Feasibility Study on Cell Phone Application for Home-based Early Grade Reading Practice

Prepared for

RTI/ EGRP/ USAID

Uttardhoka, Lazimpat, House No:46/ 64

PO BOX 14417

Kathmandu, Nepal

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Prepared by

Keshava Raj Gnawali, Ramesh Shrestha, and Prof. Dr. Binod Krishna Shrestha

Avant-Garde Solution Pvt. Ltd.

Sankhamul, Kathmandu

www.avantgarde.com.np,

info@avantgarde.com.np

+977 1 4786278

The views expressed in this study do not necessarily reflect those of the RTI/EGRP/USAID.

Preface

We would like to extend our sincere gratitude to EGRP/RTI/USAID for providing Avant Garde Solution this opportunity and entrusting us to undertake the Feasibility Study on Cell Phone Application for Home-based Early Grade Reading. This study was carried out under a contract awarded to Avant Garde Solution Pvt. Ltd. from RTI/EGRPUSAID by the Team of Avant Garde Solution Pvt. Ltd. Lead by Mr. Keshava Raj Gnawali, supported by Research expert Mr. Ramesh Shrestha and Thematic Expert Prof. Dr. Binod Krishna Shrestha.

We are grateful to EGRP team for providing continuous guidance and valuable technical support and sharing of the experience the completion of this study. In the process of planning and conduction of this study, the study team consulted the personnel of Ministry of Education and Focal Persons of Central Line Agencies (CLAs) as a technical team and briefed the purpose and methodology of the study. They provided us valuable insights on the design to carry out the study effectively. We interviewed them and collected valuable information for this study. We highly appreciate their all these types of support to this study. We would to thank to the Department of Education for providing required information and administrative and technical support to the study team.

We express the special thanks to District Education Offices of Mustang, Kaski and Banke for their administrative support and appreciate their valuable guidance and support of District Coordinators and EGRP personnel of Pokhara Regional Office and Nepalgunj Regional Office while carrying out the field work.

During the course of the study, we conducted workshops on sharing of the study instruments and findings of the study for the personnel of EGRP and Ministry of Education and Central Line Agencies. They provided most valuable suggestions to us and shared their experiences related the ICT and cell phone application in education field with us. We appreciate for their valuable inputs provided to us that added the value to this study.

At the field level, while collecting data, we interviewed personnel of District Education Office and School and parents about the themes of the study. Some of them were participated in the Focus Group Discussion conduced at community level. We are grateful to their support, valuable opinions and insights provided to this study.

Avant Garde would like to extend our gratitude toward officials of NTA Senior Director Mr. Ananda Raj Khanal, Manager from Nepal Telecom Ms. Pratima Pradhan, and Senior Engineer Neeraj Neupane, Communication expert of Ncell Mr. Milan Mani Sharma, CEO of Sparrow SMS Mr. Amit Agrawal and Director of Infiquer Solution Mr. Anup Sherchan without whose support this study could not have been completed.

Mr. Hari Pd. Upadhyay and Dr. Biswo Bala Thapa were members of this study. They continuously participated in entire process of this study and worked continuously to bring this study report in this shape. We are thankful to them for their valuable professional support to this task.

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Avant-garde

Kathmandu, Nepal

Table of Contents

Preface……...……..i

Table of Contents……...……ii

Abbreviations……...……..v

Executive Summary……...……1

Chapter 1: Introduction…….……..……..4-12

Chapter 2: Review of Literature……..…..……..13-21

Chapter 3: Methodology…….22-28

Chapter 4: Data Processing, Analysis and Interpretation……...……29-88

Chapter 5: Cell Phone status and application in Geographical Region……..……..89-119

Chapter 6: Synthesis……..…..120-139

Chapter 7: Approach and Strategy for Cell phone application……...……140-152

Chapter 8: Summary of Findings and Recommendation...……...……..153-173

Appendix I:…….174

Appendix II:……175

Appendix III:……...203

Appendix IV:……...205

Appendix V:……....206

Appendix VI:……207

Abbreviations

EGRP	Early Grade Reading Program
GON	Government of Nepal
MOE	Ministry of Nepal
NEGRP	National Early Grade Reading Program
SSRP	School Sector Reform Program
SSDP	School Sector Development Program
NTA	Nepal Telecommunication Authority
TSP	Telecom Service Providers
ICT	Information and Communication Technology
RTDF	Rural Telecommunication Development Fund
OTT	Over The Top
ISP	Internet Service Providers
TU	Tribhuvan University
EVD	Ebola Virus disease
TWG	Technical Working Group
DOE	Department of Education
NCED	National Centre for Education Development
ERO	Education Review Office
CDC	Curriculum Development Centre
KII	Key Informant interview
FGD	Focus Group Discussion
RC	Resource Centre
PTA	Parents Teacher Association
ERO	Education Review Office
UTL	United Telecom Limited
SMC	School Management Committee
RP	Resource Person
SS	School Supervisor
DC	District Co- Coordinator
RM	Reading Motivator
CM	Community Mobilizer
DEO	District Education Officer
ANOVA	Analysis of Variance

Executive Summary

The Early Grade Reading Program (EGRP) is a five-year program (2015-2020) funded by the United States Agency for International Development (USAID) Nepal to assist the Government of Nepal (GON)/Ministry of Education (MOE) to improve reading skills of all community school students in grades 1 to 3. This feasibility study on cell phone application for home based early grade reading practice is intended to find out the innovative ways for parents and children to use cell phone applications for home-based EGR practice and school as well.

The specific objectives of the study are to take stock of the existing SMS gateway application/service providers, their costs and coverage, to gauge the extent of and attitudes towards cell phone use among the target population, to identify/assess the existing SMS gateway applications and cell-phone use and identify potential approaches for using cell-phone applications to engage parents and community members in home-based support and SMS monitoring for early grade reading and developing a strategy to pilot test cell phone application for early grade at home and school.

The study design was conducted based on mixed method that consisted of quantitative and qualitative. The sample districts were Kaski (hill), Banke (Terai) from Cohort I, and Mustang (mountain) from Cohort II of EGRP. The Total respondents were 525 parents, 281 school personnel and 28 District Education Personnel. Also, ten officials of five central line agencies of education sector and 7 officials from six agencies of telecom sectors participated in the interviews.

Telecom sector is liberalized in Nepal and 80percent FDI is allowed for private operators. Tele-density of Nepal is above 120 percent and Internet Penetration above 60 percent. The cell phone network coverage is available across the country. Quality of service issue is present due to geographical terrain, electricity and remoteness. Two major GSM service providers Nepal telecom and Ncell enjoy more than 95 percent market share. Also, ISPs provide internet connectivity through wireless, coaxial cable and OFC in urban cities. The companies like Sparrow SMS, Focus one, Infiquer solutions provide standard and customized SMS and OTT application based services.

In education field HSEB, TU, HISSAN found using SMS services for result announcement. Also, Toll free number based Notice Board Service of Nepal Telecom is popular for information dissemination about leave, holidays in school. The existing practices are SMS

alerts/ reminders, periodic parent teacher communication calls. NCED has been using mobile App for teachers and online training practice using Moodle application. NCED used cell phone service to collect responses of TV/Radio programs through call and SMS. Also, CDC started e-library concept to upload digital contents targeted teachers and students.

This study found that almost all parents (93.4%), all school and DEO personnel have their own mobile phone. Regarding the parents some of the female ( ) do not have mobile phone and they use husband or other family members' mobile phone. The parents found using Smart phone (45.6%), bar phone (30.8%) and Feature phone (23.8%). Among School Personnel (35%) found having Bar phone, 56% had smart phone and a few 9% had feature phone. Almost all DEO personnel (87%) have Smart phone whereas a few of them (13%) have bar phone. This indicates that cell phone use is very highly feasible to use for education purposes. Most of the parents (35.4%) found to spend NPR 101 to 300 per month whereas overwhelming (32.1%) spend around NPR 301 to 500 per month, and few (19.8%) spend above NPR 500 a month. Most of the School personnel (45.2%) spend above NPR 500 per month and 78.6% DEO personnel spending above NPR 500 per month. The parents can afford on the average NPR 500 a month as cell phone expenses if it can help in children education. So is the case for School and DEO personnel.

Attitude of the parents, school personnel and DEO personnel was measured under eight subthemes information, interest, usefulness, preference, perceived price, perceived quality and attitude towards cell phone use and SMS use in communication, messaging, and reading of early grade children. Almost all parents (90.7%) and school personnel 93.8% and DEO personnel (90.5%) strongly agreed the need for using cell phone in their daily life and education requirements for their children. They felt that use of cell phone has been a part of their daily life and they are attentive to use cell phone for education purpose. They have positive attitude towards the use of cell phone for education purpose and promotion of early grade reading.

Most of the parents (49.7%) have been found using SMS in their daily life. They can read the SMS received from others and can send SMS to their relevant persons. However, some of them (42.0%) were found that they have not been using SMS to communicate to others. They need orientation on the use and relevancy of SMS to communicate each other and for education purposes. Almost all school personnel (87.5%) and DEO personnel (88.9%) have been using SMS through mobile phone. Most of the Parents preferred morning time to use SMS while School personnel preferred a leisure period in school. More than two third of

parents use Roman Nepali language typed in English letters to communicate in English however most of the school and DEO personnel use English as well as Nepali languages equally to send SMS.

Almost all (above 85%) parents and school personnel had shown their readiness to share school information using SMS to communicate various activities of early grade reading children however they need certain guidance and motivation. The last components of this study discussed on possible alternative approach along with alternative services that can be used to engage early grade children in home based reading. Activity based strategy as a concept note to conduct a pilot to use cell phone and SMS based application has been proposed.

CHAPTER 1: INTRODUCTION

Avant Garde Solution Pvt. Ltd., hereafter referred to as Avant Garde entered into an agreement with RTI International, hereafter referred to as RTI on 15 February, 2017 to conduct the "Feasibility Study on Cell Phone Application for Home-based Early Grade Reading Practice" as per the terms and conditions of the contract with reference to RTI Project Number: 0214446.001.006.

1.1 Background

The Early Grade Reading Program (EGRP) is a five-year program (2015-2020) funded by the United States Agency for International Development (USAID) Nepal to assist the Government of Nepal (GON)/Ministry of Education (MOE) to improve the reading skills of all community school students from grade 1 to 3. This program will primarily support the government's National Early Grade Reading Program (NEGRP) which began in July 2014 and was a part of the School Sector Reform Plan (SSRP) till July 15, 2016 and currently has been one of the components of School Sector Development Program (SSDP, 2016-2023). The overall goal of EGRP is to improve reading outcomes for over one million learners in Nepali, as well as three mother tongues and other languages as determined in collaboration with GON (EGRP document, 2014).

This feasibility study on cell phone application for home based early grade reading practice as specified in EGRP contract document is related to sub task 3.2.3: "Propose innovative ways parents and children to use cell phone applications for home-based EGR practice of IR 3 component". This study is also related to sub task 4.3.4: "Set up mobile phone connected interfaces for dissemination of reading data and messages". On this background, this feasibility study on cell phone has assessed the current situation and explored future alternatives to use cell-phones in home-based support of early grade reading children.

1.2 Purpose

The purpose of this 'Feasibility study on cell phone application for home based early grade reading practice' is to assist the program in planning for cell phone use/applications for home-based support and SMS monitoring of early grade reading.

1.3 Objectives

This study had following four specific objectives:

1.3.1 to take stock of the existing SMS gateway application/service providers, their costs and coverage.

1.3.2 to gauge the extent of and attitudes towards cell phone use among the target population.

1.3.3 to identify/assess the existing SMS gateway applications and cell-phone use and identify potential approaches for using cell-phone applications to engage parents and community members in home-based support and SMS monitoring for early grade reading, and

1.3.4 to develop a strategy as a detailed concept note for piloting the use of cell phones to engage parents and children in home-based support and SMS monitoring for early grade reading.

1.4 Current System and Practices

The stock of the existing cell phone and SMS service providers in Nepal covers current availability of cell phone and their application to the people on individual, community, and district level. Also, the accessibility of cell phone, its services, use, challenges, and problems in present context have been deliberated in this report.

1.4.1 Availability of Cell Phone based services

NTA is the sole regulatory agency to regulate telecom sector in Nepal. There are 6 telecom service providers (TSPs) among which 4 are cellular mobile and 2 are rural operators. Through the Implementation of ICT policy and broadband policies, the government of Nepal has plans to connect all schools with broadband connectivity by 2018. NTA is nodal agency for policy implementation.

Nepal has three ecological regions Hill, Mountain, and Terai. Terai covers 17%, Mountain 68%, and Hill 15% of total geography of 171,181 square kilometers. According to 2011 Census, the population distribution, out of total 26,494,504, in Mountain, Hill and Terai is 6.73%, 43.00%and Terai 50.27%. Due to the variations in geographical terrain access to telecom services in Terai, Mountain, and Hill is through optical fiber cable, microwave network, and satellite based services. The net effect is variations in coverage and quality of cellular mobile services offered by the service providers in the regions. At present in Nepal, there is nationwide availability of cell phone and its applications including Hill, Mountain and Terai region. Cell phone service is available through GSM and CDMA technologies

where GSM technology is in the dominant position. Although, the telecom regulator NTA has issued cellular mobile license to four operators Nepal Telecom, Ncell, Smarttel and UTL, the first two share the market above 95 percent.

Nepal telecom and Ncell service is available in all 75 districts. GSM and CDMA cellular mobile service coverage provides basic telephony, SMS and low data rate GPRS/1xCDMA in all coverage areas.

After having basic cellular mobile service coverage in all districts and VDCs now, the NTA's priority has shifted towards broadband coverage throughout the country. For this purpose, NTA has decided to mobilize Rural Telecommunications Development Fund (RTDF) to extend Optical Fiber Cable (OFC) connectivity in all 75 district headquarters. Nepal Telecom provides telecom and value added services (VAS) through Landline, ADSL, GSM and CDMA services. As per Nepal telecom sources, all VDCs of Nepal have been covered with either GSM or CDMA service, however few black spots and QoS issues are there in remote places due to electricity shortage or transmission link. Nepal telecom has 3G service in all 75 districts with at least one 3G enabled BTS in the district head quarter and urban centers. Recently, NT has also launched 4G service in Kathmandu and Pokhara, expanding 4G in all major cities across the nation.

According to Ncell, it has coverage of GSM based cellular mobile service to 91.9% population in Nepal. 3G service has reached to 31 percent population in the country. All 75 districts have 2G services while 65 districts have 3G service. By 2018, Ncell has plans to upgrade all its BTSs with 3G services. Recently Ncell has also started 4G services in selected areas including national capital Kathmandu.

There are more than 22 active Internet service provider companies, offering broadband internet services through wireless as well as wired connections with optical fiber cable in urban areas. Among these world link communications, Vianet communications, Websurfer Nepal, Subisu Cable net, Broadlink communications, and Classictech communications are prominent operators having customer base above 10k.

In addition, there are around twenty companies, who provide value added services like customized and interactive SMS services and over the top (OTT) content services like music, video, data transmission, and Apps. These companies are located mostly in Kathmandu. These companies have interconnection with telecommunications service providers through their own SMS gateway servers and provide dedicated and shared services to the clients in

the agreed business model. Examples of such companies are Sparrow SMS, Focus one, Infiquer solutions etc.

1.5 Accessibility of Cell phone based services

In Nepal, cell phone service is available through GSM, CDMA, and WiMax technologies. Incumbent Nepal Telecom operates all three services while Ncell offers GSM based services only. CDMA is phasing out. WiMax got stagnant with data services in urban and rural areas of mountain and hills. GSM has a wider coverage with 2G, 3G, and 4G technologies.

GSM service is accessible to people in postpaid and prepaid account category. Ordinary people at community level mostly use pre-paid based services. The selection of pre-paid based service is mainly due to initial cost, availability, and bill payment (recharge).

1.5.1 Voice and SMS based Supplementary Services in Cell phone

Various supplementary services are offered by service providers in call and SMS to cell phone users. Ncell has offerings in voice calls like 'call me', call forwarding, conference calls, miss call notifications etc. Furthermore, in SMS category Ncell has offerings like MMS, Short Number and bulk SMS, SMS2EMail, Voice SMS. Nepal telecom offers friend and family (FnF) service, voice mail service; call forwarding, conference calls etc.

In SMS, the text can comprise of words, numbers, and their alphanumeric combination. Each SMS can have maximum of 160 characteristics with Latin alphabets and with non-Latin alphabets its length is limited to 70 characters only.

1.5.2 Use of SMS based Services in Cell phone

Telecom companies do not directly provide SMS based value added services other than their own purpose or government directed bulk broadcasts like Bagmati River cleaning campaign, own new service package advertisements etc. To use such services for customized list of users, private companies are there. They have SMS interconnections with telecom service providers to operate the services.

Private companies provide SMS interconnection, SMS broadcast, SMS filtering services to its clientele as per the requirement. In addition to this, it is possible to use SMS service in local language which is Unicode based and incorporates 70 characteristics only. But, the use of local language suffers from cost issue, multiple SMS, and phone device type issue due to interoperability.

Based on technical solution, three modalities can be found that are offered by private companies to SMS service seekers.

Modality 1

In this modality, clients can use own server, own link, own code, and operate service at own premises and private companies provide technical support to establish the system. Here, service provider and government agency lassoing is the responsibility of client. This model incurs the highest cost as well as time. Example of this model of operation is Home ministry's disaster information broadcast, department of Inland Revenue for tax payment confirmation.

In this model, client has to pay all hardware and software costs for system and media including customization and acquisition of code. System Charges depend on the type of hardware used but it wouldn't be less than a million Nepali rupees, link can be used through VPN or dedicated Optical fiber cable.

Software application and customization charge depends on the requirement specifications and reports required. Client has to pay recurring charges for operation and maintenance of the system and services as per the agreement with SMS service provider. Usage charge per SMS depends on the interconnection and business agreement with telecom operator which is basically differential with its volume.

Modality 2

In this model, the client can use own SMS application server in own premises and get the VPN connection through service provider's server so that the interconnection part with telecom service provider is exempted. SMS service provider shall redirect the messages terminating to client's server based on the code. This is also a costly affair. Short code can be dedicated or shared. Dedicated short code is costly than shared. Short code and SMS usage charge depends on the interconnection agreement with telecom service provider.

Modality 3

This is service outsourcing model. Client becomes a customer of SMS service provider. Generally, client needs to pay NPR 1.5 per SMS. This price is still negotiable based on volume. Short code can be dedicated or shared. For dedicated code it can cost above Rs.500k to Rs 1 million. In this model, pricing is based on application, reporting format and frequency. Cost on technical system operation is SMS service provider's responsibility.

There is a little constraint with the shared code. If the shared code is blocked due to one of the partner's misuse, other partners also suffer. Otherwise, this model is easy to deploy economical, and effective. In this regard, one point to be noted is, SMS is a store and forward type of service and is not 100% reliable. Out of two service providers, Ncell provides SMS delivery acknowledgement message but NT does not provide such message. The client can have a separate portal where client can use services on his own from the service provider. In such case, client should pre-deposit the amount ranging from NPR 50k to 100k.

1.6 Use of Toll free Service in Cell phone

In toll free service called party pays the charges for all received calls. Nepal telecom is pioneer in Nepal to offer toll service based on Intelligent Network. Such network translates the dialed number into a physical telephone number. In customer oriented business and social marketing, use of toll free service is popular. Nepal telecom offers Toll free service number in especial number series prefixed by 1660-01-XXXXX followed by five digit client's number. Therefore, NT's toll free number is accessible by NT's subscribers within Nepal only and is a limitation. The charges for Toll free service include NPR 1000.00 for registration, NPR 15000.00 for security deposit and usage charges as per standard PSTN call charges.

Ncell also has toll free service and its number series is standard in the range of +97798-XXXXXXXX. This number is accessible from across the world but only Ncell callers are not charged. The subscription charges for Ncell toll free service is around NPR 5518.00 that includes subscription, ownership tax, and monthly rental for the first time. Usage charge is Rs 0.55 per minute for calls originated through Ncell network.

It is imperative to note that Inter-operator toll free service is not in practice. This means Ncell subscribers cannot access the toll free number of NT. Whereas NT customers are charged for accessing toll free number of Ncell.

1.7 General Perception towards the Use of Cell Phone

The perception towards the use of cell phone by ordinary people, parents and teachers is presented in the following sections.

1.7.1 Perception towards the Use of Cell phone

Major use of cell phone and SMS service in Nepal is for communication purpose by individuals and groups. However, cell phones have been used by users for its features as per device type, accessibility, affordability, requirement, skill, and attitude. But, there is no doubt

that Nepalese are also following the global trend in cell phone use but the difference is intensity.

Cell phone service is mostly used in Nepal for voice communication. People use SMS service for communication but its use is not widespread and is related to habit of the users. Continuous growth has been observed in data subscriptions and use of smart phones. Use of audio visual contents in terms of music, images, and visuals through offline and online channel is also increasing.

Nepal Telecom provides SMS based services, for government initiatives at discounted prices. In such cases, charges are up to 20 paisa per SMS but NT's Board approval is needed. For example, in UNDP's initiative SMS service is in operation in health sector under "Sunaulo Hazar Din" program. NTA issues code for SMS and VAS and there is a separate range based on purpose of use.

1.7.2 Perception towards use of Cell Phone in Teaching Learning

There is no any clearly outlined policy arrangement on the use of cell phone in teaching learning by parents, teachers, or other operational, and support team. But, a strong belief has been found among all officers of central level agencies of education sector that cell phone is also an integral part/component of ICT service. Therefore, its use cannot be ignored rather be promoted in teaching learning in class as well as in home in early grade reading. But, it should be under the strict guidance of the parents and teachers.

Use of SMS service is beneficial for monitoring children’s learning, attendance reporting and status of school operation. Cell phone can be used to enhance communication between parents and teachers. SMS can be used in communication in four different ways; 1) To aware parents about their children's educational status, 2) To share teaching contents through SMS, 3) To assign separate task, projects, out of class work, and 4) Update /revision of contents in printed text book for error correction.

Smart phones can be used in teaching learning process in school as well as at home. For this, Audio-visual content can be used in class and at home for listening, reading, and learning practice. Also, Smart phone can be highly useful to show the visual contents related to the lessons to attract student attention, engagement, and participation in class.

1.8 Use of Cell phone

The use of the cell phone at different levels has been described below.

1.8.1 Use of Cell phone in Nepal

As per the Management Information System (NTA-MIS-Vol. 149) published on Mar-Apr, 2017 by Nepal Telecommunications Authority (NTA), Nepal has a tele-density of 131.78 percent where mobile's contribution is 125.34 percent, PSTN 3.24 percent and others 3.20 percent. According to the report, GSM subscription is 31,729,590 constituting 119.75 percent tele-density against the country's population 26,494,504.

According to the report, Nepal has achieved 58.31 percent penetration rate in terms of population where majority is mobile internet subscriptions with GPRS/EDGE/WCDMA technology. Out of 15,449,996 internet subscriptions, the number of Internet service providers (ISPs) subscribers is 219,125 using Dialup, OFC, coaxial cable, and wireless whereas remaining subscriptions are from telecom service providers.

Above statistics show that cell phone service (Call and SMS) is widespread all over the country and the trend of data subscriptions is increasing. This statistics also hints towards the increasing use of smart phones by the people in community.

1.8.2 Use of Cell Phone in Teaching Learning

No official statistics on the use of cell phone in Teaching Learning in Nepal is available. Initiatives are on the rise. People are using audio visual contents available offline and online to engage their children at home. Normally, contents available for free on the Internet library are used.

In education field HSEB, TU, and HISSAN are using SMS services to announce the results. In school, cell phone Services are used for SMS alerts/ reminders, periodic parent teacher communication. Also, there is a practice to broadcast SMS tips in close group, Notices &Reminders broadcasts.

There is an increasing trend to use mobile Apps instead of SMS. Bus tracking system, mobile Apps synchronized with SMSs, multiuser features etc. are popular examples.

Central level agencies of education sector have already started to use cell phone in their operational and development practices. NCED has started to use smart phones in training and development programs to teach other staffs. There is NCED mobile App and Moodle application for online teaching and learning practice for teachers. NCED had used cell phone service to collect response of TV/Radio programs through call and SMS. Observation showed that these programs got good responses when linked with incentives and prizes at that time.

There is a mobile app for grade 10 students, especially for visually impaired students developed by CDC. Also, Midas free app is there in practice. Such applications are accessible to all.

1.9 Impediments on Access and Use of Cell Phone

Major impediment on access and use of cell phone is ubiquity of service and uniformity in infrastructure setup for cell phone services. Reliable source of electricity for operation of systems and recharge of cell phones is still a problem. Inadequate supply of electricity has caused load shedding and single circuit infrastructure has increased the down time.

Cell phone service operation is basically business oriented. Rural and remote places can hardly be able to fetch profit for operators and get less attention resulting in coverage gaps, low QoS, and increased down time. Use of internet services and OTT services are operational only from Kathmandu and therefore uniformity in accessibility and availability of services is limited.

Affordability is another problem in cell phone service. Nepal is one of the poorest countries having around 25% of the population under absolute poverty. For poor people use of cell phone is luxury therefore, affordability is a challenge. Being a duopoly market, the cost of cell phone service is still comparatively expensive with regards to GNI per capita of the country.

It is imperative to mention that the cell phone service is a combination of telecom service, device service and application. Continuous and rapid change in technologies and services has posed challenges to ordinary people to cope with the changes. Awareness is the key to parents and teaching personnel to use cell phone in teaching learning.

Government and private level agencies are keen to use cell phone services and apply its benefits in education but aggregated efforts and integrated approach in this regard is yet to achieve. Present efforts are in isolation and centrally coordinated approach is lacking. Even CLAs of education sector are not in sync and synergy is yet to be seen.

