

## Use of Mobile Phones in Mobile Assisted Language Learning (MALL)

*Ambika Prasad Poudel, Ph D*

*Lecturer, Department of English Education*

*Tribhuvan University, Sanothimi Campus, Bhaktapur, Nepal*

*Email: [poudelap@gmail.com](mailto:poudelap@gmail.com)*

*ORCID: <https://orcid.org/0000-0002-2621-6091>*

### Abstract

*The advancement of Information and Communication Technologies (ICTs) and their exploitation have caused significant changes in language pedagogy. Mobile Assisted Language Learning (MALL), a new pedagogical approach, is becoming increasingly popular among ELT practitioners in recent years, and the use of mobile phones in MALL is an example of a noticeable development in ICT exploitation. This study aims to explore the role and place of mobile phones, particularly smartphones, in MALL activities in the context of higher education in Nepal. Adopting the phenomenological research design and conducting interviews with university students, this study found that mobile phones are ubiquitous and multi-functional devices which can be used as effective tools for language learning. The smartphones are useful for English language learners for improving their pronunciation, vocabulary, grammar, and language skills, specifically listening and reading. The study concluded that it is important to encourage the proper use of mobile phones inside and outside the classroom to facilitate English language learning.*

**Keywords:** MALL, smartphones, connectivity, collaborative learning, language skills

### Introduction

The rapid innovation and advancements of information and communication technology (ICT) have brought revelatory changes in education in recent years. According to Larson (2017), “Advances in ICTs are the heart of a broad transformation in education” (p. 240). Research scholars agree that the integration of modern technologies into classrooms has played a central role in accelerating the pace of education transformation (Ince, 2014; Kunst, 2014). Language teaching and learning, a rapidly growing dimension of education, has been modified with various pedagogical advancements driven by such technological evolution. Among such pedagogical emergences, Mobile Assisted Language Learning (MALL) with the use of mobile phones, especially smartphones, is increasingly becoming popular among English language teaching (ELT) practitioners at present.

MALL can be understood as any form of learning that is mediated by mobile devices (Alexanders, 2004, p. 29). According to Traxler (2005), mobile learning perhaps is ‘any educational provision where the sole or dominant technologies are handheld or palmtop devices such as mobile phones, personal digital assistants (PDAs) and their peripherals, perhaps tablet PCs, and laptop PCs’ (p. 262). Torriss-Steele (2009, as cited in Jaradat, 2014) defines:

Mobile-learning (m-learning) is the use of mobile devices to facilitate active learning and create meaning through the creation of learning space, extending beyond the

limitations of time and space of the traditional classroom which focused on the individual need of learn in current context (p.34).

MALL is quite a novel approach in language teaching and learning, and therefore, we do not find its fixed and established definition. Kukulska-Hulme (2009) argues:

There is no agreed definition of 'mobile learning', partly because the field is experiencing rapid evolution, and partly because of the ambiguity of 'mobile'-does it relate to mobile technologies, or the more general notion of learner mobility? In fact, both aspects are currently important. In addition, the mobility of content is often highlighted. Mobility needs to be understood not only in terms of spatial movement, but also the ways in which such movement may enable time-sifting and boundary-crossing. (pp. 58-59)

It can be understood that the term 'mobile' in mobile learning may refer to 'mobile technologies', which are portable and accessible anytime and anywhere. On the other hand, it may also refer to 'mobility of the users', which focuses not only on the technology used, but also on the users who access and share the information and learning materials whenever and wherever they are. In a nutshell, MALL is an approach to language teaching and learning that takes place through the use of mobile devices such as mobile phones, laptops, notebooks, or tablets. With such tools together with the Internet, MALL is very effective for the teachers and students to make easy interaction among them, and to access and share the learning resources. The major benefit is that these tools and technologies help overcome the time and place barriers. MALL goes beyond the idea that teaching and learning happens only in the classroom. It creates opportunities for the teachers and students to teach and learn outside the classroom boundary, whenever and wherever they are; at work, at travel, in the bus, and so on. In this regard, Swan and Kratoski (2007, p.12) state, "Due to the wide spread of mobile technology, learning can occur in anytime and anywhere, even if teachers and students are not in the same physical or temporal location". Likewise, Huang and Sun (2010, as cited in Bachore, 2015) opine:

The two main characteristics of mobile device are portability and connectivity. As for the connectivity, designing the mobile system must have capability of being connected and communicated with the learning websites using the wireless network of the devices to access learning material ubiquitously including short message service and mobile e-mail. Portability enables learners to move mobile devices and bring learning materials. It can be taken to different places due to small size and weight (p.50).

