lessons for students.
Example 8

Harnessing mobile technology for female literacy in Pakistan

The Pakistani government launched an initiative in 2019 to combat female illiteracy using mobile phone technology, aiming to overcome barriers to girls' education.

Key features

**Target audience:** Girls and women in Pakistan, especially in areas with socio-cultural barriers and infrastructural deficiencies.

**Technological tools used:** SMS texts, mobile applications.

**Content and delivery:** Educational resources delivered via mobile phones, bypassing the need for physical attendance at literacy centres.

**Unique approach:** Addressing cultural resistance and logistical barriers to girls' education through mobile technology.

Impact and outcomes

Provided a safer and more accessible educational avenue for girls, particularly in areas with historical militancy targeting girls' education.

Adaptation tips

- Leverage widespread mobile phone usage for educational delivery.
- Collaborate with telecommunication companies for project design and implementation.
- Address cultural and logistical challenges specific to the target audience.
- Emphasise cost-effectiveness and safety in educational models.
Example lesson plans

Lesson plan 1:

Story elements (real-time lesson)

Objective: Students will identify basic story elements using emojis as visual cues.

1. Introduction:
   TEACHER: Hello students! Today, we’ll explore story elements using emojis. Ready to dive into some tales? 🎯🔥
   STUDENT: Ready! 📚✨

2. Characters:
   TEACHER: Every story has characters. Who could these emojis represent in a story? 👸🤴✔✔✔✔✔🏃🐉
   STUDENT: Princess, prince, wizard, and dragon.

3. Setting:
   TEACHER: Where do you think a story with these emojis takes place? 🏰🌲🌌
   STUDENT: In a castle, near a forest, at night.

4. Plot:
   TEACHER: Using these emojis, can you guess the plot? 👸❤️🚀✔✔✔✔✔🏃🚫
   STUDENT: The princess loves the prince, but a wizard with a magic crystal ball doesn’t allow it.

5. Emotions:
   TEACHER: How do you think the characters feel in this situation? 👸😢🤴🤔✔✔✔✔✔🏃😈
   STUDENT: The princess is sad, the prince is confused, and the wizard is evil or mischievous.

6. Conclusion and homework:
   TEACHER: Listen to this story. 🌟
   STUDENT: Sounds fun!
   I’ll start brainstorming. 🌟✍️

(Envoy a voice message where you read out a short story.)

Great job today! ☀️
For homework, write a short story, you may also use emojis. Share your tales tomorrow either as a text, attached document or a voice message.

STUDENT: Sounds fun!
Lesson plan 2:

**Vocabulary (asynchronous task)**

Listen to the teacher’s audio message. Does the word start with the letter ‘s’?

👉 send audio of the words:

- 🌞 sun
- 🐍 snake
- 🍞 sandwich
- 🌟 star
- 🐢 turtle
- 🚢 ship
- 🌧️ storm
- 🐯 tiger
- 🍓 strawberry
- ✔️ sprint

Can you think of more words that start with the letters? Try to come up with at least three words and send them as a text/emoji to the teacher.
Lesson plan 3:

**Basic arithmetic (real-time lesson)**

**Objective:** Students will practise addition and subtraction using emojis as visual representations.

---

1. **Introduction:**
   - **TEACHER:** Hello students! 🌟
   - Today, we’ll practise some basic arithmetic using emojis.
   - Ready to solve some fun maths problems? 🍎🔢
   - **STUDENT:** Ready! 🍎✍️

2. **Addition practice:**
   - **TEACHER:** Let’s start with addition.
   - What’s 🍎 + 🍎?
   - **STUDENT:** 2 apples 🍎🍎.

3. **Subtraction practice:**
   - **TEACHER:** Great! Now, what’s 🍇🍇🍇 - 🍇?
   - **STUDENT:** 2 grapes 🍇🍇.

4. **Mixed problems:**
   - **TEACHER:** Now, it’s a bit tricky!
   - Solve this: 🍌 + 🍎 - 🍇.
   - **STUDENT:** 1 banana 🍌 and 1 apple 🍎.