Also, increasing trend is to use internet and mobile application based services for which broadband connectivity of smart phone, relevant contents, affordability, skill of parents/teachers are the problems to be addressed to fill the gap.

CHAPTER 2: REVIEW OF LITERTURE

2.1 Review of Relevant Literature

Policy documents of Nepal and general Literatures on Cell Phone use in early grade education have been reviewed in this chapter. The constitution of Nepal (2015) has ensured rights relating to education that 'Every citizen shall have the right of access to basic education' in its part-III (31) (1). The eighth amendment (2073) on Education Act (2028) has declared early childhood education up to class 8 as basic education. The 14th three year development plan (2073-2075) has envisaged basic education as compulsory and free to every citizen including differently able ones. The plan mentioned that to achieve this, government shall conduct promotional programs to the children throughout the country. The plan has a strategy to integrate the information and communication technology into the education system to minimize the digital and geographical divide.

2.2 Government of Nepal Initiatives

The Government of Nepal (GON), Ministry of Education (MOE) has introduced various interventions in order to achieve the goal of education in Nepal. Use of Information and Communication Technologies (ICT) in education has been considered as one of the most important strategies to achieve the broader goals of education. Also the Ministry of Education approved a master plan 'Information & Communication Technology (ICT) in education: Master Plan (2013-2017)' in 2013

The Master plan has a vision to ensure extensive use of ICT in education sector and contribute for access to quality education for all. This Master Plan has four major components to use ICT in education: ICT infrastructure including internet connectivity, human resources, content development, and system enhancement. These four components also cover the four pillars of ICT in education: These pillars are infrastructure, connectivity, teaching learning materials, and human resource. The plan is in line with the recommendation of School Sector Reform Project (SSRP) which identified ICT in education as an innovative and effective means of teaching and learning.

So as to facilitate the use of ICT in school education, GON/MOE has enacted "guidelines on use of ICT in school education, 2069". These guidelines have paved a way to adopt collaborative approach to connect schools with internet. These guidelines are in support of achieving broader goals to provide quality education to all citizens. Also, the GON/MOE has

implemented 'Compulsory Basic Education Implementation Guidelines, 2071' where the government has defined the role of stakeholders to implement the program. These guidelines have clearly described the role of all stakeholders including Ministry of education, Ministry of local development, Department of Education, Regional Education Directorate, District development committee, District education office, Municipality/VDC, Resource center, School operation committee, Teacher/parent association, and schools to implement the education to all programs. These policy arrangements have defined the functions of existing general institutional framework that shall leverage the actions to be taken to achieve anticipated targets. To implement the plans properly proper feedback and inputs are precious. Therefore, this study is important in this regard.

2.3 Supporting children to improve their reading ability

Research studies have shown number of factors inhibiting as well as facilitating the reading ability of early grade school children. These factors are school environment, classroom, language of instructions, home environment, parental reading attitudes, availability of reading materials, and family literacy activities. Researcher Chansa-Kabali, T. (2014) discussed four home environment related factors: family income, family size, parents' own literacy habits, and parents' embracement of school activities on home. However, the research studies of Farveret. al. (2006) linked the factors low maternal education, low proficiency in English experience and limited access to resources with reading ability of early grade children.

A publication by the Children's partnership (2010) cited number of facts regarding empowerment of parents through technology especially mobile devices. They mentioned that cell phones enable students to play educational games, participate in classroom quizzes and polls, and share brief news stories with one another. Mobile phones can be used as a teaching tool in teaching and learning process of children. It can also be used as a communication tool to monitor students' learning. Also, Mobile phone is useful for reporting attendance and absence information, report cards like results, disciplinary works and extracurricular activities. The services like SMS, messengers, mobile apps add value to the teaching and learning process of students.

A survey by Project Tomorrow (2009), an education nonprofit group, found that many parents recognize the potential benefits of cell phones and other mobile devices. More than 30 percent of parents reported that these devices could increase student engagement in school; 29 percent said mobile devices prepare students for the working world; and 27

percent said mobile devices could improve communication between students, parents, and teachers. In the same survey, more than three-fourth of principals and 46 percent of teachers stated that using mobile devices for teaching and learning could increase student's engagement. These engagements are related to student's learning at home by the parents through SMS stories, educational rhymes, and educational aids in mobile applications. Also, the mobile phones provide efficient tool to communicate student's progress with their parents along with their attitudes, learning ability and feedbacks.

2.4 Use of mobile phone technologies in child education

There are some emerging evidences that mobile technologies increase access to literacy opportunities however, there are less evidences that whether they actually improve literacy proficiency of children. There is fast-growing interest and activities in this area. UNESCO's report (2014) on mobile reading mentioned that Mobile phones, which are already in the hands of large number of the population, can serve as a way of more evenly distributing access on books at a fraction of the price of their printed forms. A survey on mobile reading in developing countries indicates that people read more, enjoy reading more, and read stories to children more when they do so, on mobile devices. The study found two primary reasons of reading in the mobile as convenient (67%) (I always have mobile with me) and affordable (13%) (The books are free or inexpensive). The findings of this study show that the parents have the attitude to use cell phone as an effective channel of communication.

Goundar (2011) reported that Mobile devices' portability, simplicity, and affordability make them a natural fit where PCs and internet connectivity are scarce and act as a means of increasing access to educational opportunities, especially for those who live in remote locations. According to Valk et al. (2010) -An analysis of six mobile phone-based interventions to improve learning outcomes in developing countries found that mobile phones have helped to increase students' access to learning, especially for those who cannot pursue formal educational opportunities due to time constraints. These studies indicated that having mobile phone is the only alternative for parents and teachers in school who cannot meet the head teacher or teachers frequently.

Drawing on the analysis of 4330 surveys on mobile reading in seven developing countries Chew et al. (2015) found that the discrepancy between intentions to read on mobiles and actual reading can be attributed to barriers such as problematic mobile connectivity and

inadequate relevant reading material. Therefore, availability of good cell phone network and service are also important to use cell phone in education.

UNICEF (2015) used mobile technology for the “Back to School” evaluation of 3,000 schools in EVD (Ebola Virus disease) hotspot areas in Sierra Leone to assess their level of preparedness and stock levels for prevention materials (leading to the Edu Track School monitoring tool). This tool uses short term mastery monitoring and long term general outcome measures. The short term outcome measures include the tools like Q&A, worksheets following directions unit tests, 'hot' reads, accuracy, skills 'checks' whereas the long term outcome measures include test retention, overall evaluation. The use of Edu Track School monitoring tool is one example to track the activity of students and similar tracking applications can be evaluated for monitoring the school activity in early grade reading in other countries including Nepal.

2.5 Use of SMS to improve child reading

Pratham and VSO (2015) looked at the impact of the SMS Story Project on the English learning levels of children in 50 government schools across the rural district of Bundi Rajasthan in India. The quantitative and qualitative results of a controlled trial was utilized to showcase and gauge the magnitude of impact of a cost effective, phoneme based, SMS technology supported intervention, delivered through teachers in government schools. The trial tested the effectiveness of the methodology, technology and impact on teacher’s practice and student’s reading performance.

A total of 35 stories were used through the 7 week intervention, each story having less than or equal to 160 characters (maximum limit of an SMS). The stories were meticulously designed considering the character limitation of an SMS. One story was limited to one SMS message. The study concluded that students who found English to be a challenge in government schools in the rural district of Bundi learned more through the course of the intervention. Much of the evidence showed decrease in early stop prevalence, increased word attempts, improved correct responses of attempts, and increased number of words correctly read by students in the active schools. The findings of this study are encouraging and show new avenue to use SMS to improve reading ability of early grade children. Also, the approach can be replicated in Nepal through proper assessment of the situation.

The results indicated that the SMS Story project’s low cost nudges were effective in encouraging the children to learn English reading. The end line analysis of the study

regarding pushing readers to higher reading levels suggest that the simplistic structure of the lessons were more suited to non-advanced learners. The evidence further suggested that the sound based teaching and learning methodology was more appropriate for students who could not read at all at the baseline. Finally the study recommended adapting stories to incorporate material from text books and create advanced stories and lessons to encourage reader- level-children to build on their excellence.

2.6 Availability of mobile phone services in Nepal

The central regulatory agency responsible for ICT regulation in Nepal reported their Management Information System report (NTA MIS Oct-Nov 2016) that the mobile tele-density has reached to 118.34 % and Internet penetration reached to 54.42%.In a study conducted by USAID (2014) entitled 'Mobiles for reading: A landscape research review' reviewed the landscape of 44 project reports comprising mobiles for reading. The study concluded:

"Many creative ICT interventions are taking place, and the use of new, powerful and portable Mobiles for reading interventions will lead to new opportunities. Some of these interventions focus on increasing inclusion of diverse populations, others focus on creating content that will provide better opportunities to scale up projects, while still others expand beyond the confines of reading development to include broader sets of skills and empower users, giving them greater motivation and increasing their capability to learn. There remain critical challenges in this field, such as the lack of solid evidence of effectiveness, a continued dependence on external funding, and overuse of supply-side approaches to design solutions. It is further suggested that speculation around the future of Mobile for Reading work may be seen in terms of micro- and macro-level analyses, along with such considerations as multilingual instruction and intergenerational approaches to Mobile for reading design solutions. Finally, research is needed; both on types of mobile platforms (cell phones, smart phones, tablets, etc.) as well as on the kinds of software solutions and learning content appropriate for diverse children from low income backgrounds. Overall, there is little doubt that Mobile for reading work will continue to grow, along with mobile ubiquity and mobile learning around the world."

The tele-density of Nepal and findings described above, demonstrate the availability and accessibility of cell phone service in Nepal, that the mobile services have accessibility as well as affordability for the people across the country. This shows the opportunity to use cell

phone to engage early grade reading children in their home based learning. Therefore, there is a need to find out a proper way to aware parents to adopt the mobile Learning (mLearning) practice.

2.7 International practices to use cell phone in child education

According to Valk, Rashid, & Elder (2016) there are evidences that mobile phones facilitate access to learning but the way to do so are yet to be engineered. These researchers reviewed the evidence of the role of mobile phone facilitated learning contributing improved educational outcomes in the developing countries of Asia by exploring the results of six learning pilot projects that took place in the Philippines, Mongolia, Thailand, India, and Bangladesh. In particular, they examined the extent to which the use of mobile phones helped to improve educational outcomes and found that teaching and learning through mobile phones help students to recall the lessons learnt. However, learning new lessons through mobile phones can be less effective.

In a research conducted in Papua New Guinea (PNG) by Kaleebuet. al. (2013) identified several ways where mobile phones can be used to support teaching and learning in the classroom through loading short stories in teachers' mobile phones; use toll free numbers to hear stories, songs, new words, and stories from EGR parents mobile phones; collect basic educational data and student assessment results through mobile services using SMS; and using mobile applications for student diagnostics or assessment of special educational needs and reporting of absenteeism of teachers. In our context also, there is a feasibility to use Toll free number service, SMS based services to conduct such activities.

2.8 Feasibility to use cell phone in child reading in Nepal

All major operators provide Short Message Service (SMS) in national and international scenario through their independent SMS gateways. These gateways are centrally interconnected to exchange inter-operator SMS calls while international SMS calls are exchanged through their international partners. Nepal Telecommunications Authority has issued interconnection guidelines for settlement of account for domestic SMS calls which stands as NPR 0.27 per SMS (IUC Guidelines, 2008). All subscribers are enabled to send and receive SMS calls during activation. A practice is there to provide interconnection service to private content providers to exchange SMS calls. This can be used by various commercial services with short codes as per the agreement. The codes are regulated and tariff is as per the agreement. The connections have been established either through dedicated OFC cable or

through VPN. Therefore, there is a chance to use cell phone in home based support to children using parent's mobile phone. The need is to develop parental attitude towards cell phone use in children's education. This attitudinal behavior of parents shall be consistently favorable or unfavorable with respect to a given object (Schiffman, Kanuk, & Kumar, 2010) to result in a behavior which is taken as consistent outcome of information, interest, and perception of the users towards the cell phone use.

2.9 Conceptual framework of the study

So as to measure the attitude of the respondents towards cell phone use, a conceptual framework has been developed which is shown in Figure 2.1. The constructs used to measure attitude are adopted from affect, behavior, and cognition (ABC) model of attitude formation.

In light of above reviews, objectives, and deliverables of the study; Avant-grade developed interview schedules with all concerned stakeholders for administered, self-administered interview schedules. These schedules have been designed in the format of survey, KII and Focus group discussion. The target audiences are parents of early grade students, Head Teachers and Teachers, DEO officials, Resource Persons and School Supervisors, Central Level Agencies, telecom and SMS service provider agencies in central and districts level.

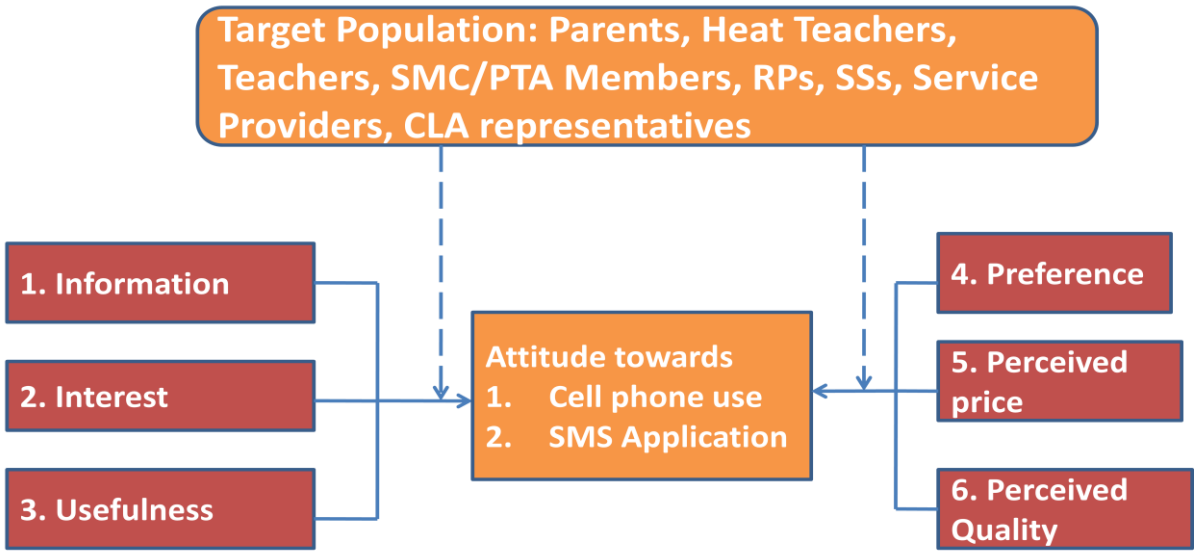


Figure 2.1 Conceptual framework of the study to measure attitude.

The operational definition of the constructs have been defined below which are used in above conceptual framework to measure the attitude of the parents, teaching personnel, and DEO personnel.

a. **Information:** The construct information represents the information about cell phone use for voice and SMS calls. Information to use cell phone means the respondents can receive and make calls as well as read and send SMSs by themselves in cell phone.

b. **Interest:** In this research, the construct interest means the respondent find fascinating to use a cell phone and is interested to use it in child education. Also, interest towards SMS means respondent is interested to use SMS to communicate progress of children through SMS.

c. **Usefulness:** Usefulness of the cell phone in the context of this research represents that cell phone is highly useful to communicate with friends and relatives as well as to communicate children's reading progress. Also, cell phone improves efficiency by saving time and is useful to monitor children progress in reading.

d. **Preference:** Preference towards a call and SMS in a cell phone represents people's first preference is to use cell phone over other ways of communication even to send invitations, greetings, and secret codes. Also, preference means people prefer to talk over cell phone about children's educational status in school as well as in home. Further, it also represents that people prefer to use SMS over other ways of messaging to arrange meetings.

e. **Perceived price:** The construct perceived price represents the affordability of the cell phone charges in terms of call, SMS, and internet. Also, it represents perception of people about their readiness to pay cell phone charges if it is used in children education. Therefore, in this research perceived price has been used synonymously with the term average monthly expenses in cell phone.

f. **Perceived quality:** The perceived quality of service is the quality of connectivity of voice and SMS calls without failures. Also, perceived quality represents the user's feeling about the services they use in their cell phone. Therefore, in this research perceived quality and connectivity in cell phone have been used synonymously.

g. **Attitude towards cell phone use:** The call and SMS service being different in kind and nature the attitude towards cell phone use in terms of call represents that people feel happy and excited to call over a cell phone. Moreover, the positive attitude towards cell phone use represents that people feel happy to use cell phone in children education and share their progress over cell phone. Also, it represents people's excitement to use the services like 'to call a toll free number', use offline and online contents like educational texts, songs videos in cell phone.

h. **Attitude towards SMS use:** This construct have been used in this research that represents people feel excited to send and receive SMSs to communicate about children's learning progress, school information, assignments, and extracurricular activities through cell phone.

Based on above definitions of the constructs, research instruments have been developed for data collection through survey, FGDs and KIIs. The target population of this research study is parents of early grade children, teaching personnel including Head teachers and Teachers, DEO personnel as teaching support staffs that include DEO, district level NEGRP focal person, information officer, school supervisors, resource persons, community mobilizers, reading motivators and district co-coordinators.

CHAPTER 3: METHODOLOGY

A technical working group (TWG) was formed comprising of officers from all educational offices as an advisory committee to coordinate among the central line agencies (CLAs). The TWG consists of technical members representing from Monitoring and Evaluation Division and Planning Division of Ministry of Education (MoE), Department of Education (DOE), National Centre for Education Development (NCED), Education Review Office (ERO), Curriculum Development Centre (CDC), EGRP and an external research methodological expert, and one data analyst expert (ICT Technical). TWG provided technical support to Avant Garde in designing the study instruments, carrying out the study, and finalization of Feasibility Study Report.

3.1 Development of research instruments

On the basis of the literature review, Avant Garde designed and developed the research Instruments and Guidelines to conduct the data collection. The data collection tools include qualitative as well as quantitative. Quantitative tools include survey questionnaire whereas qualitative tools include Key Informant Interview (KII) schedules and Focus Group Discussion (FGD) schedules. Avant Garde developed and presented data collection instruments to TWG on 25 April 2017. Based on the feedback and comments, Avant Garde finalized the tools for field study. The Instrument schedules translated into Nepali languages was used in the field by field researchers.

3.2 Data Collection Procedure

This study used primary as well as secondary data. Secondary data were collected from the published reports by telecommunications agencies, government agencies, and prior researches. Primary data were qualitative as well as quantitative information collected from the field. Avant Garde recruited field researchers to conduct survey and focus group discussion with parents and teachers in school and community level. While focus group discussion with NGO representatives in the regions and officials of central line agencies of education sector and telecom sector was taken by team leader and member.

Avant Garde collected quantitative data through administered survey with illiterate parents and self- administrative survey for literate parents from 29th May to 7th June. The qualitative data were collected through personnel interviews with key informants, and focus group discussion. Team leader and member of the study team provided training to field researchers

in all three sample district before data collection in the field. While collecting data from the central level agencies of education and telecom/SMS service providers, a prior appointment was obtained from the concerned officers. Initially objectives of the study were deliberated to the Key Informants. Thematic interviews were conducted and notes were taken. These interviews were taken from 12th June 2017 to 30th June 2017.

Also, key informant interviews were conducted in the district level with officers of telecom and education offices. Research team leader and member visited the sample districts from 29th May 2017 to 7th June 2017 to collect data. KIIs and focus group discussions (FGDs) were conducted in the district level. Focus group discussions with parents and teachers were conducted by the trained enumerators of Avant-Garde. Also, two FGDs were conducted in Pokhara and Nepalgunj with Non-government organizations representatives working in education together with the EGRP staffs in regional offices. The representatives of NGOs like SDF, ACAP, Room to Read participated in the discussion along with EGRP regional staffs.

3.3 Population and Sample

Population of this study consists of all parents, teachers, CMs, RMs, RPs, DCs, SSs, DEO officials of all 16 EGRP operational districts. In addition to this, officials from CLAs of educational agencies including Ministry of Education, DOE, NCED, CDC, ERO, NFEC, and COE were the sample of the study.

Out of 16 EGRP implemented districts (6 in cohort 1 and 10 in cohort 2) three samples districts were selected representing each geographical Locations Mountain, Hill and Terai. Among three selected districts Banke represents Terai, Kaski represents Hill, and Mustang represents mountain geographical region. A total of 18 resource centers (RCs) were selected in equal number from urban and rural areas from each three district. 4 RCs (2 Urban + 2 Rural) were selected from Mustang, 7 RCs (3 Urban + 4 Rural) were selected from Kaski and 7 RCs (3 Urban + 4 Rural) RCs were selected from Banke districts. Urban RCs were selected as per availability due to limited number and rural RCs were selected randomly *(Using Gola Pratha).*

In Mustang out of total 5RCs, 4 were selected two from urban and two from rural. In Banke out of total 9 RCs, 3 were urban and 6 were rural. Out of total 6 rural RCs of Banke, 4 were selected randomly. Also, out of total out 22 RCs in Kaski district, 4 urban and 3 rural RCs were selected randomly. List of RCs in the sample districts selected for data collection is in Table 3.1.

Table 3.1: List of Resource Centers (RCs) selected for data collection

SN	Sample District	Urban RCs	Rural RCs
1	Mustang	1. Jomsom 2. Kagbeni	1. Kobang 2. Lete
2	Kaski	1. Amarsingh 2. Lamachaur 3. Tundikhel 4. Bhandardhik	1. Ramkot 2. Birethati 3. Lahachok
3	Banke	1. Kohalpur 2. Mangal 3. Ranjha	1. Gyanodaya 2. Ji-Gaun 3. Madhui 4. Maharaja

Figure 3.1: The geographical location the sample districts in the map of Nepal.

3.4 Sources of Data

From each selected Resource center, four schools were selected randomly so that there were a total of 72 schools and their communities. Avant-garde solution applied following procedures to select the sample school from each resource center.

3.4.1 Avant Garde classified the schools of the sample urban RCs with respect to distance of the 9 urban sample RCs in terms of: (i) 1-2 hours distance (ii) 3-4 hours distance (iii) 5 to 6 hours distance (iv) 7 to above hours of distance.

3.4.2 Avant Garde selected one school randomly from each category of schools belonging to urban geographical location categorized with respect to distance from RC. This process produced a sample of 4 schools from each sample urban RC that will make a total 36 sample schools (9 urban RCs x 4 schools based on geographical location = 36 schools) representing in three different geographical locations. Avant Garde classified the schools of 9 sample rural RCs with respect to distance from the sample RC in terms of: (i) 1-2 hours distance (ii) 3-4 hours distance (iii) 5 to 6 hours distance (iv) 7 to above hours of distance.

3.4.3 Avant Garde selected one school randomly from each category of schools belonging to rural geographical location categorized with respect to distance from their RCs. This process has produced a sample of 4 schools from each sample rural RC producing a total of 36 sample schools (9 rural RCs x 4 schools based on geographical location = 36 schools)

3.4.4 In this way, a total of 72 sample schools were selected from 9 urban and 9 rural RCs (9RCs x 4 schools from urban areas = 36 schools and 9 RCs x 4 schools from rural areas=36 schools).

3.4.5 From each selected school, 1 head teacher, 2 early grade class teachers, and 1 SMC/PTA member were selected for survey. Also, from each sample school, 6 to 8 parents of early grade children comprising at least 2 parents from each grade were selected for data collection. These two selected parents, one parent was of boy student and one parent of girl student.

3.4.6 At least one focus group discussion from each sample RC was conducted with parents and one with teachers of EGR children in one school. For parent's and Teacher's Focus group discussion different school were selected. Also, it was taken in to consideration that the teacher member of PTA was not the participant of Teacher's group.

3.4.7 Self-administered survey was conducted with teaching support staff in each sample districts. These staffs include DEO or NEGRP focal person in DEO, Resource Persons, School Supervisors, District Coordinators, Reading Motivators, and community mobilizers.

The qualitative data was collected from the selected respondents through key informant's interview (KII) and focus group discussion (FGD). Three types of audience parents group, teachers group, and group of representatives of NGOs working in education sector in the District were selected for focus group discussion.

Focus group discussion with parents group and teachers group were conducted in RC level whereas FGDs with NGO representatives was conducted in regional level. Thus two FGDs were conducted one in Pokhara and another in Nepalgunj.

The summary of total sample data collected from sample districts is in Table 3.2

Table 3.2: Summary of Data collected from Sample Districts

District	RCS	Schools	Parents data	HT/T data	RP/SS data	FGD Parents	FGD with Teachers
Banke	3U + 4R= 7	28	172	107	11	9	10
Kaski	3U + 4R= 7	28	224	112	11	9	5
Mustang	2U + 2R= 4	16	126	62	6	5	2
Total	**18**	**72**	**522**	**281**	**28**	**23**	**17**

Key informant interviews (KIIs) were conducted with officials of central level agencies of education sector in Kathmandu and telecom sectors in districts and center. One KII was conducted with officers of Nepal Telecom in each sample district. The list of officials of CLAs of education and telecom sector is in **Annex I.**

3.5 Study Instruments

Avant-Garde research team prepared data collection tools for KIIs, FGDs, and survey. These Instruments include seven different types of schedules (IS#1 to IS#7). The IS#1was designed for CLAs of telecom and SMS providers; IS#2 was designed for Parents of early grade children; IS#3 was prepared for Head teachers, teachers, School Management Committee(SMC) / Parent Teachers Association (PTA) members; IS#4 for Resource persons(RPs), School Supervisors, District coordinators, Information officers, Reading motivators(RM), community mobilizers (CM). Also, IS#5 was designed for Key Informant Interview (KII) with central level agencies from education sector; IS#6 was designed for district level agencies of telecom service providers; and IS#7 was designed for focus group discussion (FGD) for three different kind of audiences. Therefore, IS#7 was prepared in three types. IS#7.1 was designed to conduct FGD with parents, IS#7.2 was designed to conduct

FGD with teachers while #IS7.3 was designed to conduct FGD with representatives of NGOs working in education sector in the district. All the Instrument schedules are attached in **Annex-II.**

Avant-garde solution together with an external research methodological expert and one data analyst expert prepared study tools. These tools were presented in TWG meeting in 25 April 2017 for comments and suggestions. The valuable feedbacks were acknowledged and incorporated in the tools. The tools were initially prepared in English and later translated into Nepali language. Avant-garde research team together with the external expert validated the translated tools for field study.