MALL was introduced with the invention of hand-held computer-based devices. Since, 1990s, MALL has been more concentrated on the exploration of five key mobile technologies, namely, mobile phones, personal digital assistants (PDAs), pocket electronic dictionaries, mp3 players, and most recently Ultra-portable PCs (Burston, 2013, p. 157). These mobile devices have significant potential for performing several teaching-learning activities such as searching and downloading learning materials, retrieving and sharing information and resources, entertaining songs and movies, and producing and storing knowledge documents inside or outside the classroom.

Mobile technologies offer numerous benefits to the ELT practitioners. Geddes (2004, as cited in Cakir, 2015, p.240) accepts that MALL provides second or foreign language learners and teachers with greater opportunities to practice the target language ' anytime and anywhere '. Mobile phones in MALL activities can be used for various functions including Short Message Service (SMS), internet access, digital camera, video recording, MP3 player, Multimedia message Service (MMS), and access to social networking platform such as Facebook, Viber, Whatsapp, Twitter, Instagram, Discord, and Tiktok etc. Mobile phones, with all such features, can be utilized for educational purposes in language teaching and learning. In this context, Chen and Huang (2010) argued:

The ability to take the device anywhere and connect the internet allows the user to not only retrieve the information form a web 2.0 system but also support the users in “Sharing, organizing, managing and creating information” Form remote locations at any given time (p. 70).

Mobile devices including mobile phones possess significant potential to enhance the effectiveness of language teaching and learning. According to Cummins, (2000):

By providing the capacity for listening, speaking, reading and writing skills, it is possible that mobile device can immediately learning affordance for language learning. By engaging the language learner in situated tasks through mobile, technology, “Language can be used to amplify Students’ intellectual, aesthetic, and social identities” (p. 544).

Discussing the significance of mobile devices in education, Klopfer, Squire and Jenkins (2002, as cited in Begum, 2011, p.105) highlight their four main characteristics: (i)portability, (ii) social interactivities, (iii) connectivity, and (iv) individualities. Likewise, according to UNESCO (2013, pp. 3-7) the functions that the 'mobile learning', the new approach, can serve are:

- i. To facilitate personalized learning
- ii. To extend the possibility of anytime, anywhere learning,
- iii. To provide immediate assessment and feedback,
- iv. To ensure the productive use of time spent in classrooms,
- v. To build new communities of students,
- vi. To support situated learning,
- vii. To announce seamless learning,
- viii. To bridge formal and informal learning, and
- ix. To improve communication and administration.

MALL, at present, is closely associated with English language teaching and learning, which has been highly influenced by the use of web 2.0 technologies. Modern technological devices, especially the ICTs with the Internet, offer new opportunities for communication and collaboration, and they provide the learners with authentic tasks, access to a wealth of English

language teaching (ELT) materials, and exposure to English language skills (Dudney & Hockley, 2007, p. 8). ELT practitioners have incorporated various tools such as, laptop, notebook, tablets, PDAs, overhead projector, and mobile phones. Among these devices, mobile phones are the most versatile and conveniently portable, which have been almost indispensable component in many of the teachers' and students' life. The uses of mobile phones have grown to such an extent over recent years that they are gradually replacing personal computer in modern professional and social context (Attewell & Savill-Smith, 2004, p. 3). It is because mobile phones are relatively user-friendly from both cost- effectiveness and portable point of view. Smart mobile phones can be used for multi-functions; for making phone contact for communication and interaction, sending SMS, listening to news and music, and for several social sites such as Facebook, Messenger, YouTube, WhatsApp, Skype, and so on. To be more specific to language teaching and learning, mobile phones, among other ICTs, have extensively been used for accessing, sharing, and storing learning resources (Poudel, 2020). Mobile phones have possibilities to impact on education, health, and many other social development areas. Because of such multi-functional features- relatively convenient to use, and portable to move-, many of the mobile devices are gradually being replaced with the rapid expansion in the use of mobile phones.