5. **Real-life application:**
   - **TEACHER:** If you had 🍎🍎🍎 and gave away 🍎🍎, how many apples would you have left?*
   - **STUDENT:** 1 apple 🍎.

6. **Conclusion and homework:**
   - **TEACHER:** Excellent work today! 🌟
   - For homework, create your own maths problems using emojis. Share them tomorrow!
   - **STUDENT:** Will do, teacher! 🏡🔢
Lesson plan 4:

Mathematics (asynchronous task)

Count out loud:
Which group of animals is the biggest?

🐥🐥 or 🐭相连
 newNode
 or 🐳相连
glm相连
 or 🐳相连
glm相连
 or 🐳相连
glm相连
 or 🐳相连
glm相连
 or 🐳相连
glm相连
 or 🐳相连
glm相连

Lesson plan 5:

Mathematics (asynchronous task)

Solve these problems:

Maria has a new bicycle. She goes to school by bicycle every day. The round-trip distance between school and home is 10 km long. School is 5 days a week. How many kilometres does Maria cycle in a week?

___ x __km = _____ km

James walks to the store and back home a total of 2 kilometres every day. How many kilometres does James walk in a week?

___ x ___ km = _____km

Children play soccer on the field every day. Amin runs a total of 3 kilometres during one game. How many kilometres does Amin accumulate when he has played soccer for 6 days, if he runs the same amount of kilometres on the soccer field each day?

___ x ___ km = ____ km

_players
Lesson plan 6:

**Geometry (real-time lesson)**

**Objective:** To introduce students to basic geometric shapes (circle, triangle, square, rectangle) and their properties.

**Example lesson plans**

**TEACHER:** Good morning! Ready for your geometry lesson? 😊. Remember that for this lesson you should have the following items on hand: Pens 🖋️, pencils 📝️, rulers 🟡️, paper 📄️, thread 🧶️, a book 📚️. Optional: compass 🌚 for drawing circles 🌚.

**STUDENT:** Yes, I’m ready!

**TEACHER:** Great! Let’s start with a circle. 🔵.

**STUDENT:** Done! Three sides and angles.

**TEACHER:** Excellent! Now, let’s move to a square. 🟠️ It has four sides of the same length.

**STUDENT:** Okay, drawing a square...

**TEACHER:** Perfect! Lastly, draw a rectangle. 🟠️ Opposite sides should be the same length.

**STUDENT:** Rectangle done!

**TEACHER:** Fantastic! 🌟

For a circle, try using a pen 🖋️ and thread 🧶️. Tie one end of the thread to the pen, press the other end at the centre, and keep the thread taut while drawing.

**STUDENT:** That’s clever! I’ll try that for the circle.

**TEACHER:** Good luck! Remember, practice makes perfect. Send me a photo of your drawings later! 👍
Lesson plan 7:

**Environmental awareness and conservation (real-time lesson)**

**Objective:** Students will understand the importance of nature and the role of conservation in preserving the environment.

1. **Introduction:**
   
   TEACHER: Hello students! 🌍 Today, we’ll learn about our environment and how we can help protect it. Are you ready? 🌳🌊
   
   STUDENT: Ready! 🌟

2. **Nature appreciation:**
   
   TEACHER: Let’s start by identifying some natural elements. What do these emojis represent in our environment? 🌳🌊🌞🌙
   
   STUDENT: Tree, ocean, sun, moon.

3. **Human impact:**
   
   TEACHER: Now, can you guess the human activities from these emojis that might harm our environment? 🚗💨🏭🚫🌳🗑️
   
   STUDENT: Car emissions, factories, deforestation, littering.