3.6 Data Collection Protocols and Guidelines

Avant Garde solution prepared the data collection protocols and guidelines for field enumerators. The guidelines were discussed and shared with EGRP. Avant Garde solution conducted training to field enumerators on 30 May 2017 in each district. The content of the training included 1) Purpose of the study, 2) Duties and responsibilities of the field researchers, 3) Clarification on the field researcher guidelines 4) Insights on the research design, guidelines and protocols, 5) Role play to conduct focus group discussion 6) Role play to conduct administered survey 7) Research norms and ethics. The research protocols and guidelines provided to field enumerators to conduct survey and FGDs is in Annex III.

3.7 Data Analysis Approach

This research has collected quantitative data through survey and qualitative data through Key Informant Interview and Focus group discussion. Two different approaches were used to analyze the data.

Quantitative data was analyzed statistically using statistical software application SPSS version 20.00. The data collected from IS#2, IS#3, and IS#4 was entered into SPSS in separate files. Entered data was checked, verified, and cleaned before analysis. Mean statistical score of the Research variables had been computed using summated scales for analysis. Item wise and construct wise analysis had been carried out. Statistical tools like frequency distribution and graphical representation has been carried out to measure the intensity of the variable measured, analysis of variance (ANOVA) had been carried out to examine the difference within and between the groups under study and regression analysis

had been carried out to measure the effect on attitude towards cell phone application due to the antecedent variables.

Qualitative data collected through Focus Group Discussion and Key Informant Interview has been analyzed using thematic analysis of the interview notes. The data obtained from all categories of the respondents on major themes and specific themes were processed and tabulated separately. The approach of the data analysis is:

1. The qualitative data obtained from parents, school personnel, and District Education Office personnel were processed separately and tabulated with respect to the themes. The findings were extracted through triangulation approach through interpretation of the results obtained from analysis of quantitative data merged with qualitative data.
2. The quantitative data obtained from parents, school personnel and DEO personnel were processed and tabulated separately with respect to the themes and subthemes. The interpretation was done with respect to the study themes. The inferences of the data were drawn and interrelation was established while interpreting the data to find out the meaning.

CHAPTER 4: DATA PROCESSING, ANALYSIS AND INTERPRETATION

4.1 Profile of the Respondents

The profile of the respondents covered the type of respondents, gender, age, education background, occupation, mother tongue and number of respondents by sample districts. These are described in the following sections of this chapter.

4.1.1 Type of Respondents

Parents

The study targeted to involve the parents of the concerned students during the data collection in the field. In some cases, guardians were interviewed and also participated in focus group discussion (FGD) due to unavailability of the parents. The guardians mean elder brothers and sisters of the same family or the family who have been taking care of children. Thus, the parents represent guardians as well in this study.

The sample districts were Banke (Tarai), Kaski (hill) and Mustang (Mountain). There were a total of 522 parents representing three sample districts. The number of parents were 172 (32.9%) from Banke, 224 (42.9 %) from Kaski and 126 (24.1%) from Mustang. The representation of the respondents from Kaski and Banke is the highest where from Mustang is the lowest.

School Personnel

School personnel consisted of head teacher, teacher, community mobilization officers representing NGO, reading motivators and members of school Management Committee (SMC) and Parents and Teacher Association (PTA).Representing the sample districts namely, Banke (Tarai), Kaski (hill) and Mustang (Mountain), altogether the total respondents were 281. They were 107 (38.1%) from Banke 112 (39.9%) from Kaski and 62 (22.1%) from Mustang. The representation of the respondents from Kaski and Banke is nearly equal and highest whereas the representation from Mustang is the lowest.

Personnel of District Education Office

The personnel of District Education Office (DEO) consisted of school supervisor, resource person, ICT officials and community mobilization officer representing NGO and members of school Management Committee (SMC) and Parents and Teacher Association (PTA). After

this section, these respondents were titled as DEO personnel in this report. The total respondents of District Education Personnel were 28 representing from sample districts for this study. Out of the total respondents, 3 (10.7%) did not specify their gender. So, the actual respondents were 25 where 21 were Male 4 female. Out of total 28 DEO personnel respondents, 11 respondents were from Banke district, 11 from Kaski district, and 6 from Mustang district.

Consolidation

The sample districts were Banke (Tarai), Kaski (hill) and Mustang (Mountain). Altogether there were 522 parents (100%) and only 499 (95.6%) respondents recorded their gender, where 183 (36.7%) were male, 315 (63.1%) female and 1(0.2%) others, who did not specify their gender. Regarding the school personnel, out of 281 (100%), the actual respondents to the gender were 257 (91.5%) in which the composition of gender is 56.4 percent male and 43.2 female.

Out of the total respondents (28), 3 of them did not indicate the gender so that the actual respondents were 25 (89.3%) only from District Education Office. Out of the total parents representing three sample districts, 172 (32.9%) were from Banke, 224 (42.9 %) from Kaski and 126 (24.1%) from Mustang. The representation of the respondents from Kaski and Banke is the highest where from Mustang is the lowest.

Out of the total school personnel (281), there were 107 (38.1%) respondents from Banke 112 (39.9%) from Kaski and 62 (22.1%) from Mustang. The representation of the school personnel from Kaski and Banke is nearly equal and highest whereas the representation from Mustang is the lowest.

Out of the total DEO personnel, there were 11 (39.3%) from Banke, 11 (39.3%) from Kaski and 6 (21.4%) from Mustang. The representation of the respondents from Kaski and Banke is equal and highest where from Mustang is the lowest representation. This status was based on the availability of the official positions created by government in the District Education Office in the sample districts.

4.1.2 Number of children in the family

As the study focused on parents whether they use mobile phone for daily and educational purpose or not and which is beneficial to their children reading also. Therefore, it was tried to find out the number of children of the sample parents. The distribution of the children of the parents by districts is given in the Table 4.1.

Table 4.1 Distribution of Number of Children in the family by Sample Districts

SN	Number of Children							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Mustang	17	28	38	8	3	2	0	0
Kaski	24	104	53	13	7	2	1	0
Banke	12	53	38	35	13	6	1	3
Total	53	185	129	56	23	10	2	3
% Total	11.5	40.1	28.0	12.1	5.0	2.2	0.4	0.7

The data indicated that there are 11.5 percent of the parents have one child, 40.1 percent have two, 28 percent have three, 12.1 percent have four children and 5 percent have five children. The percent of the parents having more than 6 children is negligible.

4.1.3 Gender

Parents

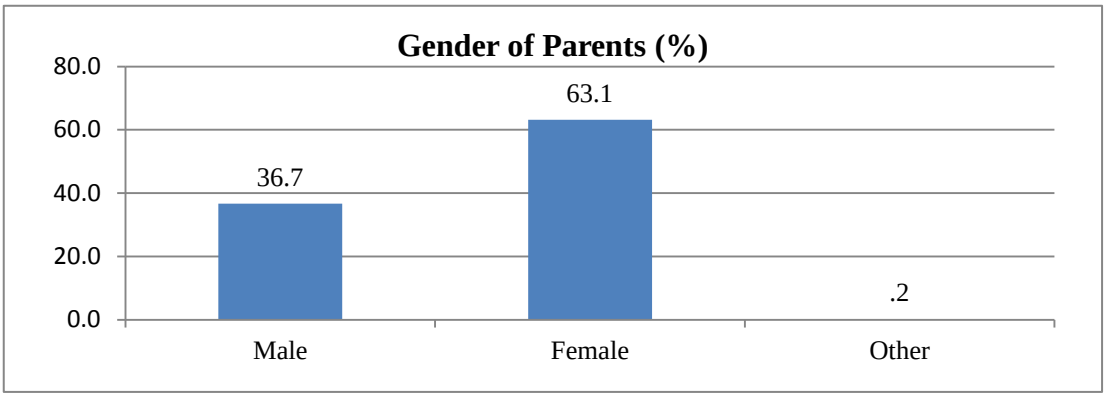
The total respondents representing parents of this study were 525, 499 (95%) who responded the question whereas 26 (5%) were non-respondent parents. Among the respondents, there were 183 (36.7%) male and 315 (63.1%) female as the composition of the respondents. One of the parents (0.2%) was of other gender. The gender distribution of the parents is given in the Table 4.2.

Table 4.2 Distribution of Gender of District Education Personnel

Type of Respondents	Gender						Total (%)
	Male	**Percent**	**Female**	**Percent**	**Other**	**Percent**	
Total Respondents	183	36.7	315	63.1	1	0.2	499 (96)
Non-Respondents	-	-	-	-	-	-	26 (5)
Total	**183**	**36.7**	**315**	**63.1**	**1**	**0.2**	**525 (100)**

The graphical representation of the data of Parents' gender is in Figure 4.1.

Figure 4.1: Distribution of Gender of Parent respondents



The data reveal that the female parent respondents were more by 26.4 percent in this study. In the survey time, some of the males in the sample households went to work (agriculture work, labour, services, other country etc.) outside or and they were not available at home during the interview. Because of this situation, there was a more participation of females in this study. The distribution of the parents who recorded their gender is given in the table below with respect to the sample districts.

Table 4.2: Distribution of Parents by Gender of the Sample Districts

SN	Male	Female	Other	Total (%)
Mustang	59	67	0	126
Kaski	49	162	1	212
Banke	75	86	0	161
Total Respondent	**183 (36.7%)**	**315 (63.1%)**	**1 (0.2%)**	**499 (95.1)**
Total Non-respondent	**-**	**-**	**-**	**26 (4.9)**

Out of 522 parents participated in the interview, only 499 respondents recorded their gender, where 183 (36.7%) were male, 315 (63.1%) female and 1(0.2%) others.

School Personnel

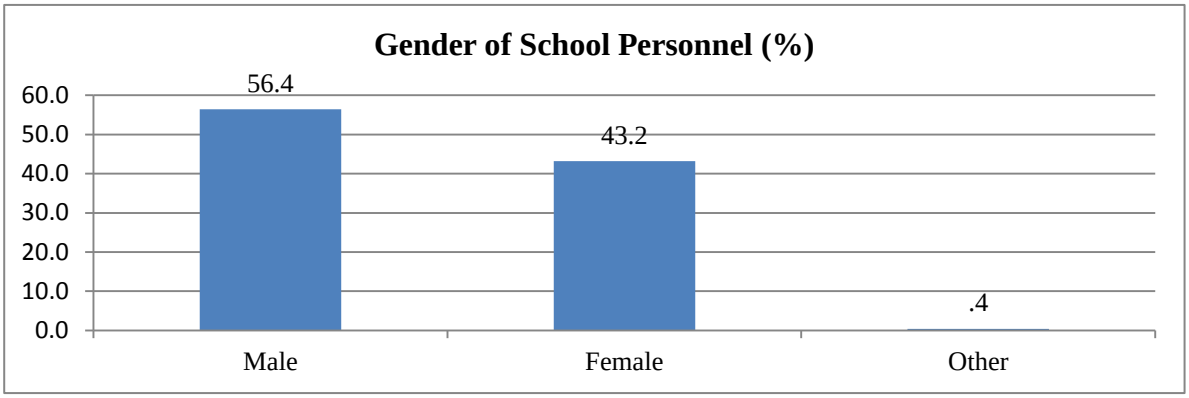
The expected total respondents were 281. Out of total, only 257 responded their gender. The responses are given in the Table 4.3.

Table 4.3: Distribution of Gender of School Personnel

Type of Respondents	Gender						Total (%)
	Male	Percent	Female	Percent	Other	Percent	
Total Respondents	145	56.4	111	43.2	24	8.5	257 (91.5)
Non-respondents	-	-	-	-	-	-	24 (8.5)
Total	**145**	**56.4**	**111**	**43.2**	**24**	**8.5**	**281 (100)**

The graphical representation of the data of School personnel's gender is in Figure 4.2.

Figure 4.2: Distribution of Gender of School Personnel respondents



One of the respondents (0.4) belonged to the other gender. The composition of gender is 56.4 percent male and 43.2 female. The number of male is more by 13.2 point percent. There were 24 respondents (8.5%) who did not respond the question.

Out of 281 school personnel interviewed, 257 reported their gender where 145 (56.4%) were male, 111 (43.2%) female and 1 (0.4%) others.

DEO Personnel

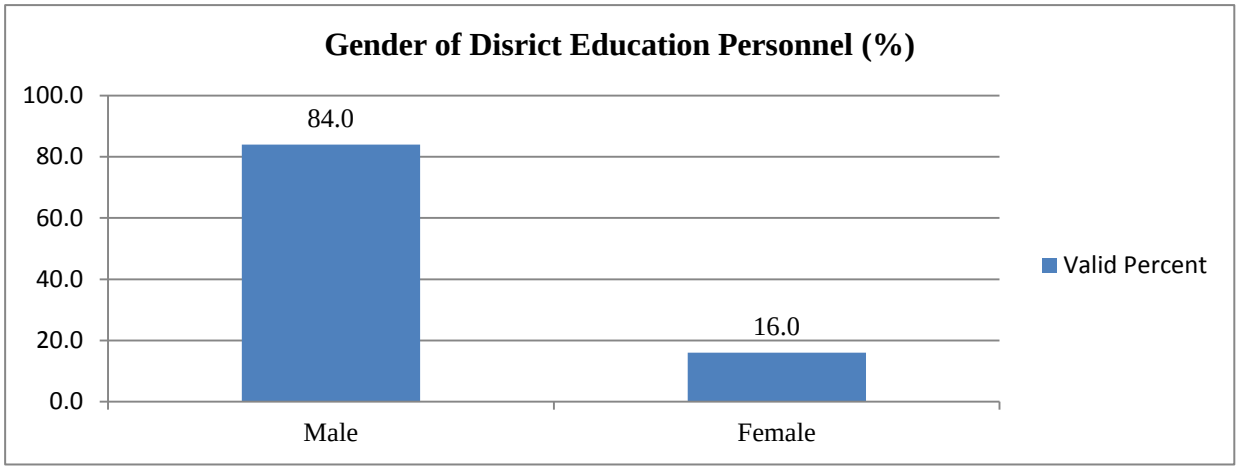
The total respondents of District Education Personnel including NGO representatives were 28 for this study. Out of the total respondents, 3(10.7%) did not specify their gender. So, the actual respondents were 25 (89.3%) consisting of 84 percent male and 16 percent female. The gender distribution of the personnel of district education office is given in the Table 4.3.

Table 4.3: Distribution of Gender of School Personnel

Type of Respondents	Gender						Total (%)
	Male	Percent	Female	Percent	Other	Percent	
Total Respondents	21	84.0	4	16.0	-	-	25 (89.3)
Non-respondents	-	-	-	-	-	-	3 (10.7)
Total	**21**	**84.0**	**4**	**16.0**	**-**	**-**	**28 (100)**

The graphical representation of the data of DEO personnel's gender is in Figure 4.3.

Figure 4.3: Distribution of Gender of DEO Personnel respondents



Consolidation

In the survey time, some of the males in the sample households went to work (agriculture work, labour, services, other country etc) and they were not available at home during the interview. Because of this situation, there was a more participation of female compared to the female in this study. The number of male is more by 13.2 point percent. Regarding the DEO personnel, the actual respondents were 25 (89.3) and their gender composition was 84 percent male and 16 percent female. The percent of male is more by 68 percent in case of District Education personnel. However, the number of female's participation in interview and focus group discussion is appreciable.

4.1.4 Education Background

Parents

The education background of the parents was categorized into illiterate, literate, basic education, secondary education, bachelor degree; and master degree and above. The distribution of the education background of the parents is given in the Table 4.4.

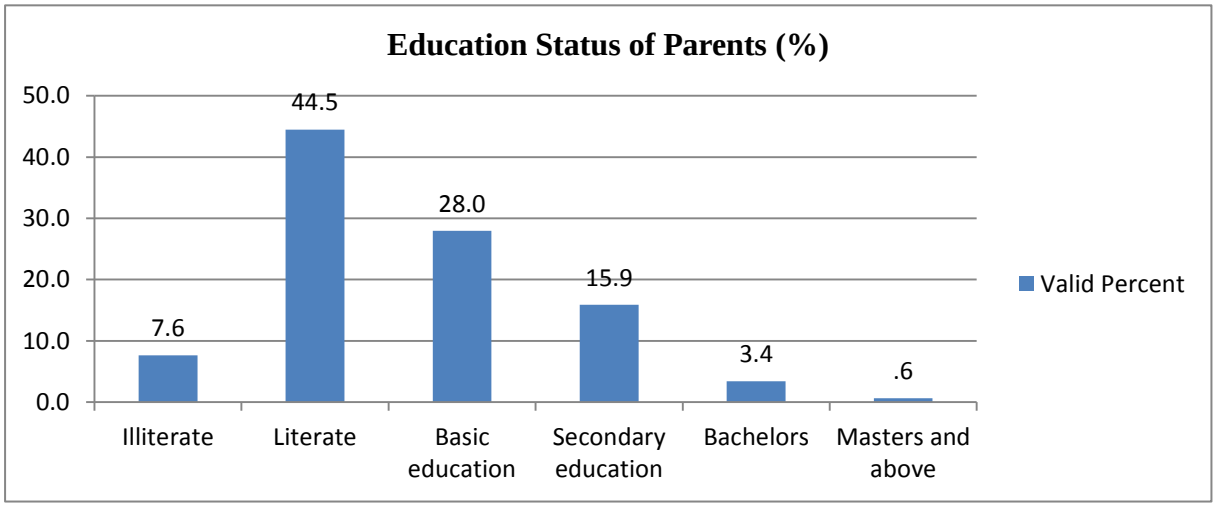
Table 4.4: Distribution of Parent of Sample Districts by Education Background

SN	Illiterate	Literate	Basic Education	Secondary education	Bachelor Degree	Master Degree & above	Total
Mustang	7 (6.1%)	58 (50.43%)	23 (20%)	23 (20%)	4 (3.47%)	0 (0.00%)	115
Kaski	10 (5.13%)	79 (40.51%)	56 (28.72%)	40 (20.51%)	7 (3.59%)	3 (1.54%)	195
Banke	19 (11.73%)	73 (45.06%)	53 (32.72%)	12 (7.41%)	5 (3.09%)	0 (0%)	162
Total R	**36**	**210**	**132**	**75**	**16**	**3**	**472**

	(7.63%)	(44.49%)	(27.97%)	(15.89%)	(3.39%)	(0.64%)	(89.9)
Total NR	-	-	-	-	-	-	**37 (10.1)**

The graphical representation of the data of parent's education level is in Figure 4.3.

Figure 4.3: Distribution of Education of parent respondents



The percent of the respondents belong to 7.6 illiterate, 44.5 literate, 28.0 basic education, 15.9 secondary education, 3.4 bachelor degree and 0.6 master degree and above. Thus, the majority of the respondents (44.5%) belong to literate education background. The remaining respondents (47.9%) were within above the literacy education background (Basic education, Secondary Education, Bachelor Degree and Master Degree and above). These respondents were the major sources of data for the different aspects of the study.

School Personnel

The educational personnel consisted of head teacher, teacher, members of SMC and PTA for this study. The educational background of these educational personnel was categorized into: (i) Literate (ii) Basic Education (grade 1-8) (iii) Secondary education (grade 1-10) (iv) Bachelor Degree and (v) Master Degree. The total respondents of the study representing education personnel were 281. Out of them 37 respondents (13.2%) did not mention their education background.

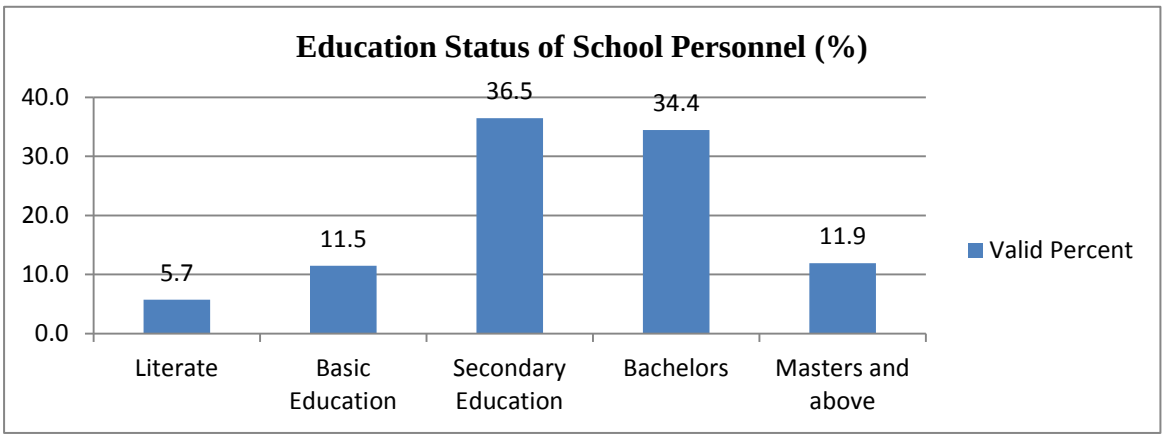
Among the total respondents, 5.7 percent were literate, 11.5 percent have basic education, 36.5 percent have secondary education, 34.4 percent have Bachelor Degree and 11.9 percent possess Master Degree. The data reveal that some of the respondents (46.3%) possess Bachelor Degree and above. Only a few percent of them (5.7%) were under literacy category. The distribution of education background of school personnel is given in the Table 4.5.

Table 4.5 Distribution of School Personnel by Education Background

SN	Illiterate	Literate	Basic Education	Secondary education	Bachelor Degree	Master Degree & above	Total
Total Respondent	-	14	28	89	84	29	244
Percent		5.7	11.5	36.5	34.4	11.9	86.8
Total Non-respondent	-	-	-	-	-	-	37
Percent (NR)	-	-	-	-	-	-	13.2

The graphical representation of the data of School personnel's education is in Figure 4.4.

Figure 4.4: Distribution of Educational background of School Personnel respondents



Almost all respondents have adequate education background. So, they can understand the uses of cell phone for different purposes in their daily life such as early grade reading promotion, monitoring of educational progress and learning difficulties of children, relevancy of education, and efficient use of time and return of the investment.

DEO Personnel

The educational background of the respondents was categorized into Graduate Degree and Master Degree and above. Out of the total respondents (28), two of them did not respond their educational background. Out of the actual respondents (26), 42.3 percent possess Bachelor Degree whereas 57.7 percent belongs to Master Degree. The distribution of education background of the personnel of District Education Office is given in the Table 4.6.

Table 4.6: Distribution of DEO Personnel by Education Background

SN	Illiterate	Literate	Basic Education	Secondary education	Bachelor Degree	Master Degree & above	Total (%)
Total Respondent					11	15	26 (82.9)
Percent					42.3	57.7	100
Total Non-respondent					-	-	2
Percent (NR)							7.1

Consolidation

Almost all respondents have adequate education background. So, they can understand the uses of cell phone application for different purposes in their daily life such as early grade reading promotion, monitoring of educational progress and learning difficulties of children, relevancy of education, and efficient use of time and return of the investment from their children in future.

4.1.5 Occupation

Parents

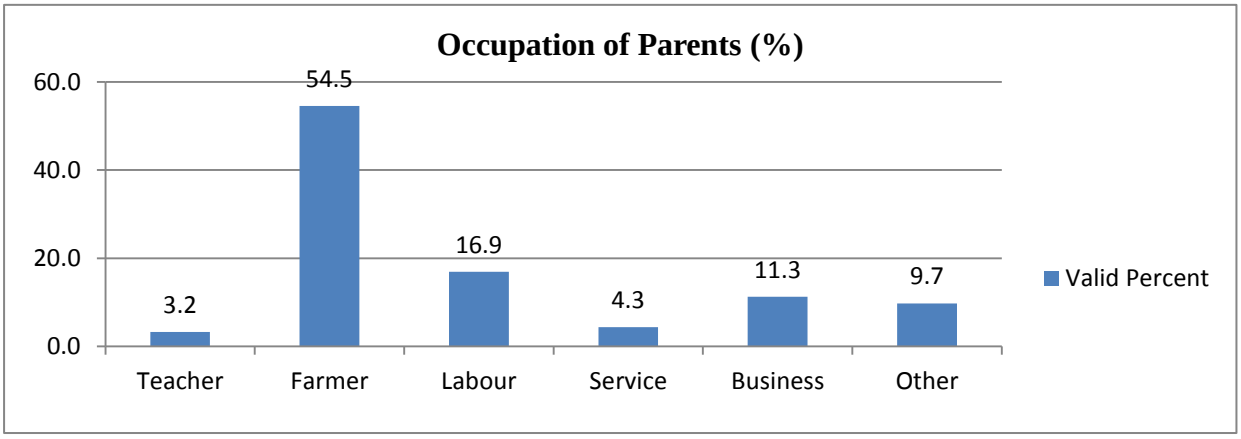
The occupation of the respondents were categorized into teaching profession, agriculture, labour work, self-employed or employed (service) in government, private and non-government organizations. The percent of the respondents were 3.2 teachers, 54.5 farmers, 16.9 labour worker, 4.3 service holder, 11.3 small or medium business person and 9.7 other category who belonged to street business, labour work etc. The distribution of occupation of the parents is given in the Table 4.7.