Several research studies have concluded that mobile phones are useful tools for increasing the effectiveness of language teaching and learning. Cakir (2015) in his research on 'Opinions and Attitudes of Prospective Teachers for the Use of Mobile Phones in Foreign Language Learning' concluded that mobile phones can be utilized for making language learning effective. Similarly, Parajuli (2016) carried out a study on 'Mobile Learning Practice in Higher Education in Nepal', which indicated that most of the undergraduates used mobile phones and they had positive attitudes towards mobile learning. The study showed that most of them possessed mobile phones and they used them in both inside and outside their classroom environments. Mobile phones were the most common tools to be engaged in MALL activities.

Over the recent decades, mobile phones have been noticeably popular in the Nepalese societies too. They have been an appendix in the daily life of the teachers and students. Discussing this rapid popularity of the mobile phones in Nepal, Nepal Telecommunication Authority [NTA] (2015, as cited in Parajuli, 2016) reported:

The mobile phone penetration rate in Nepal was 86% at the end of 2014. This is the large proportion of mobile subscription in comparison to other Asian countries. The latest data shows that mobile and internet penetration rates are approximately 101.17% and 44.37% respectively. 95% of the users have accessed internet facility by mobile phones by July, 2015. (p. 43)

Nepal has witnessed a mobile phone revolution in the last decade. National census 2021 shows that 73.23% of households use mobile phones (National statistics office, 2023). Between the two censuses of 2068 and 2078, mobile phone penetration has increased by about 177.78% (in 2068 BS, there were 35,04,929 mobile phones across the country, while in 2078 BS, this number increased to 9,739,446), while internet access increased by 1291.14% (in 2068, only 1,80,746 households across the country had internet access, while in 2078, this number increased to 25,14,510 households).

Using ICTs such as mobile phones, laptop, the Internet in teaching and learning process has become one of the major concerning issues in Nepal at present. As English language teaching and learning in the context of Nepal is rather challenging due to factors such as poor infrastructure development, lack of teacher training and refresher courses, large class size, poor economic status of the students (Poudel, 2020, Thapaliya, 2014), the government of Nepal has now realized that integrating ICTs in educational activities can enhance the effectiveness of teaching and learning and improve the quality of education (MOE, 2012). Accordingly, the Ministry of Education has formulated a master plan for ICT in education (MPICTE) which aimed ‘to ensure extensive use of ICT in education sector and contribute to access to resources, and enhance quality education’. In this regard, as there is a rapid increase in the number of mobile phone users than other mobile devices (NTA, 2015); and because mobile phones are more ubiquitous among other ICTs, MALL using mobile phones has been considered as one of the appropriate approaches in the educational institutions in the context of Nepal.

MALL with the use of mobile phones is increasingly becoming one of the major concerns at present in both English as a Foreign Language (EFL) and English as a Second Language (ESL) contexts. However, many of the ELT researchers have focused their study primarily on the periphery of the use of computers and laptops in language teaching and learning. In the context of a non-native country like Nepal, the teaching and learning of English is a very challenging task; and it has been realized that technological integration supports and makes this task feasible (MOE, 2013). As a result, rapid expansion of the use of mobile devices, particularly the smartphones, has started to influence the scenario of traditional methods of teaching and learning of English. Nevertheless, attention to MALL using mobile phones is still lagging in the ELT context in Nepal. Despite the popularity of mobile phones, the issue of their productive utilization has not attracted serious attention of the researchers, and still the research works on this burning issue in Nepal are quite a few. Therefore, it is essential to carry out research to explore the students' experiences of using mobile phones, in their English language teaching and learning. It is important to examine why and how they use mobile phones in MALL activities in the context of Nepal. This will be worthwhile for further policy designing related to integration of ICTs in education.

### **Methodology**

A systematic investigation is based on particular research design as the foundation of its research. A research design is a framework that guides the plan or strategy of investigation. According to Kumar (2009, p.4) “A research design is a plan for structure and strategy and investigation so concerned as to obtain answer to the research question or problem”. In order to explore the students' use of mobile phones (smartphones) in their MALL activities, this study adopted phenomenological research design within qualitative approach. Phenomenological study describes and interprets the meaning for several individuals of their lived experiences of a concept or a phenomenon (Creswell, 2007). It seeks to uncover the essence of phenomena by examining how the participants experience and interpret events, situations, or concepts. I believe, this phenomenological design is appropriate to understand and explore the students' experiences of using mobile phones in their language learning activities.