4. **Conservation efforts:**
   
   TEACHER: Great job! Now, how can we help? Match the problem with a solution! 🚗💨➡️❓, 🏭➡️❓, 🚫🌳➡️❓, 🗑️➡️❓
   
   Options: 🌲🌳, 🚴‍♂️, 🌐, 🌞 (wind energy)
   
   STUDENT: 🌲🌳➡️, 🚴‍♂️➡️, 🌐➡️, 🌞➡️

5. **Personal commitment:**
   
   TEACHER: Fantastic! Now, which of these actions will you commit to this week to help our environment? 🚴‍♂️ (cycling), 🌱 (recycling), 🌱 (planting), 🌟🔌 (saving electricity)
   
   STUDENT: I will commit to 🌱 and 🌟 this week!

6. **Conclusion and homework:**
   
   TEACHER: Well done, everyone! 🌟
   
   For homework, take a picture of you doing your chosen action.
   
   Let’s make a difference! 🌱❤️
   
   STUDENT: Will do, teacher! 📸🌱

7. **Feedback session (next day):**
   
   TEACHER: Good morning! 🌞
   
   Please share your pictures and experiences from yesterday.
   
   How did it feel making a positive impact? 🌱❤️
   
   STUDENT: It felt great!
   
   Here’s my picture of recycling. 🌱🍃
Lesson plan 8:

**Out of class activity (real-time lesson)**

**Objective:** Students learn about observation, note taking and reporting.

TEACHER: For our next activity, I want you to explore your locality and observe different issues. 🏘🔍

STUDENT: What kind of issues, teacher? 🏘🔍

TEACHER: Anything that catches your eye. Environmental, social, architectural... Take a photo with your phone. 📸

STUDENT: Can I take a photo of plants in my area? I've noticed some unique ones. 🌿

TEACHER: Absolutely! That’s a great idea. Document the plant and any interesting features you notice.

STUDENT: I found a really interesting flower. I’ll take a picture and share it. 🌺

TEACHER: Wonderful! When you share, add a brief description or any questions you have about it. 📝🔍

STUDENT: Will do! This is going to be fun. 🌺

TEACHER: Looking forward to your observations! Remember, this activity helps us learn about our environment and develop observational skills. 🌍👀

STUDENT: Thanks, teacher! I’m heading out to explore now! 🌳📸🚗💨💨🏭
Lesson plan 9:

Environmental Studies (asynchronous task)

Objective: To enhance understanding and differentiation between living and non-living elements in our immediate environment.

Instructions:

Go Outside: 🌳📸🚗💨➡ Venture outdoors to a place rich in natural elements. This could be your garden, a local park, or any area where nature is accessible.

Observe: 👀 Take a close look around. Observe the variety of elements, such as 🌿 plants, 🦋 animals, 🪨 rocks, and 💧 bodies of water. Pay attention to both living and non-living things.

Classify: 🤔 Reflect on each element you see. Determine whether it is living or non-living. Remember, living things (like 🐶 animals and 🌿 plants) usually move, grow, and require air, while non-living things (like 🪨 stones or 💧 air) do not.

Record Observations: 📝 Make a list of your observations. Beside each item, note if it is living or non-living. For instance:

- Oak Tree 🌳 - Living
- Pebble 🪨 - Non-living

Reflect and Analyse: 🧐 Ponder on the characteristics that distinguish living from non-living. How do these entities interact with each other in nature?

Share Your Findings: 📦 Send your list and any insights or intriguing observations back as a message. Share what you found interesting or surprising during this exploration.
6.4 Mobile messaging in emergencies

Mobile messaging ensures that learning persists even when traditional methods are interrupted during disruptions or emergencies. Mobile phones offer a unique advantage in education by providing offline media resources. This feature is especially beneficial in remote areas with limited internet connectivity. In some cases, mobile messaging might be the only viable method of teaching.

Mobile messaging solutions have proven invaluable during crises, such as disasters caused by natural hazards (e.g., floods, earthquakes), epidemics or pandemics, or wars and armed conflict. They serve as a bridge to continue education, allowing teachers to send assignments, resources, and even messages of emotional support to students.

Text messaging has emerged as a supportive tool for learners with basic literacy, numeracy, and digital skills. Through this medium, teachers can disseminate exercises and subsequently receive completed assignments in the form of photos from students.