Table 4.7 Distribution of Parents by Occupation

SN							
	Teacher	**Farmer**	**Labour**	**Service**	**Business**	**Other**	**Total (%)**
Total Respondent	15	252	78	20	52	45	462
Percent	3.2	54.5	16.9	4.3	11.3	9.7	88.0
Total Non-respondent	-	-	-	-	-	-	63 (12)
Total	**15**	**252**	**78**	**20**	**52**	**45**	**525**

The graphical representation of the data of occupation of parents is in Figure 4.5.

Figure 4.5: Distribution of occupation of parents.



The data indicated that more than 50 percent of the respondents were farmers. The remaining percent (45.5%) belonged to different types of occupations and other categories. There is a diversity of respondent's occupations in terms of teaching service, agriculture, labour work, government and non-government service, business and others. There were 9.7 percent of the respondents who were into other category who did not specify their occupation. As there are more than 50 percent farmers representing rural people who were major sources of data.

School Personnel

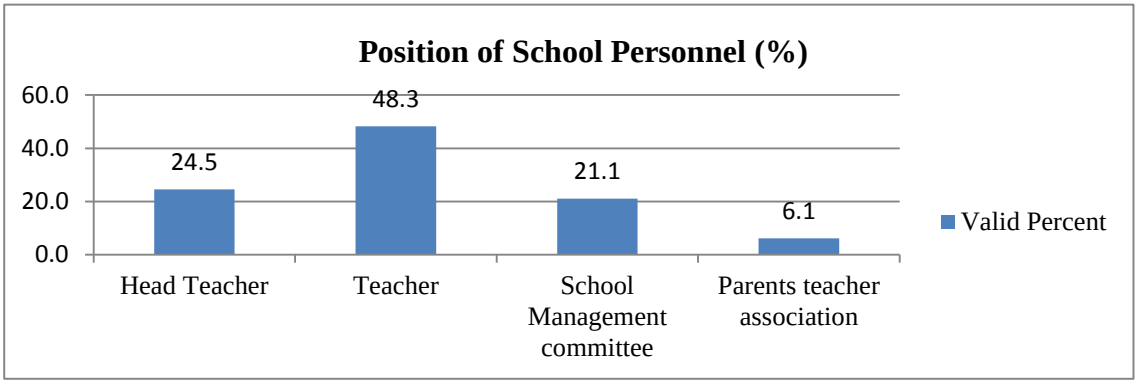
The school personnel of the study were head teacher, class teacher (teachers teaching in early grades), members of School Management Committee, and members of Parents Teacher Association. Amongst them, the respondents were 64 head teachers (24.5%), 126 teachers (48.3%), 55 members of SMC (21.1%) and 16 members of PTA (6.1%). There were 20 percent of the respondents (7.1%) who were the members of SMC and PTA belonged to the occupations that are agriculture work, small business etc. The distribution of position of school personnel is given in the Table 4.8:

Table 4.8 Distribution of School Personnel by Position

Profile	Head Teacher	Teacher	SMC member	PTA Member	Total (%)
Total Respondent	64	126	55	16	261 (92.9)
Percent	24.5	48.3	21.1	6.1	
Total Non-respondent	-	-	-	-	20 (7.1)
Total	**64**	**126**	**55**	**16**	**281 (100)**

The graphical representation of the data of profile of School personnel is in Figure 4.6.

Figure 4.6: Distribution of position of School personnel participated in survey



Though there is a wider variation of the respondents about half of them were early grade teachers. This means that there is the majority of respondents (48.3%) were teachers followed by head teachers and members of SMC and PTA.

DEO Personnel

Regarding the major occupation of district education personnel was government service. Majority of the respondents (75%) have their secondary occupation that was agriculture as support to their daily life and the remaining (25%) have a small enterprises supported by their family members.

Consolidation

The occupation of the respondent indicates that there is a diversity of respondent's occupations that include teaching service, agriculture, labor work, government and non-government service, business and others. As there are more than 50 percent farmers representing rural people, they were a major source of data for this study.

4.1.6 Age Group

The age groups of the respondents namely, parents, school personnel and district education personnel are given in the following sections.

Parents

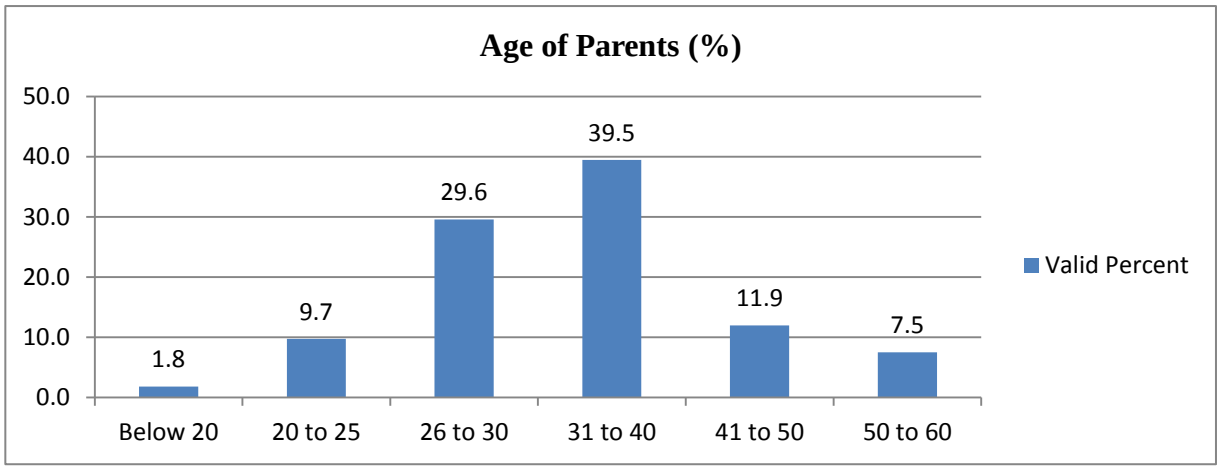
The age of the respondents were categorized into below 20, 20 to 25, 26 to 30, 31 to 40, 41 to 50 and 51 to 60 and above groups. The distribution of parents by age group is given in the Table 4.9.

Table 4.9 Distribution of Parent's by Age Group

SN	Age Group Categorization							
	Below 20	**20-25**	**26-30**	**31-40**	**41-50**	**51-60**	**60+**	**Total (%)**
Total Respondent	9	48	146	195	59	37	-	494
Percent	1.8	9.7	29.6	39.5	11.9	7.5	-	94.1
Total Non-respondent	-	-	-	-	-	-	-	31(5.9)
Total Respondent	9	48	146	195	59	37	-	
Percent	**1.8**	**9.7**	**29.6**	**39.5**	**11.9**	**7.5**	**-**	**494 (94.1)**

The graphical representation of the age group of parents is in Figure 4.7.

Figure 4.7: Distribution of age group of parents participated in survey



The respondents with respect to the age group included into 1.8 percent below 20 age group. 9.7 percent into 20 to 25, 39.5 percent into 31 to 40, 41.9 percent into 41 to 50 and 7.5 percent into 51 to 60. About 40 percent of the respondents belong to 31 to 40 age group. More than one-third of data source were the respondents belonging to 39.5 age category. Most of the respondents (69.1%) are in the age group of 26 to 40. More than two-third of the data source was from this age group. Thus, the data of the study represent different age groups that covered all possible experiences in cell phone application for reading promotion and practice of early grades children.

School Personnel

The age of the school personnel was grouped into: (i) less than 20 years (ii) 20-25 years (iii) 26-30 years (iv) 31 to 40 years (v) 41 to 50 years and (vi) 51 to above years. The distribution of school personnel by age group is given in the Table 4.10.

Table 4.10: Distribution of School Personnel by Age Group

SN	Age Group Categorization							
	Below 20	**20-25**	**26-30**	**31-40**	**41-50**	**51-60**	**60+**	**Total (%)**
Total Respondent	1	10	32	75	80	57	-	255 (90.7)
Percent	0.4	3.9	12.5	29.4	31.4	22.4	-	
Total Non-respondent							-	26 (9.3)
Total Respondent								**281(100)**

With respect to the age group, 0.4 percent belongs to the age the group of less than 20 years, 3.9 percent to 20 to 25 year age group, 12.5 percent to 26 to 30 year age group, 29.4 percent to 31 to 40 age group, 31.4 percent to 31 to 50 age group and 22.4 percent to 51 and above year age group. Most of the respondents (60.4%) belonged to the age group 31 to 50 whereas a few of them (22.4%) were above 50 year age group. A few respondents (16.4%) were within the age group to 20-30. Therefore, the data obtained on the study were from matured age group (31-50) of school personnel.

DEO Personnel

The age of the district educational personnel was grouped into: (i) 26-30 years (ii) 31 to 40 years (iii) 41 to 50 years and (iv) 51 to above years. With respect to the age group, 7 percent to 26 to 30 year age group, 38 percent to 31 to 40 age group, 41 percent to 31 to 50 age group and 14 percent to 51 and above year age group. Almost all respondents (79%) belonged to the age group 31 to 50 whereas a few of them (14%) were above 50 year age group.

Consolidation

The data obtained on the study were from matured age group (31-50) of school personnel. Thus, the data of the study represent different age groups that covered all possible experiences in cell phone application for education purpose, reading promotion and practice of early grades children. The data of the age group indicated that the study represents different age groups that covered a diverse and valuable experience in cell phone application for education purpose and reading promotion and practice of early grades children.

1.7 Mother Tongue

Parents

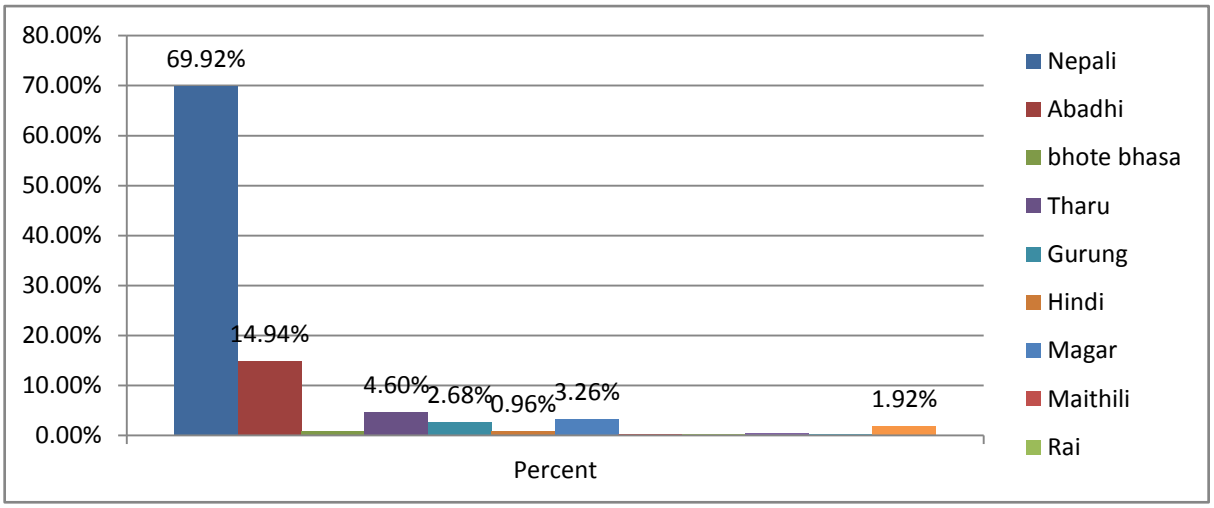
The type of mother tongue of the respondents consisted of *Awadhi*, *Maithili*, *Nepali* and *Tharu* though they speak well Nepali language and use Nepali language in writing as well in their daily life. The distribution of parents by mother tongue is given in the Table 4.11.

Table 4.11: Distribution of Parents by Mother Tongue

SN	Mother Tounge	Respondent	Percent
1	Nepali	365	69.92%
2	Abadhi	78	14.94%
3	bhote bhasa	4	0.77%
4	Tharu	24	4.60%
5	Gurung	14	2.68%
6	Hindi	5	0.96%
7	Magar	17	3.26%
8	Maithili	1	0.19%
9	Rai	1	0.19%
10	Sherpa	2	0.38%
11	Tamang	1	0.19%
12	Thakali	10	1.92%
	Total	522	100.00%

The graphical representation of the age group of parents is in Figure 4.7.

Figure 4.7: Distribution of age group of parents participated in survey



Out of total 522 valid respondents of parent group, 69.92% speak Nepali language at home followed by Awadhi (14.94%), Tharu (4.6%), Magar (3.26%) and Thakali (1.92%). A total of 9 different mother language speaking parents were surveyed.

School Personnel

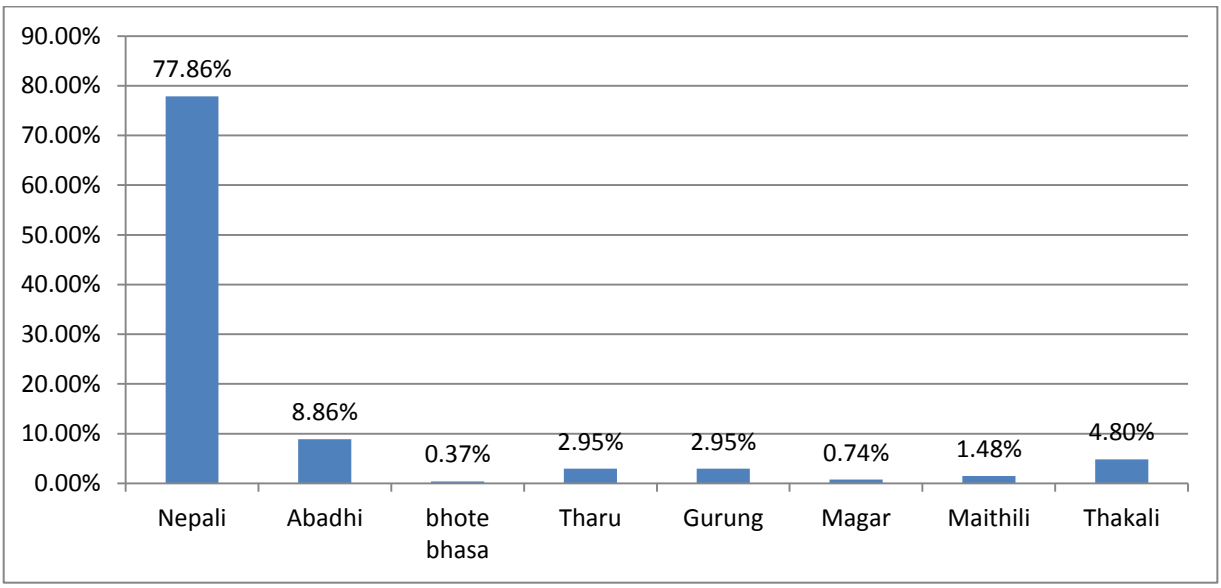
The type of mother tongue of the respondents consisted of *Awadhi*, *Maithili*, *Nepali*, *Tharu* and others (*Bhote Bhasa*, *Magar*, *Gurung* etc) though they speak well Nepali language and use in writing as well in their daily life. The distribution of school personnel by mother tongue is given in the Table 4.12.

Table 4.12 Distribution of School personnel as per mother Tongue

SN	Mother Tongue	Respondent	Percent
1	Nepali	211	77.86
2	Abadhi	24	8.86
3	Bhote bhasa	1	0.37
4	Tharu	8	2.95
5	Gurung	8	2.95
7	Magar	2	0.74
8	Maithili	4	1.48
12	Thakali	13	4.80
	Total	271	100.00%

The graphical representation of the age group of School personnel is in Figure 4.8.

Figure 4.8: Distribution of age group of School Personnel participated in survey



Out of total 281 total respondents 271 valid responses were obtained. Out of valid responses 77.86% speak Nepali as mother tongue in home, followed by Awadhi 8.86%, Thakali 4.80%, and Tharu and Gurung 2.95% each. A total of 8 different mother language speaking School personnel were surveyed.

DEO Personnel

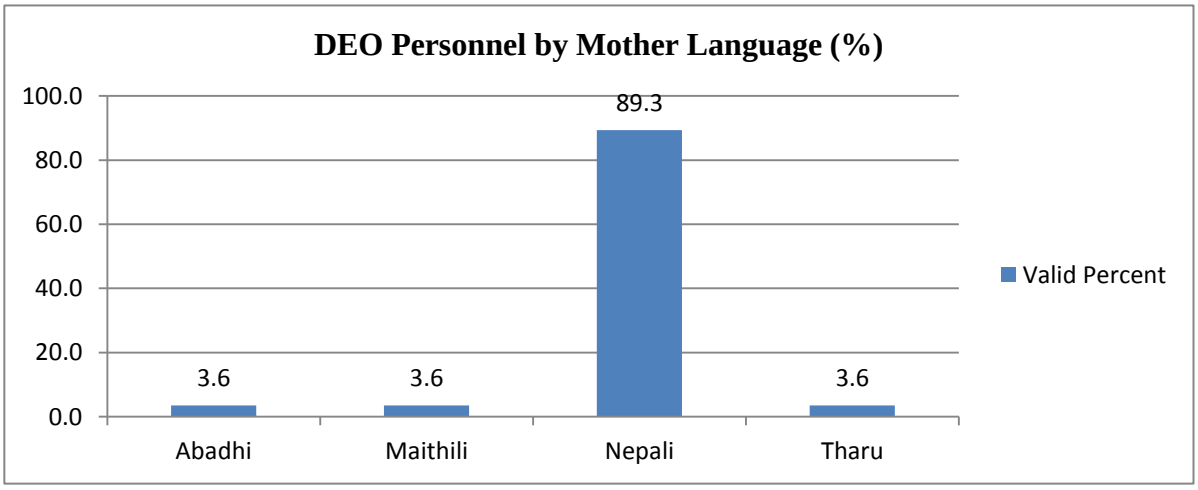
The type of mother tongue of the respondents consisted of *Awadhi*, *Maithili*, *Nepali*, *Tharu* and others (*Newari*, *Tamang*, *Rai*etc.) though they speak well Nepali language and use in writing as well in their daily life. The distribution of mother tongue of DEO personnel is given in the Table 4.13.

Table 4.13: Distribution of Parents by Mother Tongue

SN	Mother Tongue				Total (%)
	Awadhi	Maithili	Nepali	Tharu	
Total Respondent	1	1	25	1	28
Percent	3.6	3.6	89.3	3.6	100
Total Non-respondent	-	-	-	-	-

The graphical representation of the mother language of DEO personnel is in Figure 4.9.

Figure 4.9: Distribution of mother language of DEO Personnel participated in survey



Out of the total respondents, 89.3 percent belongs to Nepali language whereas remaining (10.8%) are of mother tongue consisting of 3.6 percent *Maithili*, 3.6 percent *Awadhi* and 3.6 percent *Tharu*. The data indicated that almost all district educational personnel have been using Nepali language in the form of Roman text to send SMS through their mobile phone.

Consolidation

The data indicated that almost all respondents have been using Nepali language for speaking and writing as well. The percent of the respondents having mother tongue were found below the range of 15 % in the sample households of the study districts. The data revealed that almost all the district educational personnel have been using Nepali language in the form of *Roman* text to send SMS through their mobile phone. They felt convenient to use either Nepali language or Roman text for communication through their mobile phone.

4.2 Measuring Stock of Cell Phone Use

4.2.1 Stock of Cell Phone

The stock of mobile phone that is also called cell phone consisted of six subthemes. These subthemes are own mobile phone, spouse's mobile phone, type of mobile phone, mobile phone service provider, monthly expenditure on mobile phone and communication to other relevant persons and school management using mobile phone. The stock of cell phone use was measured by these six subthemes. The responses of the parents, school personnel and district educational personnel on these subthemes of the study were collected in terms of the uses of mobile phone for education and daily life purposes and early grade reading promotion. The details of their responses, analysis and interpretation on these themes are described below:

4.2.2 Own Mobile Phone

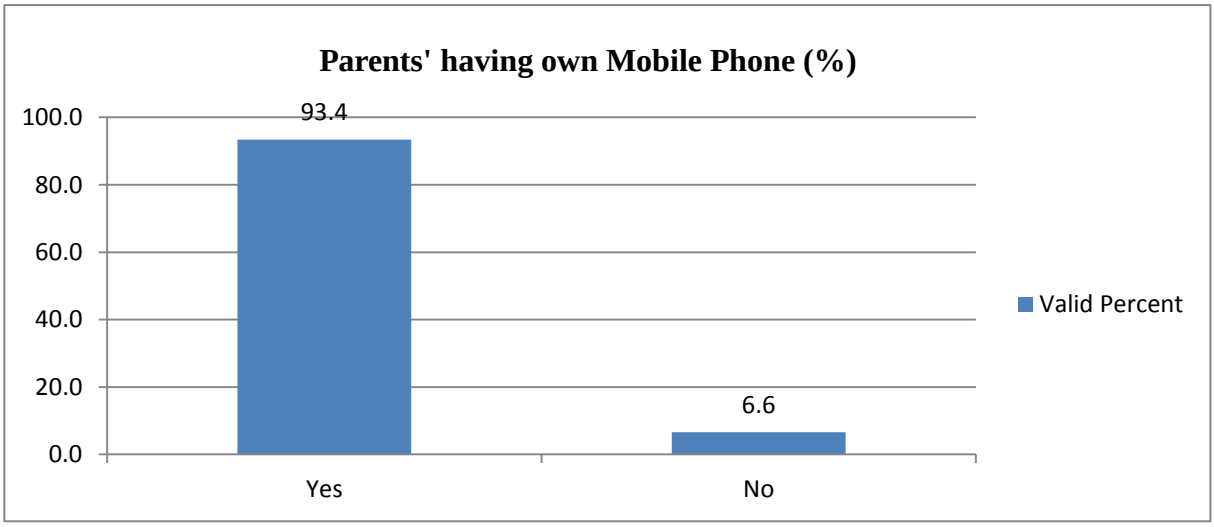
Out of 525 parents interviewed, 483 (93.4%) parents have their own mobile phone whereas only 34 (6.6%) did not have their mobile phone. Eight of them (1.5 %) were non-respondents for this concern. The distribution of parents having their own mobile phone is given in the Table 4.14.

Table 4.14: Distribution of Parents having their own Mobile Phone

SN	Particular	Yes	No	Total (%)
1	Total Respondent	483	34	525
2	Percent	92	6.5	100
3	Total Non-respondent	-	-	8(1.5)

The graphical representation of the construct own mobile phone of parents is in Figure 4.10.

Figure 4.10: Distribution of Parents having their own mobile phone



The personnel of school and District Education Office (DEO personnel) have been using mobile phone for the purposes of daily life and educational activities. Mobile phone is common to all educational personnel in school.

Therefore, there is potentiality of the use mobile phone. There is need to encourage the parents and education personnel to use their mobile phones for early grade reading promotion and education purpose. The question is that to what extent the mobile phones they possess are appropriate to use for these purposes. However, it indicated that the parents have been habituated to use mobile phone that would facilitate to use their mobile phone for promotion of early grade reading promotion and educational purposes.

Consolidation

All school personnel and District Education Office (DEO personnel) have been using mobile phone for their purposes and education activities. The concern is to what extent the mobile phones they possess are appropriate to use for these purposes. However, there is potentiality of the use of appropriate mobile phone for early grade reading promotion and education purposes with necessary encouragement. The parents having mobile phone indicated by the school personnel is very close the data on the possession of mobile obtained from parents. The personnel of school and District Education Office stressed that the parents should have mobile phone appropriate to use for educational purpose. Therefore, there is need for encouraging the parents to use their mobile phones for early grade reading promotion and education purposes as required in their daily life.

4.2.3 Spouse's Mobile Phone

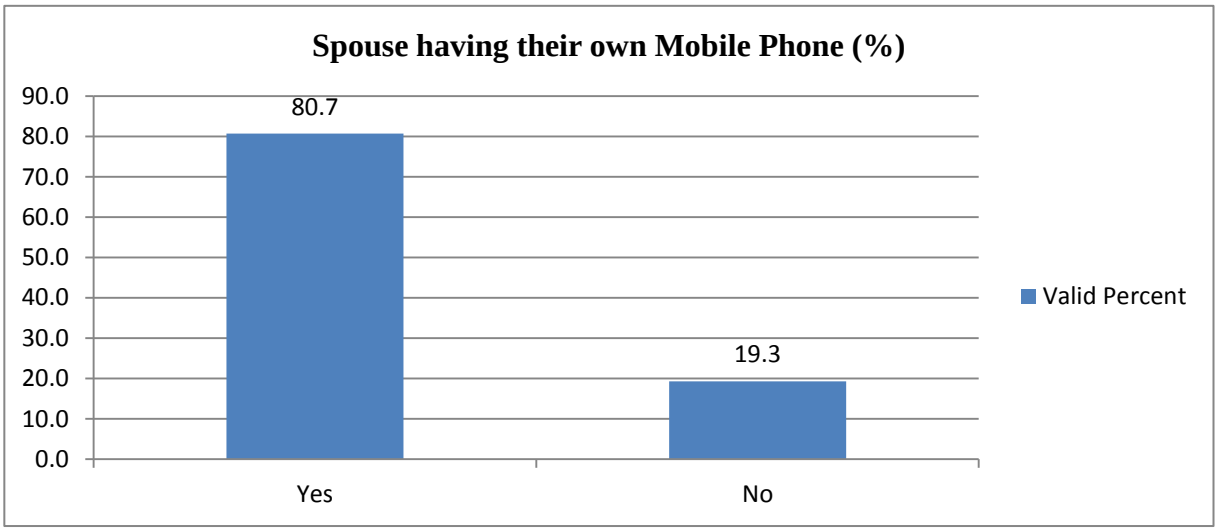
Out of the total parents as respondents interviewed (525), 410 respondents (80.7%) answered that their spouses have their own mobile phone. Among them, almost spouses have mobile phone whereas a few of them (19.3%) mentioned that their spouses do not have their mobile phone. Out of the total respondents, 17 (3.2%) of them did not respond the question. The distribution of spouse having their own mobile phone is given in the Table 4.15.