The study population of this research was the students studying their bachelor level majoring English at Tribhuvan University, Nepal. Among them, eight students (four boys and four girls) of bachelor 4th year from a constituent campus of Tribhuvan university were taken as the sample. The informants were selected using judgmental sampling procedure considering the fact that they were familiar in using mobile phones in their study of English. The important benefit of judgmental sampling is that it allows researchers to focus on specific individuals who are most likely to provide relevant, rich, and valuable information for the study.

Likewise, as the method of information collection, unstructured interviews were conducted, and an interview guide was used as the research tool for data collection. In qualitative research, the interviewer can ask specific questions in the interviews to elicit information, which permits the participants to describe detailed information, and through open-ended questions the participants can best voice their experiences (Creswell, 2012). In the process of data collection, each participant was interviewed with the help of an interview guide for about half an hour, and it was recorded using a smart mobile phone. The records were transcribed, read and reread, and themes were generated. Finally, the information collected was analyzed and interpreted, and conclusions were drawn based on the supporting evidences.

### **Results and Discussion**

This section deals with the results and discussion. The experiences shared by the participants in the process of data collection have been discussed thematically and they have been analyzed and interpreted based on the supporting evidences. This thematic analysis and interpretation have been presented below in different subheadings.

#### **Mobile Phone: A Useful Language Learning Tool**

The national census 2021 indicates that almost three-fourths of the households use mobile phones in Nepal, and it can be observed that almost all the university students possess at least one mobile phone. They have been using it for several purposes- for communication, for entertainment, for learning courses and ideas-and so on. The participants were asked to share their general impression towards mobile phones. The students responded that they perceive mobile phones as cheaper gadgets, portable, and easier to use. Most of the participants agreed that mobile phones are very affordable in comparison to other ICT tools such as computers and laptops. Importantly, almost all the tasks that are performed by the computer can also be possible with the help of mobile phones. Moreover, mobile phones are easy to use because of their portable size and shape, and features. One of the participants opined, "*Mobile phones are easy to operate and they do not require special operating skills unlike computers.*" The participants shared that mobile phones help them e-mail and send messages to their friends, family members, teachers and students for the learning materials. They believed that mobile phones have created autonomous learning environment for them that they can learn anywhere and anytime beyond the classroom.

Most of the participants opined that mobile phone, especially smartphones, can be useful tools for language learning. Mobile phones are a portable device which can be carried anywhere in the pocket and help them learn the word meanings, pronunciations, and different skills and aspects of language. One of the informants said, "*I use different applications to*

*practice the vocabulary, grammar, pronunciation, and language skills.*” Similarly, they shared that if they have a smartphone, and they have access to the internet, they can surf the web, and download different learning materials such as books, articles, reports, journals and so on. Another participant shared, *“I can utilize my mobile phone for reading e-books, using e-dictionaries, listening to English news, music, and English lessons”*. Mobile phones were useful for the students for studying different aspects and skills of language. Consistent with Bachore (2015), most of the students in this study perceived mobile phones as a useful language learning tool which help them learn language by making full use of online and offline resources.

Mobile phones were most essential in the everyday life of the participants. Similar to Parajuli (2016), all of them had positive attitude towards mobile phone devices. The devices were found to be utilized in various ways as a useful language learning tool as discussed by Cakir (2015). The use of mobile phones for language learning purposes can have several benefits. The following are some of the important benefits shared by the students in the interviews.

- Mobile phones can make several learning materials available.
- They can create enjoyable environment that makes stress free learning.
- They are economically accessible and affordable in comparison to many other ICTs.
- They are small, portable, cheap, handy tool of language learning.
- They help to develop different aspects of language skills such as grammar, vocabulary, listening, and reading skills.
- With access of Internet, many books, journals, articles can be downloaded in a single phone, it lessens the burden of buying expensive books.
- Multimedia function can be utilized in mobile phones to improve listening skill.
- Mobile phones can provide opportunities for collaborative learning as they provide opportunities to share materials among students and teachers
- Mobile phones can make access to different social networking sites.
- Offline application can be used in the absence of internet.
- No time boundary to use, they can be used anytime and anywhere
- Mobile phones are very convenient medium of communication among friends and teachers.