Bear in mind that, for example, refugee learners – particularly in rural areas – face a significant digital divide. Only 17% of rural refugees have 3G coverage, compared to 29% of the global rural population, and 20% lack any mobile coverage. Refugee households are also 50% less likely to have an internet-enabled phone and are more often without any phone at all. Financial constraints, network accessibility, and regulatory issues further exacerbate these disparities in technology access – see www.unhcr.org/sites/default/files/legacy-pdf/61b743ef4.pdf.
Key considerations for emergency contexts:

The key considerations can be regrouped into two main categories: scenarios illustrating when to use mobile messaging for education, and tips on how best to utilise mobile messaging for educational purposes.

Scenarios: When to use mobile messaging

Mobile messaging as the sole educational medium:
In remote areas or during emergency situations, mobile messaging – particularly SMS – can serve as the primary mode of delivering education to students. SMS doesn’t require internet connectivity, making it a practical solution in areas with limited internet access.

Short-term solution:
During disruptions caused by natural disasters, political unrest, or pandemics, mobile messaging can bridge the educational gap by facilitating continued communication and learning engagement between teachers and students.

Tips: How to best utilise mobile messaging

Offline media resources:
- Offering offline media resources is an effective way to enhance the mobile learning experience. Students can connect online to download educational materials, then use them offline. This is particularly beneficial in areas with unreliable internet connectivity.

Setting up/using community centres as hubs:
- It can be that the internet connectivity or mobile coverage in some emergency situations is compromised. It is therefore advised to set up hubs or use existing community centres as hubs and hotspots, where parents or students charge their phones, as well as download materials to their phones for offline use. Hubs can also be used for students to attend synchronously taught lessons or communicate with their educators in real-time.

Utilise text messages (SMS):
- Short text messages are effective for supporting learners with basic literacy, numeracy, and digital skills. SMS, being accessible without internet connectivity, can be used to share educational instructions, assignments, and feedback.

Supplemental support:
- Where feasible, supplement text messages with additional support like weekly phone calls to foster direct interaction between facilitators, parents, and students.

Sharing educational content:
- Utilise SMS for sharing educational content such as short quizzes, vocabulary words, or study materials, enabling students to access resources anytime, anywhere.

Trauma-informed pedagogy:
- Incorporate online learning technologies to engage students in creative processes that addresses trauma, ensuring a holistic and supportive learning environment.
- Traumas affect children’s abilities to learn. Ensure the assignments and tasks are at the right level for the learner.

Note
Especially in hard-to-reach areas where regular schooling is a challenge, daily or weekly tasks sent via mobile messaging can keep students engaged and provide them with routines.
Example 9

‘Antura and the Letters’ initiative for refugee children

‘Antura and the Letters’, a mobile game initiative by Norad, was developed to teach autonomous reading skills to Syrian refugee children, accessible via family phones without internet connectivity.

Key features

**Target audience:** Refugee children, initially focusing on Syrian refugees

**Technological tools used:** Mobile gaming technology.

**Content and delivery:** Educational game teaching reading in the mother tongue, enhancing psychosocial well-being.

**Unique approach:** Educational game teaching reading in the mother tongue, enhancing psychosocial well-being.

Impact and outcomes

Over 300,000 downloads, demonstrating the game’s appeal and effectiveness in teaching literacy in refugee-dense regions.

Adaptation tips

✔ Develop cost-efficient, easily accessible educational games.

✔ Ensure language adaptability to cater to different refugee crises.

✔ Focus on expanding to reach a broader audience, including children from various crisis regions.
Example 10

Bridging the Digital Divide: instant messaging chat groups for teacher training and gender equity in Kenyan refugee camps

This example explores the role of phone chat groups in enhancing teacher training and supporting gender equity in the Dadaab and Kakuma refugee camps in Kenya, focusing on the potential of digital chats to improve educational practices and cross-cultural understanding.

Key features

Target audience: Teachers in Dadaab and Kakuma refugee camps, Kenya.

Technological tools used: Instant messaging chat groups.