Table 4.15: Distribution of Spouse having own Mobile Phone

SN	Yes	No	Total (%)
Total Respondent	410	98	508
Percent	80.7	19.3	100
Total Non-respondent			17 (3.2)

The graphical representation of the distribution of Spouse having own Mobile phone among parents is in Figure 4.11.

Figure 4.11: Distribution of Spouse of Parents having their own mobile phone



The spouses of school and district education personnel have their mobile phones and using for their daily life purposes. The spouses who have mobile phone were not representing from early grades. Also, the mobile phones of both parents and family members can be used for early grade reading promotion and educational purposes in home.

Consolidation

Almost all spouses of school and district education personnel have their mobile phones and using for their daily life purposes to fulfill their requirements. Thus, the mobile phones of both parents and their elder spouses can be used for early grade reading promotion and education purposes at home and to communicate from home to school and District Education Office.

4.2.4 Types of Mobile Phone

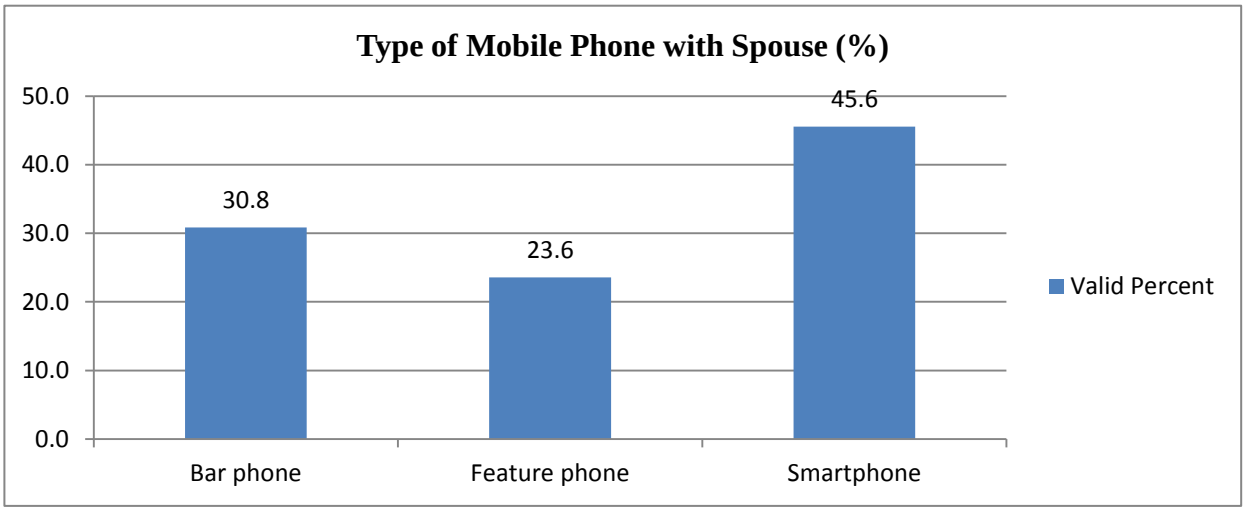
Parents

The mobile phones which have been widely used amongst the parents are Bar Phone, Feature Phone and Smart Phone. So, the parents were asked about the type of mobile phones they have been using in their daily life. The distribution of parents with the types of mobile phone they have is given in the Table 4.16.

Table 4.16: Distribution of Spouse having own Mobile Phone

SN	Bar Phone	Feature Phone	Smart Phone	Total (%)
Total Respondent	153	117	226	496
Percent	30.8	23.6	45.6	94.5
Total Non-respondent				29 (5.5)

The graphical representation of the data in Table 4.16 is in figure 4.12.



Out of 525 target respondents, 496 (94.5%) responded the question whereas 29 (5.5%) were the missing case during the study. Among the respondents (94.5%), 45.6 percent have Smart Phone, 30.8 percent have Bar Phone and 23.8 percent have Feature Phone. The data reveal that the majority of respondents (45.6%) have Smart Phone.

School Personnel

The types of cell phone generally in use were Bar Phone, Feature Phone and Smart Phone in the country. The total respondents were 281, out of them, 267 (95%) responded the question whereas 14 (5%) were the non-respondents. Out of the total respondents (267), 159 respondents (59.6%) have the Smart Phone, 61 respondents (22.8%) possess feature phone and 47 of them (17.6%) have Bar Phone in the study districts. The distribution of the school personnel with the types of mobile phones is given in the Table 4.17.

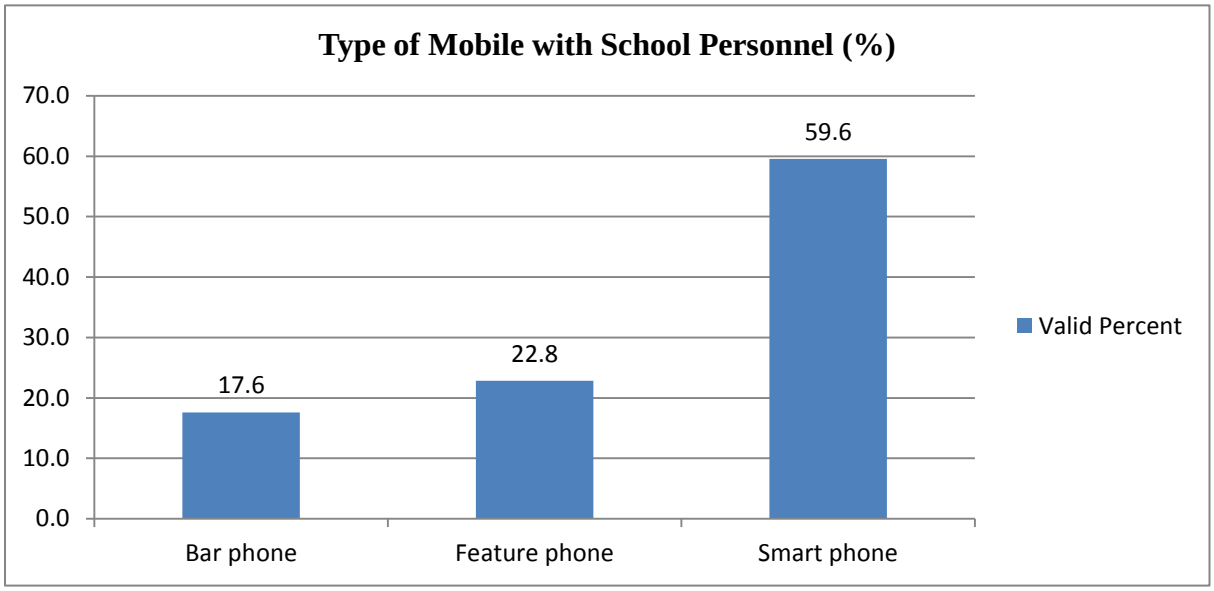
Table 4.17: Distribution of Type of Mobile Phone by School Personnel

Type of Cell Phone	Total Respondent	Percent
Bar Phone	47	17.6
Feature	61	22.8
Smart Phone	159	59.6
Non-respondent	14	5
Total	**281**	**100**

The data in the table 4.17 has also been presented graphically in Figure 4.13.

Most of the educational personnel (59.6%) have Smart Phone. A few of them (22.8%) have Feature phone followed by a very few (17.6%) possesses Bar Phone respectively. The data revealed that the parents have been using different types of cell phone which are useful to use for receiving and sending SMS for educational and other purposes of their daily.

Figure 4.13: Distribution of School personnel as per mobile phone possession



DEO Personnel

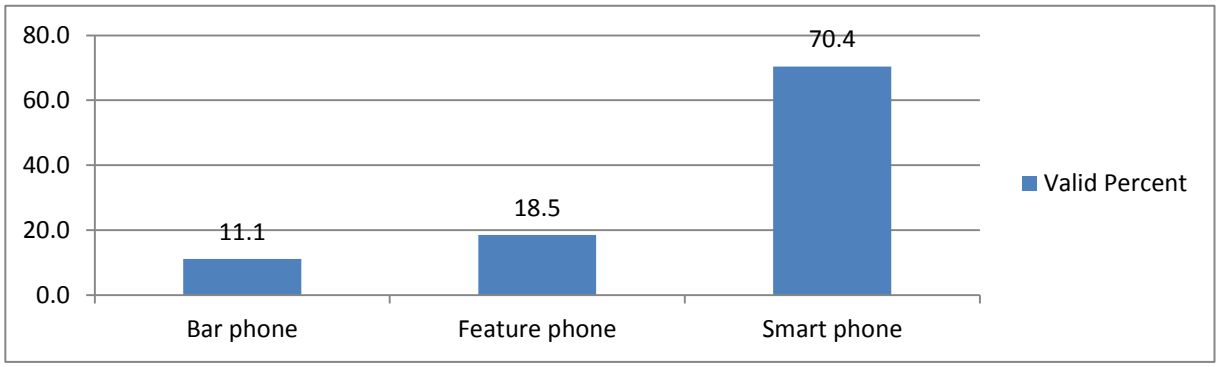
The types of mobile phone are Bar Phone, Feature Phone and Smart Phone that are generally in use in the country at present. Regarding this, the respondents in the sample districts were found that they have Bar Phone (11.1%), Feature Phone (18.5%) and Smart Phone (70.4%). The data revealed that most of the respondents have been using Smart Phone which indicates their cost of affordability as well. However, a few of them use either Bar Phone or Feature Phone. These mobile phones are helpful to use for SMS and apps for their daily life's requirements and purposes of education and promotion of early grade reading. The distribution of the DEO personnel with the types of mobile phones is given in the Table 4.18.

Table 4.18: Distribution of Type of Mobile Phone by District Education Personnel

Type of Cell Phone	Total Respondent	Percent
Bar Phone	3	11.1
Feature	5	18.5
Smart Phone	19	70.4
Non-respondent	1	3.6
Total	**28**	**100**

The graphical representation of the data in table 4.18 is in Figure 4.14. The data revealed that the respondents have been using different types of cell phone which are useful to use for receiving and sending SMS for education and other purposes of their daily. However, a few of them use either Bar Phone or Feature Phone. The type of mobile phones used by the respondents is related to the affordability issue also.

Figure 4.14: Distribution of type of mobile phone with DEO Personnel



This indicated that there is a high possibility of using mobile phone especially Smart phone in early grade reading promotion and educational purposes as well in their home and to communicate from home to school as well. There is need of encouragement to parents and personnel of school and DEO to use mobile phone for educational purpose and promotion of early grade reading.

Consolidation

The data reveal that the majority of the respondents have mobile phone that can be used for communication and SMS for education purposes and promotion of early grade reading. The mobile phone the respondents can be used for communication and SMS for education purpose and promotion of early grade reading. There is need for facilitation to use mobile phone for education purpose and promotion of early grade reading.

4.2.5 Telecom Service Provider

Parents

Mobile phone service providers were classified into three categories: (i) Nepal Telecom (Namaste/NTC post-paid/Sky Phone), (ii) Ncell (Pre-paid/Ncell post-paid) and (iii) both that include NTC and Ncell. Out of the total parents interviewed (525), 508 ((96.8%) responded the question of this theme. Almost one-third of the respondents (31.1%) have been using NTC pre-paid whereas the users of NTC post-paid and Sky Phone are one percent and 2.4 percent respectively. The distribution of Parents as per possession of mobile phone service providers is in Table 4.19.

The distribution of statistics in table 4.19 show that the users of the Ncell pre-paid and post-paid are 55.7 percent and 0.6 percent respectively. The respondents who have been using either NTC or Ncell service is minimal (0.6%). Most of the respondents (55.7%) have been using Ncell prepaid services whereas some of them (31.1%) have been using NTC prepaid.

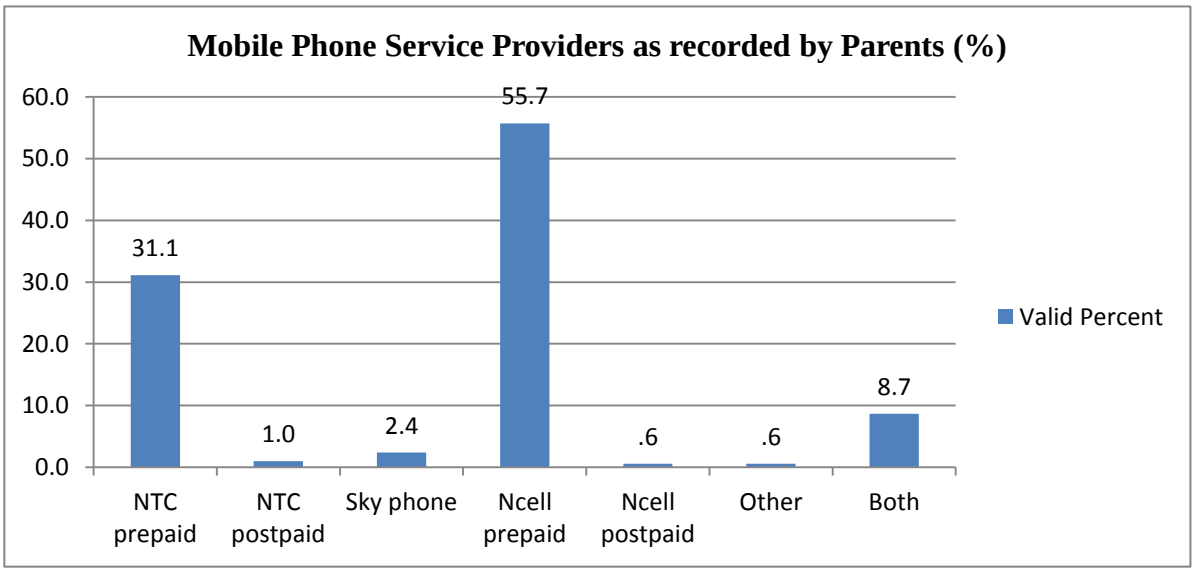
Therefore, most of the parents have been using either Ncell or NTC prepaid mobiles though Ncell prepaid was found mostly preferred.

Table 4.19: Distribution of Mobile Phone Service Providers by Parents

Type of Cell Phone	Total Respondent	Percent
NTC Pre-Paid	158	31.1
NTC Post Paid	5	1.0
Sky Phone	12	2.4
Ncell Pre-Paid	283	55.7
Ncell Post Paid	3	0.6
Both type	44	8.7
Other	3	0.6
Non-respondent	17	3.2

The graphical representation of the data distribution in table 4.19 is in figure 4.15.

Figure 4.15: Distribution of parents according to the service provider selection



School Personnel

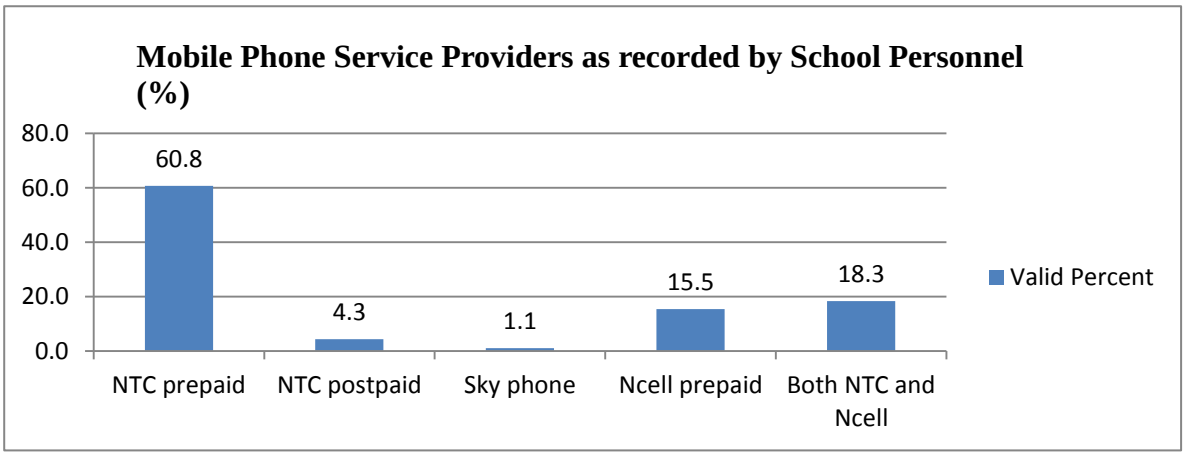
Mobile Phone Service Providers are Nepal Telecom (Namaste/NT post-paid and Sky Phone) and Ncell (pre-paid/post-paid). Regarding this, out of the total respondents 281, 278 (98.9%) responded this item whereas three respondents (1.1%) were non-respondents. The data revealed that 65.1 percent and 15.5 percent were using NTC and Ncell services respectively. Those who have been using NTC services, most of them (60.8%) were using pre-paid whereas a few of them (4.3%) were using post-paid service. However, 1.1 percent of respondents were using sky phone. The distribution of the responses of the school personnel as per the mobile phone service provider selection is given in Table 4.20.

Table 4.20: Distribution of Mobile Phone Service Providers by School Personnel

Type of Cell Phone	Total Respondent	Percent
NTC Pre-Paid	169	60.8
NTC Post Paid	12	4.3
Sky Phone	3	1.1
Ncell Pre-Paid	43	15.5
Both type (NTC and Ncell)	51	18.3
Non-respondent	3	1.1

The data in table 4.20 has been depicted graphically in Figure 4.16.

Figure 4.16: Graphical distribution of School personnel selection of SIM card.



A few of them (18.3%) were using either NTC or Ncell services. However, the majority of the educational personnel (60.8%) were using NTC service, especially prepaid facility.

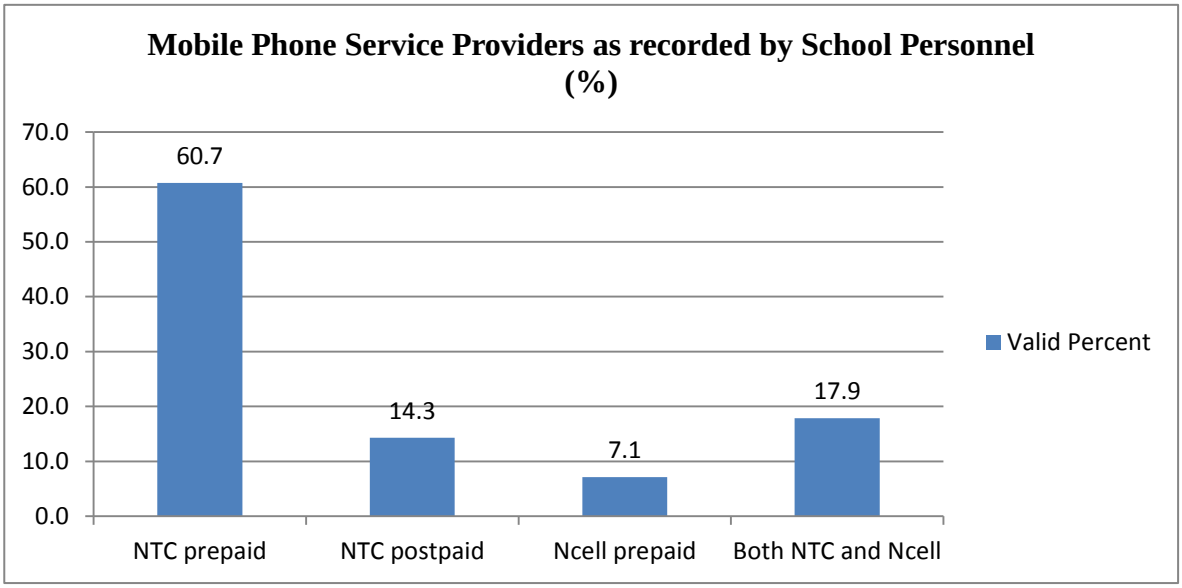
DEO Personnel

The mobile phone service providers are Nepali Telecom (Namaste/NT post-paid/Sky Phone) and NCell (Pre-paid/post-paid). These service providers have been providing pre-paid and post-paid services to the customers in the country. The distribution of the responses of the DEO personnel on the mobile phone service providers is given in the Table 4.21.

Table 4.21: Distribution of Mobile Phone Service Providers by School Personnel

Type of Cell Phone	Total Respondent	Percent
NTC Pre-Paid	17	60.7
NTC Post Paid	4	14.3
Sky Phone	-	-
Ncell Pre-Paid	2	7.1
Both type (NTC and Ncell)	5	17.9
Non-respondent	28	100

The data in table 4.21 has been presented graphically in Figure 4.17.



Under the NTC service provider, 60.7 percent of the respondents have been using NTC prepaid whereas 14.3 percent use the post-paid service. This indicates that the customers preferred to use pre-paid NTC service. Out of all total respondents (28), 7.1 percent have been using NCell prepaid service whereas 17.9 percent have been using both NTC and NCell service which is mostly available service in the country.

Though the respondents have their choice to prefer any type of mobile phone service provider, their most preference was found NTC pre-paid service which is most popular among school personnel and rooted in the country.

Consolidation

Most of the parents have been using either Ncell or NTC prepaid mobile phone though Ncell prepaid was found mostly preferred. Though the respondents have their choice to prefer any type of mobile phone service providers, their most preference was found NTC pre-paid service which is most popular and rooted in the country.

4.2.6 Monthly Expenses on Mobile Phone

Parents

With a view to identification of the cost of monthly expenses of parents on mobile phone, the monthly expenses were categorized into: (i) NPR 0-100 (ii) NPR 101-300 (iii) NPR 301-500 and (iv) NPR 501 and above. Some of the parents (35.4%) have their monthly expenses on their mobile phone in between NPR 101 to 300 whereas some (32.1%) spend around NPR 301 to 500 per month. A few of them (19.8%) spend more than NPR 500. The distribution of the expenditure of parents on mobile phone is given in the Table 4.22.

Table 4.22: Distribution of Monthly Expenses of Parents on Mobile Phone

Category of Expenses (NPR)	Total Respondent	Percent
0-100	64	12.7
101-300	179	35.4
301-500	162	32.1
More than 501	100	19.8
Non-Respondent	20	3.8
Total	**525**	**100**

The expenditure of parents on mobile phone varies widely as per their background, interest and need in the sample districts. The combination of the parents spending NPR 301 to 500 per month (32.1%) and more than NPR 501 (19.8%) indicated that about 52 percent of the parents have been spending on mobile phone in between NPR 301 and 501 on a monthly basis. The expenses on mobile phone of the remaining parents (48%) are in between NPR 0 to 300 per month.

These data revealed that most of the parents can afford on the average NPR 500 whereas some of them can manage up to NPR 300 per month for mobile phone. These parents can be motivated to use mobile phone for the promotion of early grade reading and educational purposes for their children.

School Personnel

Regarding the monthly expenditure of the education personnel on the use of cell phone, out of 281 respondents, 279 (99.3%) responded whereas two of them (0.2%) did not answer the question. Some of them (45.2%) spend more than NPR 502 per month. Some of them (30.5%) spend in between NPR 301 to 500 per month. The distribution of the expenditure of school personnel on mobile phone is given in the Table 4.23.

Table 4.23: Distribution of Monthly Expenses of School on Mobile Phone

Category of Expenses (NPR)	Total Respondent	Percent
0-100	4	1.4
101-300	64	22.9
301-500	85	30.5
More than 501	126	45.2
Non-Respondent	2	0.7
Total	**279**	**100**

A few of the respondents (22.9%) have been spending in between NPR 101 to 300 per month. About 75.7 percent of educational personnel have spending on mobile phone in between NPR 301 to more than NPR 500 per month as per their need. Hence, the data indicated that about two-third of the educational personnel are ready to spend more than NPR 300 each month.

This means that they can be further encouraged to use mobile phone for education purposes and home-based learning of children. In addition to this, it can be used effectively for monitoring the learning of early grade children.

DEO Personnel

Out of 28 respondents, 22 (78.6%) mentioned that their monthly expenses on mobile phone. Amongst them 78.6 percent mentioned that their monthly expenditure is NPR 501 and above. Out them 3 (10.7%) respondents said that their monthly expenditure is in between NPR 100 to 300 whereas one person (3.6%) reported that his/her expenditure is less than NPR 100. Thus, the data indicated that almost all district educational personnel have been using mobile phone for their daily life and education purpose. There is need of encouragement for those respondents who are reluctant to use mobile phone for education purposes such as getting information from and sending and replying to school management and monitoring of their children's activities.

Consolidation

These data revealed that most of the parents can afford on the average NPR 500 whereas some of them can manage up to NPR 300 per month for mobile phone. These parents can be motivated to use mobile phone for the promotion of early grade reading and education purposes for their children. School personnel can be further encouraged to use mobile phone for education purposes and home-based learning of children. Almost all district DEO personnel have been using mobile phone for their daily life and education purpose. There is need of encouragement for those respondents who are reluctant to use mobile phone for education purposes such as getting information from and sending and replying to school management and monitoring of their children's activities.