### **Learning Vocabulary Using Mobile Phones**

The vocabulary of an individual refers to all the words in his/her lexicon. It is the repertory of words or the set of words that the person knows and uses in communication. Vocabulary is important for effective interaction and comprehension in both written and spoken forms of a language. A rich vocabulary ensures the ability to understand written texts, speeches, and oral conversations. Mobile phones (smartphones) can be used as tools for the development of vocabulary power.

The participants shared that mobile phones can be used in many ways for developing vocabulary power. They viewed that the use of dictionary on a mobile phone is a better way to learn the meaning of new vocabulary items. They can play different vocabulary games or puzzles, which can be considerably helpful to develop vocabulary. Making use of different

search engines including google, to search the meaning and definition of new words are also helpful. A participant shared, *“My vocabulary acquisition has increased because of ‘spelling bee’, ‘match up’ and ‘videos’ on mobile phones”*. In the same way, another participant opined, *“Listening to English music, programs, news, movies, e-lectures, and reading e-books has helped me develop my vocabulary power.”*

To summarize, the students use their mobile dictionary, play different vocabulary games and puzzles using their mobile phones. They also listen to English music and news, read the soft copies of articles and literary books, and listen and watch several other programs which are very helpful to develop their vocabulary power. As Dudeney & Hockley (2007) pointed out, mobile phones were the best tools for the students to create an environment for language exposure, which could help them improve their vocabulary power. Mobile phones can be used to consult different dictionaries, apps, and software with vocabulary tasks and activities for each and every day.

### **Mobile Phones for Listening Skills**

Listening is the first and basic skill in language learning. Listening is the activity of paying attention to sounds and trying to get meaning from something that is heard. Mobile phones nowadays have been ubiquitous tools for improving listening skills.

The informants agreed that listening skills can be developed using mobile phones. They shared that they used mobile phones to download audio materials from the internet including songs, audio texts, and rhymes in order to develop their listening skills. Most of them listen to the news and English programs broadcast by different news agencies like BBC world service. They shared that watching English movies or videos also improves their listening skill. An informant said, *“Many motivational speeches by native speakers, lectures, documentaries, audio texts found on YouTube are also helpful for me to develop listening skill.”* Another informant opined, *“Listening to English music, news and English lessons on mobile phones are the key to develop listening skill.”* The participants also used mobile phones to record the speeches and lectures of scholars, and listen to it again to develop listening skill.

Mobile phones make a number of listening materials available. They can be used to create different types of activities, in which the learners can be engaged in listening. As Burston (2013) found, by exploiting the different functions and features of mobile phones, the students in this study were able to improve their listening skills. Listening to English conversations, songs, news, live commentaries, discussion, interviews and lots of similar activities are possible through mobile phones.

### **Improving Pronunciation Using Mobile Phones**

Pronunciation is one of the most important aspects of spoken language. It refers to the ability to utter the words or expressions accurately with correct sound, stress, tone and intonation. To improve pronunciation, rigorous practice is needed, and for this, mobile phones can be useful tools.

The participants in the interview argued that using online and offline dictionaries along with phonemic transcription and sound system which is installed in their mobile phones help them improve their pronunciation. They believed that looking at the phonemic transcription of



unfamiliar words using authentic dictionaries on mobile phones is very helpful to develop the pronunciation. They said that listening to the native speakers' speeches, conversations, lectures assist them in improving pronunciation. Similarly, audio texts provided on different websites, like the website of British Council, are also beneficial. An informant said, "*I listen to and watch English movies, recorded speeches by native speakers, and attempt to imitate them.*" Another participant expressed, "*I record my own voice using mobile phones, listen to it time and again, and compare it with the correct pronunciation, which helps me to find my weaknesses.*"

The students believed that their pronunciation had been improved with the proper utilization of mobile phones. Poudel (2020) in a study found the usefulness of mobile phones in learning both language skills and language aspects. In the same line, the mobile phones were very supportive in learning pronunciation for the students in this study. Students can listen to a variety of native speakers' conversations, they can watch interviews or discussions, they can even listen to the audio pronunciation of the vocabulary items on their mobile phones.