Content and delivery: Utilisation of chat groups for teacher collaboration, discussion on teaching methods, and addressing gender equality in education.

Unique approach: Leveraging digital chat platforms to facilitate discussions among teachers from diverse backgrounds and to promote gender equality in educational settings.

Impact and outcomes

The example highlights the effectiveness of chat groups in fostering teacher training, enhancing gender equality discussions, and offering valuable insights, particularly in challenging environments like refugee camps.

Adaptation tips

✔ Encourage the use of instant messaging platforms for collaborative learning and professional development.
✔ Foster discussions on gender equality to raise awareness and advocate for inclusive education.
✔ Address challenges such as message overload and contextual understanding.
Example 11

Harnessing WhatsApp for teacher development in the Zaatari refugee camp, Jordan

An initiative in the Zaatari Refugee Camp, Jordan, utilised WhatsApp for language teacher development, demonstrating effective teacher training in a challenging environment.

Key features

- **Target audience**: Teachers in the Zaatari Refugee Camp, Jordan.

- **Technological tools used**: WhatsApp.

- **Content and delivery**: Professional development and collaboration through WhatsApp group chats.

- **Unique approach**: Addressing teacher development needs through instant messaging in a refugee camp setting.

Impact and outcomes

Significant improvement in teachers’ English language skills and enhancement of collaborative learning and problem-solving.

Adaptation tips

- Utilise instant messaging for professional development in constrained environments.
- Encourage collaborative learning and sharing of resources among teachers.
- Tackle challenges like participation and access equity through digital interventions.
Example 12

**Education at the Al-Hol prison camp, North-Eastern Syria**

The Al-Hol Distance School Project, initiated to educate 23 Finnish children at the Al-Hol prison camp in Syria, utilised WhatsApp for lesson delivery, overcoming the challenges of limited resources and a restricted environment.

**Key features**

**Target audience:** Finnish children kept in the Al-Hol prison camp.

**Technological tools used:** WhatsApp.

**Content and delivery:** Lessons in language and mathematics, integrated with other subjects, delivered via WhatsApp, focusing on text, emojis, and voice messages due to weak internet connections.

**Unique approach:** Stealthy education in a restrictive setting, leveraging minimal digital tools for impactful learning.

**Impact and outcomes**

Successful educational delivery in a high-security environment, highlighting the potential of mobile education in extremely challenging circumstances.

**Adaptation tips**

✔ Utilise commonly available instant messaging platforms for education in restricted settings.

✔ Adapt learning material and assignments to suit available technology and environmental constraints.

✔ Prioritise security and discretion in sensitive contexts.

✔ Foster a supportive, interactive learning environment despite limitations.

**Note**

You can find a whole curriculum and examples for different subjects in this document.
7 Assessment via mobile messaging

ASSESSMENT VIA MOBILE MESSAGING
Assessing student learning via mobile messaging offers a dynamic and flexible approach to gauging student understanding and providing timely feedback. By leveraging mobile messaging, educators can seamlessly integrate feedback mechanisms into the learning process, fostering collaboration and social networking among students. Studies, such as those by Barhoumi (2015) and Dahdal (2020), underscore the potential of mobile messaging in enhancing collaborative learning and facilitating assessment, especially active learning and student motivation.

In contexts with limited internet resources, phone-based assessments provide a viable solution. By utilising calls, SMS, interactive voice response (IVR) technologies, along with mobile messaging platforms like WhatsApp and Viber, educators can conduct formative assessments, pinpoint misconceptions, and offer tailored learning resources. Additionally, mobile assessments can serve as tools for impact evaluations, illuminating the efficacy of educational interventions.

However, transitioning from traditional to phone-based assessments requires careful adaptation. Simplifying instructions, incorporating practice items, and selecting questions with minimal visual stimuli are essential for a smooth transition. Furthermore, ensuring the validity and reliability of these assessments is paramount. Standardised administration, stringent quality assurance, and collaboration with psychometric and assessment specialists can help uphold these standards.