4.2.7 Communication using Mobile Phone

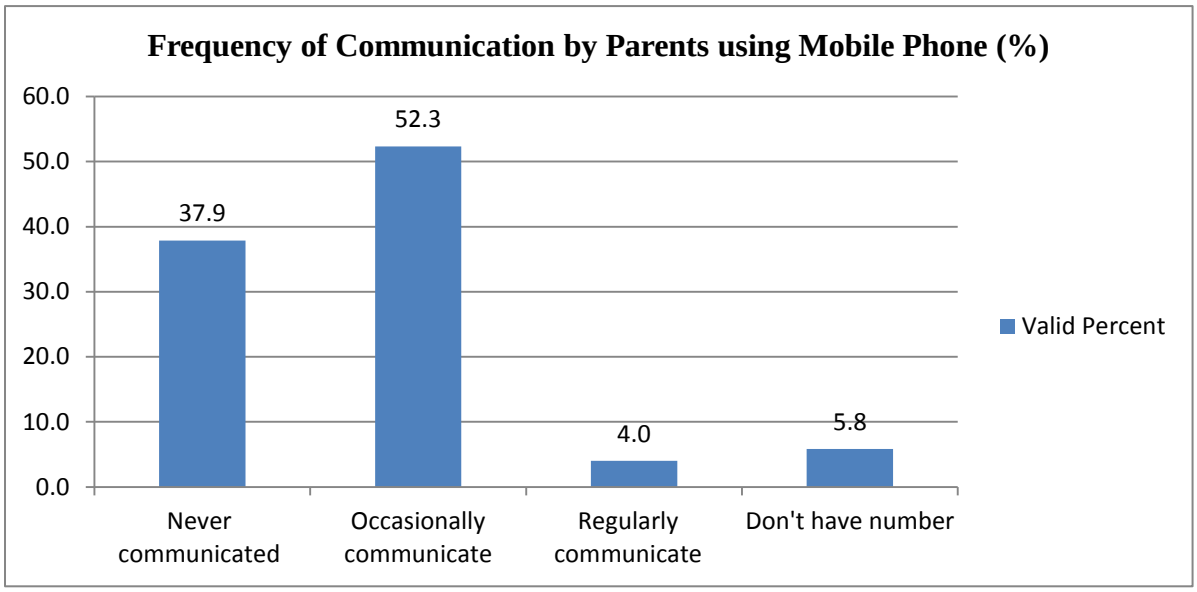
Parents

The parents were asked to what extent they have been using mobile phone to communicate to school management, especially head teachers and teachers to deal with the learning progress and difficulties of their children. Their responses were measured in terms of never communication, occasional communication, regular communication and do not have cell phone to communicate. Regarding, this concern, the responses of the parents are given in the Table 4.24.

Table 4.24: Distribution of Frequency of Communication using Mobile Phone

Category of Expenses (NPR)	Total Respondent	Percent
Never communicated	189	37.9
Occasional communication	261	52.3
Regular communication	2o	4.0
Do not communicate	29	5.8
Non-Respondent	26	5.0
Total	525	100

The graphical representation of the data shown in table 4.24 is in Figure 4.18.



Most of the parents interviewed (52.3%) were found that they communicated occasionally to school management about their children' learning progress and difficulties. Some of them (37.9%) never communicated to school management. A few of them (5.8%) do not have mobile phone so that they did not communicate to school management about their children's information on learning. However, 4 percent of the parents reported that they have been communicating their children's learning progress and other information to school management using their mobile phone. The data indicated that more than 50 percent of the parents were found communicating on occasional basis their children's learning progress and difficulties and any other information to school management. This is a positive indicator that would help to encourage the parents for using mobile phone to promote early grade reading and monitoring the children's learning progress and difficulties.

Regarding the communication from school personnel to the parents, head teachers and teachers are responsible. So, they were asked to what extent they used to communicate to parents about the progress and learning difficulties of the students. Out of the total school personnel that includes head teachers and teachers only (190), 56 of them (29.5%) were used

to communicate to parents as and when needed. 23 respondents (17.4%) used to communicate the student's progress and learning difficulties to parents only in urgent cases. The data indicate that there is not a regular communication between school personnel and parents about the progress and learning difficulties of children using mobile phone. Therefore, there is need of encouragement to school personnel to use mobile phone for communication between school personnel and parents for educational purpose and promotion of early grade reading.

DEO Personnel

The total respondents of District Education Personnel (28) were asked to what extent they use mobile to understand the status of school and to collect the information. It was found that almost all of them (89.3%) have been using their mobile to collect the information required them in urgent case or to provide information of DEO to school management. Though this is not a regular process, they use to contact to school as and when needed. However, they have been using mobile phone to get information from schools and to provide information to schools as per need basis.

Consolidation

The data indicated that most of the parents were found communicating on occasional basis of their children's learning progress and difficulties and any other information to school management and teachers. It was also known that there is not a regular communication between school personnel and parents about the progress and learning difficulties of children using mobile phone. Thus, there is need of encouragement to parents, school personnel and DEO personnel to use mobile phone for communication between parents and school personnel and DEO personnel as well for education purposes and promotion of early grade reading.

4.3 Measuring Attitude towards Cell Phone Application

Eight subthemes related to different aspects of cell phone were developed to measure the attitude of the parents towards the use of cell phone. These subthemes are use of cell phone, use of SMS, communication through cell phone, monitoring of children's progress through SMS, charge of cell phone and reading promotion and practice. The responses of the parents on these subthemes are given in the following sections.

The District Education Personnel are Resource Person (RP), School Supervisor (SS), Reading Motivator (RM), Community Mobilization Officer (NGO) and ICT personnel of District

Education Office. They were inquired about the different aspects of cell phone and its use in education purposes and promotion of early grade reading. With a view to measuring the attitude of District Education Personnel, eight subthemes were developed based on the main theme. Therefore, their attitudes were measured towards the different aspects of the cell phone, its relevant areas and their uses for educational purposes, promotion of early grade reading and monitoring of the activities of school.

4.3.1 Use of Cell Phone

The responses of parents, School personnel and District Education Office personnel regarding the use of cell phone have been given in the following section.

Table 4.25: Distribution of the Responses of the Respondents on the use of Cell Phone

SN	Respondent	Rating Scale (score in percent)				
		SD	D	NA/DA	A	SA
1.	**Parents**					
	Total score (%)	9.8	16.4	19.9	226.7	226.9
	Mean score (%)	1.9	3.3	3.9	45.3	45.4
	Combined Mean score (%) in point scale	5.2			90.7	
2.	**School Personnel**					
	Total score (%)	2.3	11.1	17.5	186.6	282.5
	Mean score (%)	0.5	2.2	3.5	37.3	56.5
	Combined Mean score (%) in point scale	2.7			93.8	
3.	**DEO Personnel**					
	Total score (%)	0.4	7.8	5.2	112.1	374.4
	Mean score (%)	0.08	1.6	1.0	22.4	74.9
	Combined Mean score (%) in point scale	1.7			90.5	

Parents

The total respondents towards the use of cell phone were 525 though number of non-respondents (NR) varies with respect to the attitudinal items. The use of the cell phone was measured in terms of receiving call, making call to the relevant persons as per need, excitement to use cell phone for personal purpose and interested to use cell phone for personal purpose and monitoring of children's education. A few of them (5.2%) were not ready to use mobile phone for education purposes. Almost all respondents (90.7%) strongly agreed the need for using cell phone in their daily life and education purposes. They receive call from others through cell phone on personnel matter and replies as well. They felt that the

use of cell phone has been their integral part of life. They are enthusiastic to use cell phone for the education purposes of their children.

School Personnel

The school personnel were asked about the use of cell phone that was measured by the items that are receiving and making calls, as an integral part of life and increasing efficiency of work. The total respondents were 281 whereas some did not respond the items that vary with respect to the attitudinal statements.

Almost all the respondents (93.8%) were found that they have been using cell phone to call and receive call from others on the matters related to their daily life and educational purposes. They felt that the cell phone has been part of their life and are attentive to use cell phone for education purpose. A few of them (2.7%) were found that they were not ready to use mobile phone for educational purposes.

DEO Personnel

The District Education Personnel were asked about the use of cell phone for education purposes and promotion of early grade reading. The use of the cell phone is consisted of items that are receiving call from and making call to the relevant persons, cell phone as a part of daily life, attentive to use cell phone for educational purpose and efficient use of time.

Almost all district educational personnel (90.5%) have been using cell phone for their purposes in their daily life and education requirements for their children. The data revealed that they are interested to use cell phone for education purposes, monitoring of school's activities and promotion of early grade reading of their children and making efficient use of time in daily life.

Consolidation

All the respondents felt that the cell phone has been a part of their daily life and are attentive to use cell phone for education purpose. Thus, the data indicated that they can use their mobile phones for early grade reading, monitoring of children's learning progress and difficulties and the progress of schools through communicating with the school management and relevant persons, monitoring of school's activities making an efficient use of their time.

4.3.2 Use of Cell Phone for Education Purpose

The use of cell phone to communicate with parents and education personnel was measured in five-point scale that is categorized in the table below. The respondents were parents and

personnel of school and District Education Office. Their responses are given in the Table 4.26.

Table 4.26: Distribution of the Responses of the Respondents on the use of Cell Phone for Communication

SN	Respondents	Never communication	Occasional communication	Regular communication	No preference of communication	Total
1	**Parents**					
	Total Respondents	24	312	85	25	446
	Percent	5.4	69.9	19.1	5.6	100
	Non-respondents (%)	15	15	15	15	15
2.	**School Personnel**					
	Total Respondents	26	207	38	3	274
	Percent	9.5	75.5	13.9	1.1	100
	Non-respondents (%)	2.5	2.5	2.5	2.5	2.5
3.	**DEO Personnel**					
	Total Respondents	-	20	7	1	27
	Percent	-	71.4	25	3.6	100
	Non-respondents (%)	-	-	-	-	-

Parents

Out of the total respondents (525), 446 (85%) responded this concern. There was 79 (15%) parents remained as non-respondents to this question.

Almost all the parents (69.9%) have been using cell phone occasionally to communicate the education status such as children's learning progress, developing reading skills and habit of their children to schools. However, a few of them (19.1%) have been using cell phone on regular basis to communicate about their children's education to schools. Regarding this, a few of them (5.4%) did not communicate to school whereas a negligence percent of respondents never communicated. In addition to this, there was 5.6 percent mentioned that they did not have the preference of communication about their children learning progress and difficulties. The data revealed that almost all parents have started to communicate their children's educational status and learning difficulties to schools. This indicates that there is a high potentiality of using cell phone for educational purpose.

School Personnel

The use of cell phone to communicate with parents and school personnel was measured in five-point scale that is categorized in the table below. The respondents were 281 whereas 7 of them (2.5%) did not respond the question. The actual respondents were 274 (97.5%) who provided their responses.

Almost all the parents (75.5%) have been using cell phone occasionally to communicate the educational status such as children's learning progress, developing reading skills and habit of their children to schools. However, a few of them (13.9%) have been using cell phone on regular basis to communicate about their children's education to schools. Regarding this, a few of them (9.5%) did not communicate to school whereas a negligence percent of respondents never communicated. The data revealed that almost all parents have started to communicate their children's educational status and learning difficulties to schools. This indicates that there is a high potentiality of using cell phone for educational purpose.

DEO Personnel

The total respondents of this concern were 28 (100%) whereas one of them (3.6%) did not respond the question of this concern. The actual respondents were 27 District Educational Personnel.

Most of the respondents (71.4%) on occasional basis responded that they have been communicating the learning progress and difficulty of their children to school. A few of them (25%) used to respond the children's concern on a regular basis. A very few of them (3.8%) was not positive to use to their mobile phone for this purpose. The data revealed that there is a high potentiality of using the mobile phone for educational purpose and promotion of reading of early grade children.

Consolidation

The data revealed that almost all the respondents have started to communicate their children's educational status and learning difficulties to schools. This indicates that there is a high potentiality of using cell phone for educational purpose. DEO personnel are also highly positive to use mobile phone for education purposes.

4.3.3 Use of SMS

The responses of the parents and personnel of school and District Education Office are given in the Table 4.27.

Parents

The parents were asked to what extent they are aware of sending and receiving SMS through their mobile. Out of 525 parents 481 parents responded the items of the use of SMS. Most of them (49.7%) have been using SMS in their daily life. They can read the SMS received from others and can send SMS to their relevant persons. However, some of them (42.0%) were found that they have not been using SMS to communicate to others. They need orientation on the use and relevancy of SMS to communicate each other and for educational purposes.

Table 4.27: Distribution of the Responses of the Respondents on the use of SMS

SN	Respondent	Rating Scale (score in percent)				
		SD	D	NA/DA	A	SA
1.	**Parents**					
	Total score (%)	40.3	43.6	16.7	56.0	43.4
	Mean score (%)	20.2	21.8	8.4	28.0	21.7
	Combined Mean score (%) in point scale	42.0			49.7	
2.	**School Personnel**					
	Total score (%)	7.7	8.8	8.7	65.7	109.1
	Mean score (%)	3.9	4.4	4.4	32.9	54.6
	Combined Mean score (%) in point scale	8.3			87.5	
3.	**DEO Personnel**					
	Total score (%)	-	-	-	22.2	177.8
	Mean score (%)	-	-	-	11.1	88.9
	Combined Mean score (%) in point scale				100	

Note: SD=Strongly Disagree, D= Disagree, NA/DA= Neither Agree or Disagree, A= Agree, SA= Strongly Agree.

School Personnel

The use of SMS covered the sending, receiving and reading SMS that indicate to what extent the education personnel have been using SMS through their mobiles. Almost all the respondents (87.5%) have been using SMS through mobile phone though a few of them were found reluctant to use mobile phone. The data revealed that SMS have been useable to the respondents and can be used for education purposes, early grade reading and monitoring of schools as per need.

DEO Personnel

The use of SMS consisted of sending, reading and replying SMS to concerned people as per need. Almost all DEO personnel (88.9%) have been using SMS to communicate each other by sending, receiving and reading SMS in their daily life. The data indicated that they have been using SMS in their daily life for different purposes that include monitoring of school's activities, promotion of early grade reading of children and communication of relevant information to relatives, friends and other concerned persons. The data indicated that the mobile phones can be used for education purposes and promotion of early grade reading of their children as well. This is a very positive indication of the use of mobile phone for the promotion of reading and developing the reading skills of early grades.

Consolidation

The data indicated that all the respondents have been using SMS in their daily life for different purposes that include monitoring of school's activities, promotion of early grade reading of children and communication of relevant information to relatives, friends and other concerned persons. The data revealed that the mobile phones can be used for education purposes and promotion of early grade reading of their children as well. This is a very positive indication of the use of mobile phone for the promotion of reading and developing reading skills of early grades.

4.3.4 Frequency of the use of SMS

The responses of the parents and personnel of school and District Education Office on the frequency of the use of SMS for educational and daily life purposes are given in the Table 4.28.

Table 4.28: Distribution of the Responses of the Respondents on Communication through Cell Phone

SN	Respondents	Very frequently	Occasionally	Sometime	Do not use	Total
1	**Parents**					
	Total Respondents	17	80	210	157	464
	Percent	3.6	18.8	44.4	33.2	100
	Non-respondents (%)	9.9	9.9	9.9	9.9	9.9
2.	**School Personnel**					
	Total Respondents	38	206	16	18	274
	Percent	13.7	74.1	5.8	6.5	100
	Non-respondents (%)	1.1	1.1	1.1	1.1	1.1
3.	**DEO Personnel**					
	Total Respondents	4	23	1	-	28
	Percent	14.3	82.1	3.6	-	100
	Non-respondents (%)	-	-	-	-	-

Parents

The frequency of the use of SMS by parents were measured in terms of very frequent, occasional, sometime and do not use. The total respondents were 525 whereas 52 (9.9%) remained as non-respondents (NR).The actual respondents were 473 (90%) to this theme.

Out of the total respondents (473), more than one-third (33.2%) of them did not use SMS. Some of them (44.4) have been using their mobile phone to send SMS whereas a few of them

(18.) used to send SMS on occasional basis. Only a few percent (3.6%) has been using mobile phone for sending SMS very frequently. However, the parents who have been using SMS through their mobile phone were found more than two-third (66.8%). This indicated that there is high possibility of using SMS for early grade reading promotion and educational purposes.

School Personnel

The attitude of the school personnel towards the use of SMS through their mobile phone is important whether mobile phone can be used for education purpose or not. With regards this, the frequency of the use of SMS by education personnel was measured by very frequent, occasional, sometime and do not use.

The total respondents were 281 whereas 7 (2.5%) remained as non-respondents (NR). The actual respondents were 274 (97.5%) to this theme. Out of the total respondents (278), almost all the respondents (74.1%) have been using SMS occasionally through their mobile phone. A few of them (5.8%) uses SMS only sometime as per their requirements. Amongst the respondents, a few of them (6.5%) do not use mobile phone at all. This indicated that there is a high prospect of using mobile phone for early grade reading promotion and education purposes through providing continuous encouragement to educational personnel on this matter.

DEO Personnel

The respondents were asked to what extent they use their mobiles for SMS purpose. The total respondents were 28 and all of them responded the question of this subtheme. The distribution of the responses of these respondents is given in the table below:

Almost all district education personnel (82.1%) responded that they have been using their mobile phone on occasional basis to communicate to the school management, relatives, friends and others as per need. A few of them (14.3%) said that they use SMS very frequently though there is a minimum percent of respondents (3.6%) use SMS sometimes as per their need. The data on the frequency of the use of mobile phone indicated that almost of district education personnel have been using mobile phone as per their need. This is a positive indication that there is high possibility of using mobile phone for education purpose and promotion of reading of early grades.

Consolidation

The data revealed that the frequency of the SMS varies with respect to parents and personnel of school and district education office. They have been using mobile phone as per their need to fulfill their requirements. This is a positive indication that there is a high possibility of using mobile phone for education purpose and promotion of reading of early grades. This process needs to be encouraged through providing continuous encouragement to education personnel on this matter.

4.3.5 Number of SMS sending to relevant Persons

The distribution of their responses of the parents and personnel of school and District Education Office on number of SMS sending to the relevant persons is given in the Table 4.29.

Table 4.29: Distribution of the Responses of the Respondents on the Number of SMS sending to Relevant Persons

SN	Respondents	More than 10 message/week	On the average 7 message/week	One message /week	Total
1	**Parents**				
	Total Respondents	31	89	266	386
	Percent	8.0	23.1	68.9	100
	Non-respondents (%)	26.5	26.5	26.5	26.5
2.	**School Personnel**				
	Total Respondents	39	110	107	267
	Percent	15.2	43	41.8	100
	Non-respondents (%)	8.9	8.9	8.9	8.9
3.	**DEO Personnel**				
	Total Respondents	10	14	4	28
	Percent	35.7	50	14.3	100
	Non-respondents (%)	-	-	-	-

Parents

The parents were asked to what extent they send SMS to the relevant persons as per need. Regarding this concern, out of the total 525 respondents, 386 responded this question whereas 139 (26.5%) remained as non-respondents.

More than two-third of the respondents send one message per week whereas a few of them (23.1%) have been sending seven SMS per week. More than two-third of the respondents (68.9%) used to send SMS once a week as per their need. Therefore, the parents used to send SMS to others as per their need. This means that if the parents realize the need of sending SMS to others they were found ready for this purpose. So, the parents were found realized the

need of using their mobiles to send SMS to school management to monitor the progress and learning difficulties of their children.

School Personnel

The education personnel were asked to what extent they have been sending SMS to their relevant persons and others through their mobile phone. Regarding this theme, out of the total 281 respondents, 256 (91.1%) responded this theme whereas 25 (8.9%) remained as non-respondents.

The data indicated that only a few percent (15.2%) of the respondents have been sending more than ten messages a week. The percent of sending SMS around seven messages and one message per week is very nearest (43 to 42 %). The data indicate that the education personnel are ready to send SMS using their mobile phone to others around seven messages per week. Therefore, there is need of encouraging the education personnel to use mobile phone to send SMS for education purposes such as monitoring of children's learning and sharing their progress to parents and other concerned persons.

DEO Personnel

The district educational personnel were asked to what extent they have been sending SMS to others through their mobile phone. Regarding this theme, all the 28 respondents responded this theme.

The data indicated that only a few percent (14.3%) of the respondents have been sending more than ten messages a week. The percent of sending SMS around seven messages per week is 50 which is the half of the total respondents. The percent of the respondents sending more than 10 messages a week is 35.7 which is more than one-third of the respondents. There is a minimum percent of the respondents (14.3%) who have been sending SMS once a week only as per their need. Therefore, there is need of encouraging the education personnel to use mobile phone to send SMS for education purpose and promotion of early grade reading of children. However, the data revealed that there is a high possibility of using mobile phone for education and promotion of reading of early grade through a continuous encouragement of the relevancy of mobile phone for education purpose and reading promotion of early grade children.

Consolidation

The data reveal that the number of SMS sending to the relevant persons depends upon their need and willingness. However, the respondents were found realized the need of using their

mobiles to send SMS to school management to monitor the progress and learning difficulties of their children and monitoring of school progress. This indicates that there is a high possibility of using mobile phone for education and promotion of reading of early grade through a continuous encouragement of the relevancy of mobile phone for education purpose and reading promotion of early grade children.

4.3.6 Preference of the Time for SMS sending to relevant Persons

The responses of the parents and personnel of school and District Education Office are given in the Table 4.30.

Table 4.30: Distribution of the Responses of the Respondents on Time for sending SMS to Relevant Persons

SN	Respondents	As per need/ working hours	In the morning	In the evening	In leisure	Total
1	**Parents**					
	Total Respondents	-	4	43	362	409
	Percent	-	1.0	10.5	88.5	100
	Non-respondents (%)	-	22.1	22.1	22.1	22.1
2.	**School Personnel**					
	Total Respondents	189	-	14	64	267
	Percent	70.8	-	5.2	24	100
	Non-respondents (%)	-	-	-	-	-
3.	**DEO Personnel**					
	Total Respondents	-	3	5	20	28
	Percent	-	10.7	17.9	71.4	100
	Non-respondents (%)	-	-	-	-	-

Parents

The parents were asked which time they prefer to send SMS to the relevant persons. The preference of the time was categorized into: (i) as per need (ii) in the morning (iii) in the evening, and (iv) in the leisure time. Regarding the concern of time, out of the total 525 respondents, 409 responded this question whereas 16 (22.1%) remained as non-respondents.

More than two-third of the respondents used to send one message per week whereas a few of them (23.1%) have been sending seven SMS per week. More than two-third of the respondents (68.9%) used to send SMS once a week as per their need. Therefore, the parents used to send SMS to the relevant persons and others when requires so that it is difficult to determine their preference time. This means that if the parents realize the need of sending SMS to others they were found ready to send SMS to the relevant persons as per need and they were flexible of their preference time.

School Personnel

The education personnel were asked which time they prefer to send SMS to the concerned persons. The preferred time was categorized into: (i) as per need (ii) in the morning (iii) in the evening and (iv) in the leisure time. Regarding this theme, out of the total 281 respondents, 267(95%) responded this theme whereas 14 (5%) remained as non-respondents.

About three-fourth of the respondents have been sending SMS to the school management and others in school time as per need. A few of them (5.2%) preferred the leisure time to communicate to others through SMS which indicates that they use mobile phone for sending SMS as per need. A very few respondents (5.2%) preferred evening time to send and receive SMS. The education personnel preferred leisure time to send SMS, which saves their working time and efficient use of time as well. This means that the educational personnel have their preference to send SMS to the concerned people as per their need to school management, teachers and others.

DEO Personnel

The district education personnel were asked about their preference of time for sending SMS through their mobile. There were 28 district education personnel who responded the question of this subtheme.

Almost all the respondents responded that they preferred leisure time to send SMS through their mobile phone. A few of them (10.7-17.9%) preferred either morning or evening time for SMS sending and as per their need as well.

The data indicated that the respondents do not like to use their working time for sending and receiving SMS from their concerned persons. However, if there is essential for sending and receiving SMS, they were found ready to use SMS at any time. Thus, the timing of SMS plays a valuable role to use mobile phone for educational purpose and promotion of early grade reading of children.

Consolidation

The data reveal that time preference for sending SMS varies with respect to the parents. This means that they are flexible of the preference of time while sending SMS. The school and district education personnel preferred leisure time to send SMS, which saves their working time and efficient use of time as well. Thus, the timing of SMS plays a valuable role to use mobile phone for education purpose and promotion of early grade reading of their children.

4.3.7 Preference of the use of Language in SMS

The distribution of the responses of the parents and personnel of school and District Education Office is given in the Table 4.31.

Table 4.31: Distribution of the Responses of the Respondents on the use of Language in SMS

SN	Respondents	English Language	Nepali Language	Mother Tongue	Both (Nepali and English)	Total
1	**Parents**					
	Total Respondents	95	280	50	1	430
	Percent	22.1	65.1	11.6	1.2	100
	Non-respondents (%)	18.1	18.1	18.1	18.1	18.1
2.	**School Personnel**					
	Total Respondents	98	151	16	10	275
	Percent	35.6	54.9	5.8	3.6	100
	Non-respondents (%)	2.1	2.1	2.1	2.1	2.1
3.	**DEO Personnel**					
	Total Respondents	8	19	1	-	28
	Percent	28.6	67.9	3.6	-	100
	Non-respondents (%)	-	-	-	-	-

Parents

The parents were asked which language they prefer while sending SMS to others. Regarding this, out of the total 525 respondents, 430 responded this question whereas 95 (18.1%) remained as non-respondents.

More than two-third of the respondents uses Nepali language while sending SMS to others as per their need. More than one-fifth of the respondents preferred to use English language for sending SMS to others. A very few them uses mother tongue while sending SMS whereas there is a negligible percent of respondents using both Nepali and English languages. Thus, a majority of the parents have been using Nepali language in Roman text while sending SMS through their mobiles.

School Personnel

The education personnel were asked which language they prefer to use in SMS to others. Regarding this, out of the total 281 respondents, 275 responded this theme whereas 6 (2.1%) remained as non-respondents.

More than half of the respondents use Nepali language while sending SMS to others. More than one-third of the respondents preferred to use English language for SMS. A very few them (5.8%) uses mother tongue while sending SMS to others, whereas there is a negligible

percent of respondents (3.6%) using both Nepali and English languages. Though the data indicated that there is a variation of the use of language while sending SMS, the high preference is Nepali language followed by English. Thus, either Nepali or English language should be used in SMS while using mobile phone for education and reading promotion purpose.

DEO Personnel

While using mobile phone to send SMS, language is one of the important aspects for the users. They need to be familiar with the language they will be using in SMS. As indicated by the current practice of using language in SMS, the users can use English text if they have knowledge and skills of this language, Nepali language as Nepali text or *Roman* letter and mother tongue in *Roman* letter if they know their mother tongue.