### **Mobile Phones for Learning Grammar**

Grammar refers to the set of rules which describes how words and groups of words can be organized to form sentences in a particular language. Grammar ensures accuracy and standardization of language. To have mastery over grammatical rules of any language, we need conscious efforts. For this, proper use of mobile phones can be a useful means. Regarding the use of mobile phones in order to improve the grammatical accuracy, the responses of the participants have been summarized below.

The informants agreed that mobile phones can be useful tools to develop their grammatical competency. They said that mobile phones can be utilized to download different e-copies of grammar books and these books can be read to widen grammatical knowledge. Similarly, different applications containing grammatical rules and exercises help them develop their grammatical skills. A participant shared; "*I have different grammar books on my mobile phone to read. I have also installed several programs from the app store to practice various online and offline grammar exercises.*" Another participant said, "*...in case of confusion, I take the help of Google, grammar checker, and ChatGPT in order to check the grammatical correctness.*" Likewise, some of the participants opined that the features like predictive text and auto spelling checker can be enabled from the setting of mobile phones which shows predicted text based on what is entered, and underlines spelling errors, suggesting corrections and feedback.

Mobile phones can be utilized in many ways in order to develop the grammatical competencies of the students. As discussed by Parajuli (2016), the participants in this study seemed to be impressed by the features of mobile phones. They could incorporate different apps and software which help them to boost their grammatical knowledge. Several grammar books, grammar related exercises, and grammar checking tools in their mobile phones help to enhance students' grammatical competency.

### **Conclusion**

The invention of mobile phones-the pocket sized multi-functional smartphones- has played a significant role in the advancement of Mobile-Assisted Language Learning (MALL)

recently. Mobile phones have attracted considerable attention of their consumers, and language scholars have started to show their concern about the utilization of mobile devices for language teaching and learning. This study focused on the investigation of how the university level students perceive and employ mobile phones as tools for language learning.

The findings of this study indicate that the students hold positive attitudes towards mobile phones in Mobile-Assisted Language Learning. They actively integrate various features of mobile phones into their daily language learning activities.

The analysis and interpretation of the collected data in this study has indicated that the mobile phones have been their first choice for engaging in Mobile-Assisted Language Learning. Mobile phones serve as valuable tools for enhancing language skills such as vocabulary, pronunciation, grammar, listening, and reading. To achieve these language learning goals, the students frequently utilize mobile phones for consulting dictionaries, accessing email and the internet, browsing search engines for websites and downloading learning materials, watching educational YouTube videos, and utilizing multimedia functions, including sound recording and cameras. Thus, the proper use of mobile phones can play a significant role in enhancing students' language learning, and it should be encouraged to utilize mobile phones in order to assist their MALL activities.

To be brief, it can be concluded that mobile phones can serve as a useful language learning tool if they are utilized properly. Finally, the following are the recommendations of this research study:

- The students should voluntarily and enthusiastically get involved in using mobile phones (smartphones) in a proper manner.
- The students should be very familiar with the different features and functions of mobile phones in such a way that they can get many benefits in language learning.
- The habit of sharing ideas, information, and learning materials using mobile phones among the students should be encouraged.

### References

- Alexander, B. (2004b). Going Nomadic: Mobile learning in Higher education. *EDUCAUSE Review*, 39(5), 28–35. <https://er.educause.edu/articles/2004/9/going-nomadic-mobile-learning-in-higher-education>
- Attewell, J. & Savill-Smith, C. (2004). *Learning with mobile devices: research and development*. Learning and skills development agency.
- Bachore, M. M. (2015). Language learning through mobile technologies: An opportunity for language learners and teachers. *Journal of Education and Practice*, 6(31), 50-53. <https://files.eric.ed.gov/fulltext/EJ1083417.pdf>