While mobile messaging assessments are invaluable for formative purposes, they might not be apt for high-stakes decisions due to potential challenges like test security and malpractice. Hence, weighing the pros and cons is crucial, especially when making significant educational decisions.
Key considerations on assessment

- **Alignment with learning objectives**: Design assessment strategies that resonate with mobile learning, considering tools like quizzes, polls, or discussions.

- **Timely feedback**: Employ mobile learning tools to offer immediate feedback, enabling students to refine their work promptly. Use emojis for immediate feedback. You can also use voice messages to provide oral feedback.

- **Identify learning gaps**: Use mobile messaging to detect and address areas where students might be struggling. You can do this by asking students to use a thumbs-up 👍 or -down 👎 emoji after a task to show if it was easy or difficult. You can also use emojis to receive feedback. Try to utilise quizzes and messages regularly to assess the difficulty level of assignments – weekly if necessary – and develop material accordingly. This ongoing evaluation ensures that assignments and tasks are appropriately challenging and assists with student engagement and motivation.

- **Active monitoring**: Utilise mobile messaging for real-time monitoring and evaluation of teaching methods and student attendance.

- **Integration with mobile messaging solutions**: Use mobile messaging solutions to record student conversations, facilitating self-evaluation. Remember to have consent to audio recordings.

- **Continuous evaluation**: Regularly assess the effectiveness of mobile learning, gather student feedback, and adapt strategies based on outcomes.

- **Reflect and adapt**: Continuously reflect on the mobile learning approach and make necessary adjustments based on student feedback and outcomes.

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**Read more**

Using mobile phones for assessment in emergencies:

TEACHER SUPPORT
Mobile messaging platforms have also emerged as powerful tools for supporting teacher development and fostering professional growth. By familiarising themselves with these platforms, teachers can unlock a plethora of opportunities for collaboration, networking, and continuous learning. Such platforms enable educators to connect with peers, share best practices, and seek guidance on challenging topics. For instance, teachers can share classroom videos, inviting constructive feedback from colleagues or supervisors, thereby refining their teaching methodologies. Peer discussions facilitated by dedicated messaging groups not only promote collaboration, but can inspire educators to explore innovative pedagogical techniques.

However, it's essential to address any reservations teachers might have towards mobile technology. In embracing the innovative possibilities it offers, teachers can transcend traditional teaching boundaries. The informal and personalised nature of mobile learning interventions can be leveraged to foster a culture of continuous professional development among educators. Additionally, practical applications like attendance reporting through mobile messaging can ensure transparency and accountability in the educational process. In essence, mobile messaging platforms are revolutionising teacher support, paving the way for holistic professional development. As such, teacher training programs should be offered to educators expressing conservatism towards utilising this technology.
Key considerations for teacher support

- **Platform familiarity**: Ensure teachers undergo training to effectively utilise mobile messaging platforms for educational purposes.
- **Stay updated**: Encourage teachers to stay abreast of the latest trends and advancements in mobile learning.
- **Foster collaboration**: Create dedicated groups on messaging platforms for teachers, principals, and education officers to share best practices and (mobile-friendly) materials, and offer support – e.g. on curriculum delivery.
- **Continuous feedback**: Use mobile messaging platforms for sharing classroom videos, allowing for peer feedback and continuous improvement.
- **Peer discussions**: Facilitate discussions among teachers on messaging platforms to promote collaboration and skill development.
- **Address technology conservatism**: Implement awareness programs to highlight the benefits of mobile technology in education and overcome any resistance.
- **Embrace innovation**: Encourage teachers to explore innovative teaching methods using mobile messaging. Innovation requires iterative approach of trial and error, developing according to findings.
- **Focus on informal learning**: Leverage the simplicity of mobile phones for informal learning, bypassing potential institutional inefficiencies.
- **Attendance accountability**: Promote the use of messaging platforms for attendance reporting to ensure transparency in the teaching process.
Example 13

WhatsApp support for teachers in Indonesia during COVID-19

During the COVID-19 pandemic, the Indonesian Ministry of Education and Culture established WhatsApp messaging support groups for over 5 million teachers, enhancing communication and collaboration in education.