Most of the respondents (67.9%) preferred to use Nepali language in Roman letter while sending SMS through their mobile phone. About one-third of them (28.6%) have been using English language as they have knowledge and skills of English language. A few of them (3.6%) said that they use mother tongue as well in Roman letter.

Consolidation

The data reveal that preference of time for sending SMS varies with respect to the parents. This means that they are flexible of time while sending SMS. The school and district education personnel preferred leisure time to send SMS, which saves their working time and expected to make an efficient use of time. Thus, the timing of SMS plays a valuable role to use mobile phone for education purpose and promotion of early grade reading of their children.

4.3.8 Reasons for the Preference of Language in SMS

The distribution of the responses of the parents and personnel of school and District Education Office to the reasons for the use of the language in SMS are given in the Table 4.32.

Parents

The language of SMS can be any language depending upon the needs and context of the community. Generally, in the context of Nepal, people use Nepali, English and mother tongue while sending SMS to others as per their convenient. Regarding this, the respondents were asked to reflect their preference to the language while sending SMS to others. The parents were asked to specify the reasons of choosing language of SMS while sending to their

relevant persons. Out of the total respondents (525), 422 (80.4%) responded the question on the use of language in SMS whereas 103 (19.6%) remained as non-respondents.

Regarding this concern, out of the total 525 respondents, 182 (43.1%) use the SMS language in accordance with their choices. Their choices are determined by their knowledge and skills they have in language. They use Nepali, mother tongue and English as per they have their knowledge, skill and interest. Out of the total 525 respondents, 182 (43.1%) use the SMS language in accordance with their choices. The remaining 103 (19.6%) respondents did not respond the question.

More than one-third of the respondents use English language while sending SMS. One-fifth of the respondents uses Nepali language in Roman letter. Some of them (43.1%) use either Nepali or English Roman letter while sending SMS to their relevant persons and others. The data reveal that the parents prefer to use either Nepali or English language though some of them use Roman letter in both.

Table 4.32: Distribution of the Responses of the Respondents on the Use of Language in SMS

SN	Respondents	Easy to use English language	Do not know other language	My own choice (Nepali and English)	Total
1.	**Parents**				
	Total Respondents	155	85	182	422
	Percent	36.7	20.1	43.1	100
	Non-respondents (%)	19.6	19.6	19.6	19.6
2.	**School Personnel**				
	Total Respondents	122	15	135	272
	Percent	44.9	5.5	49.6	100
	Non-respondents (%)	2.2	2.2	2.2	2.2
3.	**District Educational Personnel**				
	Total Respondents	12	1	14	27
	Percent	44.4	3.7	51.9	100
	Non-respondents (%)	-	-	-	1 (3.6)

Some of them (36.7%) who can write and read English use English language. They added that English as the software of mobile phone so that they use this language. They also feel that it is easy them to use English language in the form of either English text or Roman letter while sending SMS.

A few of them (20.1%) use Nepali to send SMS as they do not know other languages such as English and script of mother tongue. This indicated that the knowledge and skills of the parents and software of the mobile phone determine what type of language the parents prefer

to use while sending SMS. Regarding the use of language in SMS, there is a high potentiality of using either English or Nepali language. However, some of the parents should be trained in using language in SMS through literacy class.

School Personnel

The language of SMS can be any language depending upon the needs and context of the community. Generally, in the context of Nepal, people use Nepali, English and mother tongue while sending SMS to others as per their convenient. Regarding this, the respondents were asked to reflect their preference to the language while sending SMS to their relevant persons and others. The education personnel were asked to specify the reasons of choosing language for SMS. Regarding this theme, out of the total 281 respondents, 272 (96.8%) responded the question whereas 9 persons (2.2%) were non-respondents.

Some of them (44.9%) who can read and write English have been using English language for SMS. They added that English as the software of mobile phone. They also feel that it is easy them to use English language as either English term or Roman letter while sending SMS. A few of them (5.5%) use Nepali language in Roman letter to send SMS as they do not know other languages such as English and script of mother tongue. About half of the respondents (49.6%) preferred to use language either Nepali or English depending on their choice or as per their convenient. The percent of using English language for SMS is also nearest to the half of the respondents. About half of the total respondents (49.6%) expressed that they have been using either English or Nepali language according to their convenient. This indicated that the knowledge and skills of the school education personnel and software of the mobile phone determine what type of language they prefer to use while sending SMS. Regarding the use of language in mobile phone, there is a high potentiality of using either English or Nepali language. However, some of the parents should be trained in using language in SMS through literacy class.

DEO Personnel

The language of SMS can be any language depending upon the needs and context of the community. Generally, in the context of Nepal, people use Nepali, English and mother tongue as per their convenient while sending SMS to others. Regarding this, the respondents were asked to reflect their preference to the language while sending SMS to others. The district educational personnel were asked to specify the reasons of choosing language for

SMS. Regarding this theme, out of the total 28 respondents, 27 (96.4%) responded the question whereas one person (3.6%) was non-respondent.

Some of them (44.4%) who read and write English were found using English language for SMS. They added that English as the software of mobile phone so that they use this language. They also feel that it is easy them to use English language as either English term or Roman letter while sending SMS. About half of the respondents (51.9%) preferred to use language either Nepali or English depending on their choice or as per their convenient. The percent of using English language for SMS is also nearest to the half of the respondents. About half of the total respondents (44.4%) expressed that they have been using either English or Nepali language according to their convenient and they feel that English is easy to use while sending SMS to relevant persons and others. This indicated that the knowledge and skills of the education personnel and software of mobile phone determine what type of language the district education personnel prefer while sending SMS. Regarding the use of language for SMS, there is a high preference of using either English or Nepali language in terms text or Roman letter.

Consolidation

The majority of the respondents have been using Nepali language in *Roman* text while sending SMS through their mobiles. The data indicated that there is a variation of the use of language while sending SMS. There is a higher preference to Nepali language followed by English while sending SMS. Thus, either Nepali or English language should be used in SMS while using mobile phone for education and reading promotion purpose.

4.3.9 Number of SMS sending to relevant Persons

The distribution of the responses of parents and personnel of school and District Education Office on number of SMS sending to the relevant persons is given in the Table 4.33.

Parents

The parents were asked to what extent they send SMS to the relevant persons as per need. Regarding this concern, out of the total 525 respondents, 386 responded this question whereas 139 (26.5%) remained as non-respondents. More than two-third of the respondents send one message per week whereas a few of them (23.1%) have been sending seven SMS per week. More than two-third of the respondents (68.9%) used to send SMS once a week as per their need. Therefore, the parents used to send SMS to others as per their need. This means that if the parents realize the need of sending SMS to others they were found ready for

this purpose. So, the parents were found realized the need of using their mobiles to send SMS to school management to monitor the progress and learning difficulties of their children.

Table 4.33: Distribution of the Responses of the Respondents on the Number of SMS sending to relevant Persons

SN	Respondents	More than 10 message/week	On the average 7 message/week	One message /week	Total
1	**Parents**				
	Total Respondents	31	89	266	386
	Percent	8.0	23.1	68.9	100
	Non-respondents (%)	26.5	26.5	26.5	26.5
2.	**School Personnel**				
	Total Respondents	39	110	107	267
	Percent	15.2	43	41.8	100
	Non-respondents (%)	8.9	8.9	8.9	8.9
3.	**DEO Personnel**				
	Total Respondents	10	14	4	28
	Percent	35.7	50	14.3	100
	Non-respondents (%)	-	-	-	-

School Personnel

The education personnel were asked to what extent they have been sending SMS to their relevant persons and others through their mobile phone. Regarding this theme, out of the total 281 respondents, 256 (91.1%) responded this theme whereas 25 (8.9%) remained as non-respondents.

The data indicated that only a few percent (15.2%) of the respondents have been sending more than ten messages a week. The percent of sending SMS around seven messages and one message per week is very nearest (43 to 42 %). The data indicate that the education personnel are ready to send SMS using their mobile phone to others around seven messages per week. Therefore, there is need of encouraging the education personnel to use mobile phone to send SMS to the parents and other concerned persons.

DEO Personnel

The district education personnel were asked to what extent they have been sending SMS to others through their mobile phone. Regarding this theme, all the 28 respondents responded this theme.

The data indicated that only a few percent (14.3%) of the respondents have been sending more than ten messages a week. The percent of sending SMS around seven messages per week is 50 which is the half of the total respondents. The percent of the respondents sending

more than 10 messages a week is 35.7 which is more than one-third of the respondents. There is a minimum percent of the respondents (14.3%) who have been sending SMS once a week only as per their need. Therefore, there is need of encouraging the DEO personnel to use mobile phone to send SMS for education purpose and promotion of early grade reading of children. However, the data revealed that there is a high possibility of using mobile phone for education and promotion of reading of early grade through a continuous encouragement of the relevancy of mobile phone for educational purpose and reading promotion of early grade children.

Consolidation

The data reveal that the number of SMS sending to the relevant persons depends upon their need and willingness. However, the respondents were found realized the need of using their mobiles to send SMS to school management to monitor the progress and learning difficulties of their children and monitoring of school progress. This indicates that there is a high possibility of using mobile phone for education and promotion of reading of early grade through a continuous encouragement of the relevancy of mobile phone for education purpose and reading promotion of early grade children.

4.3.10 Communication through Mobile Phone

The responses of parents and personnel of school and DEO on the communication through cell phone are as given in the Table 4.34

Table 4.34 Distribution of the Responses of the Respondents on Communication through Cell Phone

SN	Respondent	Rating Scale (score in percent)				
		SD	D	NA/DA	A	SA
1.	**Parents**					
	Total score (%)	18.3	59.9	42.0	270.4	209.6
	Mean score (%)	3.1	9.9	7.0	45.1	34.9
	Combined Mean score (%) in point scale	13.0			80.0	
2.	**School Personnel**					
	Total score (%)	5.9	19.7	26.6	256.2	292.8
	Mean score (%)	0.98	3.3	4.4	42.7	48.8
	Combined Mean score (%) in point scale	4.3			91.5	
3.	**DEO Personnel**					
	Total score (%)		24.9	7.2	213.7	354.1
	Mean score (%)	-	4.2	1.2	35.6	59.0
	Combined Mean score (%) in point scale	4.2			94.6	

Parents

The use of the cell phone for communication consisted of six items related to communication to each other using cell phone. The total respondents to these six items were 525. The non-respondents vary with respect to each item and their percent. Almost all parents (80.0%) were found interested and ready to communicate to teachers, friends and relatives using SMS. They are ready to use SMS to communicate the progress and learning difficulties of their children to school management as well. A few of them (13 %) were found that they did not agree to send SMS to communicate to the relevant persons as per need. However, majority of the parents were found ready to use SMS for their personal and educational purposes as per their need.

School Personnel

The use of cell phone for communication consisted of sub-themes that are receiving SMS from parents, sending SMS to parents for communicating children's progress, communication to friends and relatives, means of communication to others and sending messages of invitations, greetings, secret codes to relatives, friends and guests.

Almost all the respondents (91.5%) have a strong preference on the use of cell phone for communication for different purposes that included sending the messages to parents, relatives, friends and guests and monitoring of the activities of school. Thus, the data indicated that they have a high preference of using cell phone to education purpose, early grade reading promotion and their relevant daily activities to save their time.

DEO Personnel

Mobile phone is as a tool of communication to each other as per need for different purposes. With a view to identifying the attitude of DEO education personnel, they were asked about the use of mobile phone for communication. The use of mobile phone for communication consisted of different sub-themes that are use of SMS for monitoring children's learning progress, sending SMS to teachers to understand their children's learning status and difficulties, communicating friends and relatives using SMS, using SMS for most of the communication in their daily life for saving time and using mobile phone to send invitations, greetings, secret codes over mobile phones to friends, relatives and other people as per need.

Almost all district education personnel (94.6%) were found interested to communicate learning progress of their children to school management, teachers, and parents using cell phone only. They have using mobile phone in their daily life for different purposes that

include an efficient use of time and effective communication to relative and school management as per need. A few of them (4.2%) were found reluctant to use mobile phone due to lack of adequate knowledge of using mobile phone and understanding of its relevancy to their daily life and education purposes. This indicated that cell phone is popular amongst school personnel. They were found ready to support to use the cell phone for early grade reading promotion and education purposes of their children.

Consolidation

The respondents have been using mobile phone in their daily life as per need for making an efficient use of time and effective communication to relative and school management. The data indicated that use of cell phone for calling, receiving call and sending SMS is popular amongst all type of the respondents. They were found ready to expand the use of mobile phone and SMS for early grade reading promotion and education purposes of their children and strengthening the communication between the relevant persons of the community, school and DEO personnel.

4.3.11 Monitoring Children's Learning Progress through SMS

The responses of parents and personnel of school and DEO on the monitoring of children's learning progress through SMS are as given in the Table 4.35.

Table 4.35: Distribution of the Responses of the Respondents on Monitoring of Children's Progress through Cell Phone

SN	Respondent	Rating Scale (score in percent)				
		SD	D	NA/DA	A	SA
1.	**Parents**					
	Total score (%)	22.6	46.4	43.7	191.7	105.5
	Mean score (%)	3.2	11.6	10.9	47.9	26.4
	Combined Mean score (%) in point scale	14.8			74.3	
2.	**School Personnel**					
	Total score (%)	6.6	27.4	36.5	215.1	114.3
	Mean score (%)	1.7	6.9	9.1	53.8	28.6
	Combined Mean score (%) in point scale	8.6			82.4	
3.	**DEO Personnel**					
	Total score (%)	3.6	14.5	21.8	198.1	161.8
	Mean score (%)	0.9	3.6	5.5	49.5	40.5
	Combined Mean score (%) in point scale	7.5		3.6	90.0	

Parents

The parents were asked whether they use their mobile phone for monitoring children's progress or not. The theme consisted of four items that are related to monitoring of children's progress using mobile phone. The respondents were 525 whereas there were some non-respondents as well with respect to item. Most of them (74.3%) were preferred to send SMS to school personnel to monitor the progress of their children. Regarding this, a few of them (14.8%), were not ready to use SMS to monitor their children's progress. However, the data indicated that the parents have initiated to use SMS to monitor the learning progress of their children by communicating to school management and teachers

School Personnel

The monitoring of children's progress in learning in schools included the sub-themes that are monitoring children's progress, communication of children's learning progress and difficulties, arrangement of meeting of parents and teachers, contact the parents through SMS for discussion of children's educational purpose. Almost all respondents (82.4%) agreed that SMS can be used for monitoring children's progress using mobile phone and communication of relevant activities of daily life. Only a few of them (8.6%) were not positive to other strategy. For them, there is need of orientation on the relevancy of the using mobile phone for daily life and educational purposes.

DEO Personnel

The monitoring by the DEO education personnel consisted of the subthemes that are use of mobile phone for monitoring of children's learning progress and difficulty to learn, school's overall progress and sharing of information, communication with parents for informing their children's progress and learning difficulties, fixing time to meet teachers to discuss about their children's learning and different concerns of school and education.

Most of the district education personnel (90.0%) indicated the preference to monitor the learning progress and difficulties of their children using mobile phone. They have been using mobile phones to communicate to schools management and teachers to understand the learning of their children. A few of them (7.5%) were not ready to use mobile phone for monitoring of their children's learning progress and difficulty and communication of the matters related to children to school management and teachers. They need encouragement from Ministry of Education and District Education Office to use mobile phone for monitoring children's learning and difficulty to learn. Thus, there is a high prospective to initiate the use

of mobile phone for monitoring the children's learning, especially for developing reading habit and skills of children and communication between education personnel and school management for better learning and promotion of early grade reading of children.

Consolidation

All the respondents have been using mobile phones to some extent to communicate to schools management and teachers to understand the situation of school as well. Thus, there is a high prospective to initiate the use of mobile phone for monitoring the children's learning, especially for developing reading habit and skills of children and communication between education personnel and school management for a better learning and promotion of early grade reading of children.

4.3.12 Expenses on Cell Phone

The responses of parents and personnel of school and DEO on the expenses on cell phone are as given in the Table 4.36.

Table 4.36: Distribution of the Responses of the Respondents on the Expenses on Cell Phone

SN	Respondent	Rating Scale (score in percent)				
		SD	D	NA/DA	A	SA
1.	**Parents**					
	Total score (%)	20.4	53.1	43.7	191.2	91.4
	Mean score (%)	5.1	13.3	10.9	48.0	22.9
	Combined Mean score (%) in point scale	18.4			70.9	
2.	**School Personnel**					
	Total score (%)	13.9	71.4	46.3	183.8	84.4
	Mean score (%)	3.5	17.9	11.6	45.9	21.1
	Combined Mean score (%) in point scale	21.4			67.0	
3.	**DEO Personnel**					
	Total score (%)	-	54.7	-	204.9	129.1
	Mean score (%)	-	13.7	2.8	51.2	32.3
	Combined Mean score (%) in point scale	13.7			83.5	

Parents

The parents were asked whether they are ready to pay the charge of cell phone for educational purposes in addition to their daily life or not. There were 525 respondents whereas some of them did not respond the items. Most of them (70.9%) were found ready to

pay the charge of the cell phone to educational purposes. However, a few of them (18.4%) were not ready to bear the charge of the cell phone. Thus, majority of the parents are ready to use cell phone for educational and daily life purposes.

School Personnel

The expenditure of the cell phone included affordable cost of cell phone, use of cell phone in educational purposes, paying the charge of cell phone for children's education purpose, charge to pay for networks for educational promotion of children.

Most of the respondents (67.0%) were happy to pay cell phone charges to send SMS for education purposes and promotion of early grade reading. They felt that it would help them to promote their profession as well. A few of them (21.4%) were not positive to pay the charge of cell phone to these purposes. So, there is need of providing the orientation to those who do not understand the relevancy of the cell phone in promotion of early grade reading and education. However, there is a high acceptance of the use of cell phone for education purposes that should be utilized and promoted with the support of Ministry of Education and concerned agencies.

DEO Personnel

The expenditure on mobile phone is a major factor in rural parts of Nepal to maximize the use of mobile phone in education sector. So, the service charges of the mobile phone need to be affordable by the parents and education personnel living in rural parts of Nepal. Regarding this, the education personnel were asked about the expenditure of mobile phone that was measured in terms of affordable charge and return of the value of money to them. Their attitude towards the charge of mobile phone helps to determine the use mobile phone for education purposes and promotion of early grade reading.

Most of the district education personnel (83.5%) were found ready to pay the charge required for cell phone to use for educational purpose for the children of early grades. A few of them (13.7%) were found reluctant to pay the charge SMS to use in educational purpose. Those who indicated the willingness to pay service charge of the cell phone, they felt that the charge should with the affordable cost. They realized that SMS encourages the children to learn and were found ready to afford the cost requires to download educational songs, videos, stories for facilitating the children’s learning and promotion of reading.

Consolidation

The majority of the respondents were found ready to use cell phone for educational and daily life purposes. The suggestion was that the service charges of the mobile phone need to be affordable by the parents and school personnel living in rural parts of Nepal. Those who do not have willingness they should be oriented to make them understand the relevancy of the cell phone in promotion of early grade reading and education. However, there is a high acceptance of the use of cell phone for education purposes that should be utilized and promoted with the support of Ministry of Education and concerned agencies.

4.3.13 Connectivity of Cell Phone

The responses of the parents and personnel of school and DEO on the efficiency of network of cell phone are given in the Table 4.38.

Table 4.38: Distribution of the Responses of the Respondents on Connectivity of Cell Phone

SN	Respondent	Rating Scale (score in percent)				
		SD	D	NA/DA	A	SA
1.	**Parents**					
	Total score (%)	20.4	77.8	69.9	223.5	108.5
	Mean score (%)	4.1	15.6	13.9	44.7	21.7
	Combined Mean score (%) in point scale	19.7			66.4	
2.	**School Personnel**					
	Total score (%)	13.3	69.6	94.8	220.0	102.2
	Mean score (%)	2.7	13.9	18.9	44.0	20.4
	Combined Mean score (%) in point scale	16.6			64.4	
3.	**DEO Personnel**					
	Total score (%)	7.4	51.6	33.2	273.4	134.3
	Mean score (%)	1.5	10.3	6.6	54.7	26.9
	Combined Mean score (%) in point scale	11.8			81.6	

Parents

The connectivity of cell phone consisted of connection of cell phone with others, sending the SMS without network failure, proper communication and availability of services. There was a total of 525 parents whereas some did not respond these items. Most of the parents (66.4%) indicated that they have good connectivity of cell phone in their communities of the sample

districts (Banke, Mustang and Kaski). A few of them (19.7%) were reported that they did not have good connectivity of cell phone in their communities. The data revealed that most of the parents can use their cell phone for communication of personal matter and education purposes.

School Personnel

The connectivity of the cell phone is essential to use the cell phone for education and daily life purposes. Regarding this, questions on the connectivity of the cell phone were asked. The questions were based on the subthemes that consisted of access on line, easy connection when needed, effective services for saving time and fulfillment of the requirements. Almost all respondents (64.4%) were found happy with the connectivity of the existing cell phone. A few of them (16.6%) disagreed with the connectivity of the cell phone. Thus, the existing connectively of the cell phone found helpful to use the cell phone for education and daily life purposes of the customers.

DEO Personnel

The connectivity of the cell phone is very essential that determines the use of cell phone as well. Easy connection, connection without network failure and excellent services were the subthemes that were used to measure the connectivity of cell phone. The education personnel were asked to reflect their attitudes towards the connectivity of the cell phone in their communities.

Most of the district education personnel (81.6%) expressed that the connectivity of the existing service of the mobile phone is excellent and can be connected easily. A few of them (11.8%) felt that the connectivity is poor and felt the need of improvement for the efficient use of cell phone. This could be the situation in some remote communities in the sample districts. However, the data indicated that there is a good connection in most of the communities in the sample districts. The connectivity is supportive to use mobile phone for educational purposes.

Consolidation

The existing connectively of the cell phone found helpful to use the cell phone for education and daily life purposes of the customers. Those who were found dissatisfied with the connectivity of the cell phone are generally from remote location. However, the data indicated that there is a good connection in most of the communities in the sample districts. The connectivity is supportive to use mobile phone for educational purposes in these districts.

4.3.14 Readiness for the use of SMS on School Information

The distribution of the responses of the parents, school personnel and District Education Personnel are given in the Table 4.39.

Table 4.39: Distribution of the Responses of the Respondents on Readiness for School Information Sharing through SMS

SN	Respondents	Parents		School Personnel		DEO Personnel	
		Yes	No	Yes	No	Yes	No
1.	Total Respondents	525		281		28	
1.1	Actual Respondents	488		272		27	
2.	Total Cumulative Respondents	3190	229	1709	194	177	16
3.	Total Average Respondents	456	33	244	28	25	3
3.1	Percent	93.3	6.7	86.8	9.9	90.3	10.7
4.	Non-respondents	37		9		1	
4.1	Percent	7.1		3.2		3.6	

Parents

With regard to the readiness to monitor the children's learning progress and reading practice in home, the parents were inquired to what extent they have been using SMS for this purpose. The data revealed that almost all parents (93.3%) have been sending and receiving SMS about the school information on the activities listed above through SMS using their mobiles. This is an encouraging ground that parents have already initiated to use mobile phone to communicate school management and teachers about their children’s learning progress and difficulties. They have been receiving the information from the school as well. Further, it is obvious that there is necessity to promote the parents’ existing practices of using mobile phone effectively for promotion of the early grade reading and overall monitoring of their children's education progress and learning difficulties.

School Personnel

With regard to the readiness to monitor the children's learning progress and reading practice in home, the education personnel were inquired to what extent they have been using SMS for this purpose.

The data revealed that almost all education personnel (86.8%) have been sending and receiving SMS about the school information on the activities listed in the table above through SMS using their mobiles. A few of them (9.9%) did not use SMS for receiving and sending school information. This is an encouraging ground that parents have already initiated to use

mobile phone to communicate school management and teachers about their children's learning progress and difficulties. They have been receiving the information from the school as well. Further, it is obvious that there is necessity to promote the parents' existing practices of using mobile phone effectively for promotion of early grade reading and overall monitoring of their children's educational progress and the activities of school as well.

DEO Personnel

With regard to the readiness to monitor the children's learning progress, school activities and reading practice in home, the district education personnel were inquired to what extent they have been using SMS for this purpose. The total respondents for this concern were 28 whereas one them remained as non-respondent. A total of 27 respondents (96.4%) responded the items related to their readiness to send and receive SMS through their mobiles.

Almost all respondents (90.3%) were found positive to send and receive SMS through their mobile phone about the information of schools. The details of the school information are listed in the above table. Only a few respondents (5.7%) were not ready to use their mobile phone for this purpose. Further, it is obvious that there is necessity to promote the parents' existing practices of using mobile phone effectively for promotion of reading and overall monitoring of their children's education progress and the activities of school through a frequent contact with school management and teachers in schools. This is a very positive indication of the possibility of using mobile phone for reading promotion, practice and education purposes for better education.

Consolidation

The data indicated that there is an encouraging ground that all respondents have already initiated to some extent to use mobile phone to communicate school management and teachers about their children' learning progress and difficulties. They have been receiving the information from the school as well. Further, it is obvious that there is necessity for developing a systematic approach to promote the existing practices of using mobile phone effectively for promotion of early grade reading and overall monitoring of their children's education progress and school activities.

4.3.15 Reading Promotion and Practice

The responses of the parents and personnel of school and DEO are given in the Table 4.40.