- Begum, R. (2011). Prospect for cell phones as instructional tools in the EFL classroom: A case study of Jahangirnagar University, Bangladesh. *English Language Teaching*, 4 (1), 105-115. <https://10.5539/elt.v4n1p105>
- Burston, J. (2013). Mobile-assisted language learning: A selected annotated bibliography of implementation studies 1994-2012. *Language Learning & Technology*, 17(3), 157-224. <https://scholarspace.manoa.hawaii.edu/server/api/core/bitstreams/bcd18542-6345-42b5-af5e-942182359d92/content>
- Cakir, I. (2015). Opinion and attitudes of prospective teachers for the use of mobile phones in foreign language learning. *Contemporary Educational Technology*, 6(3), 239-255.
- Chen, H.R. & Huang, H.L. (2010). User acceptance of mobile knowledge management learning system: design and analysis. *Educational Technology & Society*, 13(3),70-77.
- Creswell, J. W. (2007). *Qualitative inquiry and research design: choosing among five approaches*. Sage publications.
- Creswell, J. W. (2012). *Planning, conducting, and evaluating quantitative and qualitative research*. Pearson.
- Cummins, J. (2000). Academic language learning, transformative pedagogy and information technology. *TESOL Quarterly*, 34(3), 537-548.
- Dudeny, G., & Hockly, N. (2007). *How to teach English with technology*. Pearson Education Limited.
- Huang, C. & Sun, P. (2010). Using mobile technologies to support mobile multimedia English listening exercise in daily life. In *The International Conference on Computer and Network Technologies in Education (CNTE 2010)*. Retrieved, August 10, 2016 from <http://cnte2010.cs.nhcue.edu.tw/>
- Ince, M. (2014). The investigation of instructors' views on using technology in English language teaching. *Procedia-Social and Behavioral sciences* 141, 670-674.
- Jaradat, R.M. (2014). Students' attitudes and perceptions towards using m-learning for French language Learning. A case study on Princess Nora university. *International Journal of Learning Management Systems* 2 (1), 33-44
- Kukulka-Hulme, A. (2009). Will mobile learning change language learning? *European Journal for Computer Assisted Language Learning*, 21(2), 157-165.
- Kumar, R. (2009). *Research methodology*. Dorling Kindersley (media) Pvt, Ltd.
- Kunst, M. (2014). Graduate Section: The Link between ICT4D and Modernization Theory. *Global Media Journal* 4 (2), 1-22.
- Larson, J. F. (2017). The Future of ICT-driven Education for Sustainable Development. In

A. R. Sharafat and W. H. Lehr (Eds) *ICT-centric economic growth, innovation and job creation* (pp 239-257). Geneva: ITU

Ministry of Education [MOE], (2012). *Guideline for implementation of ICT in school education*. MOE, GON

Ministry of Education (2013). *ICT in education: Master plan (2013–2017)*. Ministry of Education.

National Statistics Office [STO] (2023). *Nepal statistical year book 2023*. National Statistics Office.

Nepal Telecommunications Authority [NTA] (May, 2015). Management information system, *NTA 126* (78). Retrieved August 9, 2016 from <http://www.nta.gov.np/en/mis-reports-en>.

Parajuli, K.P. (2016). Mobile learning practice in higher education in Nepal. *OpenPrazix*, 8(1), 41-54.

Poudel, A. P. (2020). Information and Communication Technologies In English Language Teaching and Learning: A Multiple Case Study of the Institutional Schools in Nepal. An unpublished Ph D dissertation [ Tribhuvan University]  
<https://doi.org/10.5281/zenodo.7045742>

Swan, K., &Kratcoski, A. (2007). Highly mobile devices, pedagogical Possibilities, and how teaching needs to be conceptualized to realize them. *Educational Technology Magazine: The Magazine for Managers of Change in Education*. 47(3), 10-12.

Thapalia, M. P. (2014). English teachers' perceptions and practices of ICTs in Kathmandu district, Nepal. *International Journal of Academic Research in Education and Review*, 2 (10), 251-258.

Traxler, J. (2005). Defining mobile learning, *Proceedings, IADIS international conference on mobile learning Malta*, ISBN: 972-8939-02-7,  
[https://www.academia.edu/2810810/Defining\\_mobile\\_learning](https://www.academia.edu/2810810/Defining_mobile_learning)

United Nations Education, Scientific and Cultural Organization (UNESCO) (2013). *UNESCO Policy: Guidelines for Mobile Learning*. UNESCO.