Key features

**Target audience:** Teachers (pre-primary to tertiary) across Indonesia.

**Technological tools used:** WhatsApp, Zoom, Google Meet.

**Content and delivery:** Official information dissemination, teaching support, and training through instant messaging and video conferencing.

**Unique approach:** Large-scale digital support network for educators, facilitating study and support groups among teachers, students, and parents.

Impact and outcomes

Enhanced learning experiences and communication among educators, students, and parents, especially beneficial in regions with unstable internet connections.

Adaptation tips

- Establish large-scale digital communication networks for educational stakeholders.
- Use instant messaging for teacher training and support.
- Combine different digital tools to enhance the communication.
9 Caregiver Involvement
Caregivers are instrumental in shaping the acceptance and effectiveness of mobile messaging in education. When teaching students via mobile messaging, collaboration with caregivers is essential to ensure a holistic learning experience, especially when the students are young and do not have their own mobile phone. The attitudes of caregivers towards mobile-based education, the effort they invest in assisting their children with mobile devices, and their interaction with teachers significantly influence the success of this teaching method. To foster a collaborative learning environment, educators can promote caregiver engagement by inviting them to join dedicated messaging groups. This inclusion not only keeps caregivers informed but also allows them to actively participate in the child’s educational journey. By sharing crucial updates, announcements, and educational content through text or voice messages, teachers can bridge the communication gap and ensure that caregivers are well-informed. Before initiating this approach, however, it’s essential to gauge the interest and willingness of parents to receive remote learning support via phone, ensuring first that caregiver consent is given (where applicable), and that the teaching method aligns with the preferences of both students and their caregivers in utilising this technology.
Key considerations for involving caregivers

✔ **Gauge interest:** Before implementing mobile messaging, assess the interest and willingness of caregivers to ensure alignment with their preferences.

✔ **Caregiver acceptance and consent:** Understand and address parental attitudes towards mobile messaging to ensure its effectiveness. Ask for consent from caregivers.

✔ **Active participation:** Invite caregivers to join dedicated messaging groups, allowing them to be actively involved in their child’s learning process.

✔ **Regular updates:** Use text or voice messages to share essential information, updates, and announcements with caregivers.

✔ **Collaborative learning:** Encourage caregivers to engage in problem-solving activities with their children, fostering a collaborative learning environment.

✔ **Teacher-Caregiver Interaction:** Foster regular communication between teachers and caregivers to address concerns, share feedback, and ensure a seamless learning experience.

✔ **Shared responsibility:** Emphasise their shared responsibility between educators and caregivers in facilitating mobile-based education for students.

✔ **Engage caregivers:** Sometimes, all messages and learning material are distributed to students via the parent/caregiver. Caregivers should be both engaged with and mentored in how to facilitate the learning of their child.
Example 14

**SMS nudges**

SMS nudges have been found to have a positive effect on caregiver investment in children’s learning and learning outcomes (Jordan et al, 2023). The use of SMS has been used to promote caregiver engagement to support and facilitate their child’s learning and education at home. The caregiver role as gatekeepers or facilitators of learning was emphasised, especially during the pandemic.
MobiLiteracy programme in Uganda

MobiLiteracy Uganda used basic mobile phones to boost literacy among rural children and their caregivers, inspired by the success of the "Urban English" mobile English language program.

Key features

- **Target audience**: Rural children and their caregivers in Uganda.
- **Technological tools used**: Basic mobile phones, SMS technology.
- **Content and delivery**: A 91-day Luganda literacy-building audio program delivered through SMS with links to audio files.

Unique approach: Focusing on both children and caregivers for literacy enhancement using accessible technology.

Impact and outcomes

Successful literacy improvement among the target audience, indicating the effectiveness of mobile-based literacy programs in rural areas.

Adaptation tips

- Design literacy programs that are accessible via basic mobile phones.
- Engage both children and parents in the learning process.
- Provide resources like phones and cover associated costs to remove financial barriers.
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