Table 4.40: Distribution of the Responses of the Respondents on Reading Promotion and Practice

SN	Respondent	Rating Scale (score in percent)				
		SD	D	NA/DA	A	SA
1.	**Parents**					
	Total score (%)	12.2	42.3	50.4	326.2	168.9
	Mean score (%)	2.0	7.1	8.4	54.4	28.2
	Combined Mean score (%) in point scale	9.1			82.6	
2.	**School Personnel**					
	Total score (%)	1.9	13.5	24.7	249.9	210.1
	Mean score (%)	0.4	2.7	4.9	49.9	42.0
	Combined Mean score (%) in point scale	3.1			91.9	
3.	**District Educational Personnel**					
	Total score (%)	-	17.9	14.3	203.6	264.3
	Mean score (%)	-	3.6	2.9	40.7	52.9
	Combined Mean score (%) in point scale	3.6			93.6	

Parents

The parents were asked whether they are interested to use their cell phone for the promotion of reading of their children. This theme consisted of five items related to the use of cell phone for reading and education purpose for their children. There were 525 respondents whereas a few of them did not respond the items. Almost all of them (82.6%) were found eager to use their cell phone for reading and education purposes of their children. A few of them (9.1%) were not enthusiastic for this. This is encouraging that almost parents were found keen to use cell phone for educational purposes. Thus, cell phone could be utilized for reading promotion and educational purposes of their children.

School Personnel

The reading promotion is related to early grades that need reading practice by children and support from their parents and educational personnel. Regarding this, the subthemes on the reading practice were developed that consisted of encouragement for children to use toll free numbers to listen education songs and stories, use of cell phone to download educational videos, songs for children reading progress, on line connection for reading purpose, use of SMS for sharing school information between parents and school management and educational and daily life purposes,

Almost all the respondents (91.9%) expressed that they have willingness to use mobile phone to promote reading habit and developing reading skill of their children. A few of them (3.1%) were found that they did not have such willingness. However, the data revealed that mobile phone can be used for developing reading habit and skills of the early grade children. This indicated the highest support to use mobile phone for the promotion of early grade reading and education purposes.

DEO Personnel

The reading practice of early grades consisted of the subthemes that are the information about the way in listening education songs, stories from cell phone, willingness to download teaching aids like educational videos, songs for student learning purpose, to use online contents for reading practice of early grade students and receiving information from school management, teachers, relative and friends and replying them.

Almost all district education personnel (93.6%) showed their interest to monitor the education progress of children and reading practice of early grade children. Only a few of them (3.6%) were not positive to use SMS to monitor the progress of the early grade children. Majority of the educational personnel were enthusiastic to use mobile phone for education purposes of their children that include promotion of reading habit and skill of children, monitoring school status and communication amongst DEO education personnel and school management with a view to efficient management of time.

Consolidation

Almost all respondents were found keen to use cell phone for education purposes, monitoring school status and communication amongst district education personnel and school management (head teacher and teachers) with a view to efficient management of time. Thus, cell phone could be utilized for reading promotion and education purposes of their children that include promotion of reading habit and skill of children.

4.3.16 School Information Sharing

The responses of the parents and personnel of school and DEO on the school information sharing are given in the Table 4.41

Parents

The school information consisted of using SMS to get information from school and to reply to the school management as per need. There was a total of 525 parents whereas some of them did not respond the items.

Table 4.41: Distribution of the Responses of the Respondents on School Information Sharing

SN	Respondent	Rating Scale (score in percent)				
		SD	D	NA/DA	A	SA
1.	**Parents**					
	Total score (%)	5.8	19.0	17,8	99.9	57.7
	Mean score (%)	2.9	9.5	8.9	50.0	28.9
	Combined Mean score (%) in point scale	12.4			78.9	
2.	**School Personnel**					
	Total score (%)	1.4	19.1	20.2	98.7	60.6
	Mean score (%)	0.7	9.6	10.1	49.4	30.3
	Combined Mean score (%) in point scale	10.3			79.7	
3.	**DEO Personnel**					
	Total score (%)	3.6	3.6	10.7	75.0	103.5
	Mean score (%)	1.8	1.8	5.4	37.5	51.8
	Combined Mean score (%) in point scale	3.6			89.3	

Almost all parents (78.9%) were found interested to receive SMS about the school holidays and learning progress of their children. They are also ready to reply the schools as per need. Only a few of them (12.4%) were not ready for this. The data indicate a clear picture that parents are ready to use SMS to get information from the schools and replies to school management as per need. Thus, there is a high possibility to use mobile phone for educational purposes of their children.

School Personnel

The school information consisted of receiving information of children's learning progress, home assignment and chatting to share children's reading status and practices. Almost all respondents (79.7%) felt that they are happy to receive and provide the information from school and are ready to respond the query of schools about their children's education progress and status of reading as well. A few of them (10.3%) were not positive on this matter that is related to cost and inadequate knowledge of the relevancy of cell phone in their daily life.

DEO Personnel

The sharing of school information consisted of the sub-themes that are use of mobile phone to understand children’s education progress and to communicate education progress and issues related reading, learning progress and difficulty to school management and teachers.

Almost all districts education personnel were found enthusiastic to get school information through SMS from school management and teachers. They are also eager to send SMS to school management and teachers about their children progress and learning difficulties. They felt that these types of initiatives are relevant to communicate school information to parents as well. A few of them (3.6%) were not found ready to use mobile phone for these purposes. This is due to their inadequate knowledge and lack of understanding of the relevancy of mobile phone and its uses in their daily life and educational purposes and promotion of their children's education.

Consolidation

Almost all the respondents were highly positive to use mobile phone for sharing the school information. A few of the respondents were not positive to share school information by using mobile phone and SMS. This is due to their inadequate knowledge and lack of understanding of the relevancy of mobile phone and its uses in their daily life and education purposes and promotion of their children's education. However, the data indicate a clear picture that almost all the respondents are ready to use SMS to get information from the schools and replies to school management as per need. Thus, there is a high possibility to use mobile phone for educational purposes of their children.

CHAPTER 5: CELL PHONE STATUS AND APPLICATION IN GEOGRAPHICAL REGION

The sample districts of this study were Mustang (mountain), Kaski (hill) and Banke (Terai). These districts represent three Geographical Locations namely, Mountain, Hill and Terai of Nepal. The results from these districts provide the status, use and feasibility of cell phone in education promotion, especially for early grade reading of children. In these sample districts, two major operators Nepal telecom (NT) and Ncell have cellular mobile networks and services. Except these operators, there were not any other operators in Mustang district. However, other service operators like UTL and Smarttel have their networks in Kaski and Banke though their focuses were in the city and urban areas in these districts.

5.1 Cell Phone Status in Sample Districts

A brief description of the sample districts in terms of the availability of cell phone is given in the following sections with respect to the sample districts.

5.1.1 Mustang

In Mustang, Nepal Telecom (NT) has cell phone coverage almost in all areas of the district. There are around 470 landline connections with 224 ADSL connections, 17,000 GSM, 3,000 CDMA mobile and 150 WiMax subscriptions. However, active subscriber base has not been figured out in this district. Lower Mustang has connectivity through Microwave links whereas the upper mustang is connected through satellite. GSM network has 3G coverage in head quarter Jomsom and lower mustang. This district has been covered through 17 BTS towers. The upper Mustang has telephone and SMS service in GSM and CDMA networks. But these districts do not have Internet service due to bandwidth obtained through satellite connectivity. Therefore, bandwidth is a major limitation in upper mustang. Also, there is power problem in the district which is a common problem.

Ncell has coverage in Mustang district in more populated areas like Jomsom, Muktinath, Kagbeni, and Marpha, however district wide coverage is lacking.

To address the QoS issue in upper mustang transmission network with microwave links or optical fiber cable network should be extended. Also, OFC network should be extended in lower Mustang also to improve the QoS issue. These services shall facilitate the use of mobile phone for education promotion especially early grade reading in the district.

In overall, there is coverage of cell phone network in Mustang but not in its all communities. District headquarter of Mustang (Jomsom) has a better service availability from Nepal Telecom and Ncell though there is to some extent problem of network in countryside. This means that their service is not reliable in the district. In upper Mustang quality of network service is the main issue due to the network connection through satellite. In upper Mustang, especially all schools of Chhoser RC have problem of network services. Ncell does not have coverage in Chhoser RC. Problem in quality of service exists in Samarkhand, Churkhand, Ghey, &Nagnpa community. In upper Mustang CDMA (SKY) service is there and the problem of service exists in GSM network. One of the Resource persons mentioned that "Four BTS Towers" are needed in Charang, Chungsang, Ghami and Lomangthan to address the quality issue. In winter season, the problem becomes even severe due to storm and icefalls. Generally, service goes down when there is no electricity in the towers which are energized by solar panels in the district. Thus, there is need for improving the services of companies to make an effective network in this district. This will facilitate to use cell phone in the district for education promotion such as early grade reading through communication between parents and schools, and monitoring of schools using SMS.

5.1.2 Kaski

All Village Councils (VCs) of Kaski district has coverage with cell phone network and service. However, some of the hilly areas have limited coverage with cell phone network. The District has a reach of GSM coverage with 2G, 3G and 4G network depending upon the area. Pokhara-Lekhnath metropolitan city has 4G coverage. Urban and tourist destinations have 3G coverage. Remote rural areas have 2G coverage. Nepal telecom has been in operation with 25 (4G enabled) BTSs in core city of Pokhara, 70 (3G equipped) BTSs in urban and tourist destinations and 90 BTSs with 2G coverage in the district. There are almost 25 CDMA BTSs in operation. As most of the remote BTSs are energized through solar energy, common problem appears uncertain solar power supply fluctuating during rain, and snow. There were almost 450K GSM, 7K CDMA subscriptions whereas active subscriber count could not be obtained. Band width had no issue due to fiber connectivity and microwave connectivity throughout the district. Ncell has coverage in the district in all areas. Ncell has 3G network enabled in the city. Ncell had planned to upgrade all BTSs with 3G within 2018.

In summary, there is a good coverage of cell phone networks in Kaski district. Sometimes problem occurrence was reported to the service providers. One of the resource persons

reported that "In Ulleri&Munja village Ncell's service quality is better than NT whereas in Lwang NT service is better than Ncell". 3G service has been better in city only but not in the villages. Poor service was reported there in some areas of Hadikhola-Madi, Rupa, Virda, and Syastri villages. Quality improvement is needed. Respondents reported major problem like call cut, disturbance during a call. Also, they mentioned that data service of Ncell is better than NT. In some areas there was no coverage during electricity load shedding.

5.1.3 Banke

All village councils have coverage of cell phone network and QoS issue was reported in some areas. Nepal telecom service team reported that "Complete service absence was not observed in last one year but depending upon the site accessibility from the maintenance view, sometimes outage may occur in the villages far from the city". District has been covered through almost 40 BTSs sites. There are above 150k subscriptions reported so far in the district by Nepal telecom only. Ncell also has a good coverage throughout the district. 3G coverage of both operators was also present in core city of Nepalgunj and Kohalpur. There is not a problem of QoS. No service outage was reported in the city.

Normally, coverage was present across Banke with GSM network of Nepal Telecom and Ncell but quality issue was reported. In remote village areas, the coverage was found very poor. The areas beyond Rapti River in Bagaudi had problem. Inside houses, coverage was found poor and people need to come out from the house to communicate properly. The areas like Sikkharpur, Bhangstana, Jungali, Singpurwa, Kusom, Garghet, Patehiya, Hiranyapur, Holia coverage needed improvement. General problems were reported about tower (signal) problem and poor QoS resulting in call cut and disturbance during a call. However, there was no response by cell phone service providers about the poor services on such frequent termination of networks.

5.2 Presence of Operator in Geographical Region

The presence of the cell phone operator in geographical regions plays an important role to expand cell phone service coverage in the geographical region and application in education and development sectors. Based on the cell phone with parents of early grade the availability of mobile phone service as per the service providers in the districts are given in the Table 5.1.

Table 5.1: Distribution of Telecom Service Providers in Geographical Region

Geographical Region	Nepal Telecom (NT)	Percent	Ncell	Percent	NT and Ncell	Percent
Mountain	107	88.4	1	0.8	13	10.7
Hill	43	19.2	166	74.1	13	5.8
Terai	25	15.3	119	73.1	18	11.0
Total	**175**	**40.9**	**286**	**49.3**	**44**	**9.2**

The data reveal that Nepal Telecom (88.43%) coverage is highest in mountain areas of Nepal though the share of Ncell is to some extent. In hill district, Ncell has a wider coverage (74.11%) compared to the Nepal Telecom. Ncell has a better coverage (73.1%) in the Terai region of Nepal. However, there is a joint coverage of Nepal Telecom and Ncell to some extent in all geographical regions of Nepal. Their range of coverage varies from 5.8 to 10.7 percent with respect to geographical regions. In overall, the coverage of Nepal Telecom is about 41 percent whereas of Ncell is 49 percent and their joint coverage is 9.2 percent in Nepal.

As per the distribution of data in above table in parents' group, Ncell users are high in Hill and Terai than Nepal Telecom users. In contrast Nepal telecom users are high in mountain than Ncell users. A significant number of parents above 10% in average use dual network service.

Thus, the data reveal that the services of both Nepal Telecom and Ncell need to be utilized to use mobile phone for the promotion of education and early reading in Nepal. There is possibility of utilizing their support as well if application of mobile phone is planned to use in education development in Nepal.

5.3 Perspective of Cell Phone in Geographical Region

The accessibility covered from the perspective of possession of cell phone and its type, connectivity and affordability as well as interest to use cell in promotion of early grade reading and education in community. The accessibility of cell phone to teaching people (Head teachers, teachers, Community mobilization officer, Reading Motivators) and District Education Personnel (District Education Officer, School Supervisor, Resource Person, District Coordinator, Technical Officer of District Education Office) and parents belonging to early grade children (Grades 1-3) and other ordinary people in the communities in the sample districts have been covered in this study.

5.3.1 Perspective of Parents on Cell Phone Application

The perspective of parents on cell phone application was measured and interpreted and described in terms of main and subthemes in this section. The key themes of the data are existing SMS gateway application and cell phone use, approach of cell phone application, SMS monitoring of the children's learning of early grades, use of mobile phone application, cost of mobile phone application, language in use in SMS and strategy for the use of mobile phone for education promotion such as early grade reading and sharing of the school information from school management to parents. The attitudes of the parents were measures on the use of mobile phone application in terms of subthemes that consisted of information, interest, usefulness, preference, quality of network connection. The interpretations of the data on the main and subthemes obtained from the parents data are described in this section.

5.3.1.1 Possession of Cell Phone with Parents

Out of total 522 parents, 517 (93.7%) of them reported that they have their own mobile phone whereas 6.6 percent parents do not have their own mobile phone. Out of the total parents 508 (80.7%) mentioned that their spouses also possess his/her own mobile phone. The family members are the brother or sister of the early grade children in the same family. This study showed that almost all parents (80%) that include father and mother both have their own mobile phone. The distribution of the responses of the parents by the geographical region is given in the Table 5.2.

Table 5.2: Distribution of Parents having Cell Phone by Geographical Region

District	Rating Scale				Total (%)
	Yes	Percent	No	Percent	
Mustang	120	96	5	4	125 (24.2)
Kaski	217	97.7	5	2.3	222 (42.9)
Banke	146	85.9	24	14.2	170 (32.9)
Total	**483**	**93.4**	**34**	**6.6**	**517** (100)

The parents who do not own mobile phone mentioned that they use husband's mobile phone or other family member's mobile phone like son, or brother in law. It was found that only a few of the female parents do not have their own mobile phone. The data indicated that almost all parents either father or mother has at least one mobile phone in home. Thus, there is a high possibility to use mobile phone for educational purpose of early grade children such as promotion of early grade reading and developing reading culture at home.

Case 1: Status of male and female having mobile phone

An in-depth analysis of 6.6 percent of parents including male and female was carried out to understand the situation of the male and female parents having mobile phone. The analysis of this data on parents (6.6%) identified that its composition was 2.3 percent male and 4.3 percent female. This revealed that more females did not have their own mobile phone compared to the male in the sample districts.

Case 2: Mobile Phone with Ethnicity/Caste

The data of 6.6 parents consisting of father and mother by geographical region who did not have their mobile phone were further analyzed to understand status of mobile phone by ethnicity/caste. It was found that out of them (6.6%), 3.3 percent belonged Banke (*Terai*) region, 2 percent to Mustang and 1.3 percent represent Kaski district. Further analysis of 2 percent of data, it was identified that they were from *Dalit* community in Mustang residing in Thansang Dampu. The data of other districts indicated mixed of different ethnicity/castes.

Out of 517 parents, 11 parents (2.13%) were found that they did not have their cell phone. Amongst the sample parents in of Banke, it was found that 9 parents both father and mother did not have cell phone. Out of 170 parents in Banke, it was found that only 9 (5.29%) parents both father and mother did not have their mobile phone. However, all the parents representing either father or mother have their own cell phone in Kaski district. This indicated that the availability of mobile phone, its access and application depend on the development status of the district and community as well.

5.3.1.2 Possession of the Type of Cell Phone with Parents

There are three types of cell phone that are Bar Phone, Feature Phone and Smart Phone which is in used. The responses of a total of 496 parents regarding type of cell phone they have with respect to the geographical regions are given in the table below:

Table 5.3: Distribution of Type of Cell Phone with Parents by Geographical Region

District	Types of Cell Phone						Total
	Bar Phone	Percent	Feature Phone	Percent	Smart Phone	Percent	
Mustang	26	22.8	36	31.6	52	45.6	114
Kaski	47	21.4	47	21.4	126	57.3	220
Banke	80	49.4	34	21.0	48	29.6	162
Total	153	30.8	117	23.6	226	45.6	496

The occupancy of Bar Phone, Feature Phone and Smart Phone are 30.8 percent, 23.6 percent and 45.6 percent respectively. The pattern of the use of Bar Phone and Feature Phone is much closer to each other. The use of the Smart Phone is nearly half of the total respondents in the geographical regions. The use of the Bar Phone in Kaski is the highest (49.5% whereas Smart Phone in Mustang is highest (57.3%). In Banke, the use of Smart Phone is highest (45.6%). Though there is the highest (57.3%) use of Smart Phone in Mustang followed by Feature Phone.

The data revealed that majority (45.6%) parents have smart phones, followed by 30.8% have bar phone, and 23.6% have feature phone. In three sample districts 49.4% parents of Banke reported that they have bar phone.

Thus, there is use of all types of cell phone though the use of Feature Phone and Smart Phone is highest. This data is supportive to use cell phone in promotion of education and early grade reading in all geographical regions of Nepal.

5.3.1.3 Parents' Choice of Telecom Service Providers

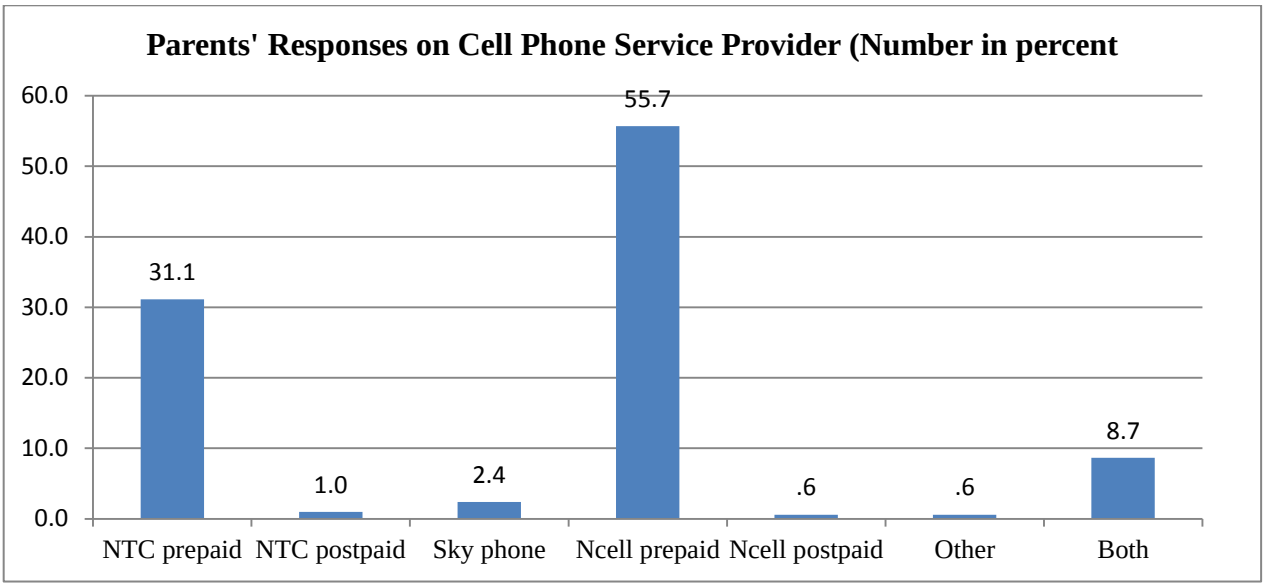
NTC prepaid and NTC Postpaid services are GSM based cell phone service of Nepal Telecom. Nepal Telecom has also Sky phone which is CDMA technology based cellular mobile service. Other service providers are the dual service of Nepal Telecom and Ncell. There were 525 parents to respond the choice of cell phone services in geographical region. Out of them, a total of 508 parents responded the question on service providers. The distribution of the service providers of the cell phone selected by the parents is given in the table below:

Table 5.4: Distribution of Choice of Telecom Service Providers by Parents

District	NT prepaid	NT postpaid	Sky phone	Ncell prepaid	Ncell post paid	Other	NT &Ncell Both	Total
Mustang	95	5	7	1	0	0	13	**121**
Kaski	41	0	2	165	1	2	13	**224**
Banke	22	0	3	117	2	1	18	**163**
Total	**158**	**5**	**12**	**283**	**3**	**3**	**44**	**508**

The distribution of selection of telecom service providers by parents in term of percentage is shown in Figure 5.1.

Figure 5.1: Distribution of the Parents' Response on Telecom Service Providers



The data indicate that there is high preference of the parents (55.7%) on Ncell prepaid followed by NTC prepaid (31.1%). There is very low preferences to NTC post-paid, Ncell post-paid and sky phone.

The above data indicate that majority parents 56.3% are having Ncell SIM only and 8.7% are having dual SIMs in their mobile constituting 65% parents having Ncell as their service provider. Excluding 0.6% others, rest of the parents are Nepal Telecom and Ncell users. This means that the availability of cell phone in terms of telecom service providers is dominated by two operators Nepal telecom and Ncell constituting a duopoly market. This has an implication on cost issue and ultimately affordability of cell phone for education purpose in the school and community.

5.3.2 Parents' Monthly Expenses on Cell phone

Out of 525 parents, 505 of them provided their monthly expenses on cell phone. The distribution of the monthly expenditure of the parents is given in the Table 5.5.

In the mountain region, more than one-third of the parents (37.2%) spend maximum NPR 300 per month. Some of the parents (30.6%) spend maximum NPR 500 per month as well. If the range of the expenditure was taken NPR 101 to 500, more than fifty percent of the parents (67.8%) can afford the expenditure of mobile phone in between NPR 101 to 500. The percent of the parents (14.9%) who spend more than NPR 500 is minimal in the mountain region of Nepal.

Table 5.5: Distribution of Parents' Monthly Expense on Cell Phone by Geographical Region

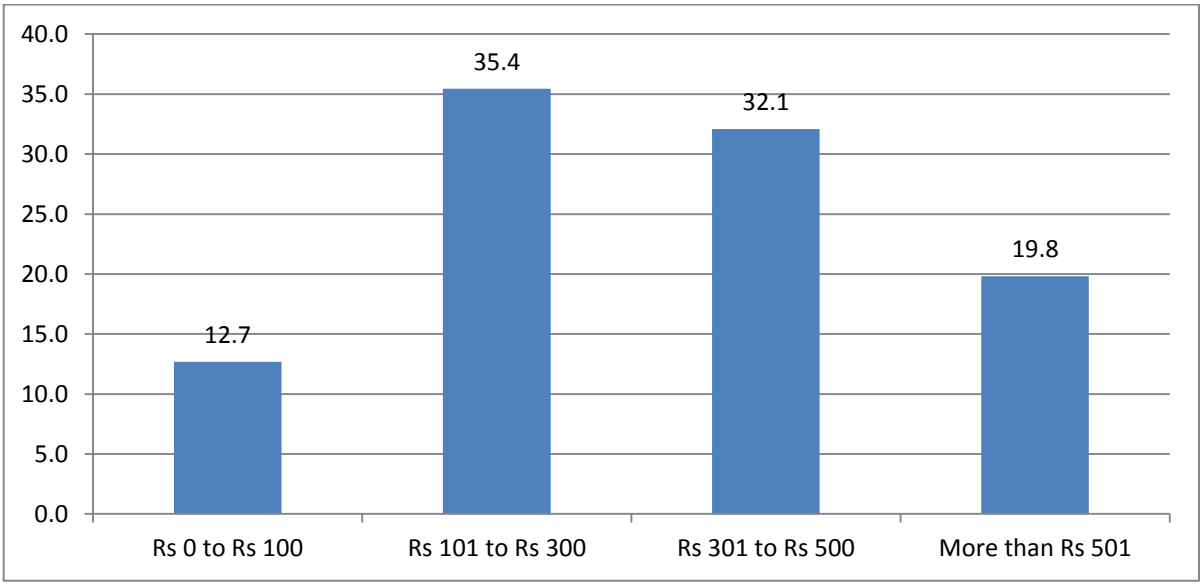
Geographical Region	Mean Score on Parents' Monthly Expenses (NPR) (Number in parenthesis indicate percent)				Total
	NPR 0 - 100	NPR 101 - 300	NPR 301 - 500	NPR 500 and above	
Mountain	21 (17.4)	45 (37.2)	37 (30.6)	18 (14.9)	121
Hill	34 (15.2)	75 (33.5)	70 (31.3)	45 (20.1)	224
Terai	9 (5.6)	59 (36.9)	55 (34.4)	37 (23.1)	160
Total	64 (12.7)	179 (35.4)	162 (32.1)	100 (19.8)	505

Regarding the hill region, the pattern of the expenditure on mobile phone by the parents is very similar to the mountain region. The data revealed that 64.8 percent of the parents' expenditure lies in between NPR 101 to 500 are 64.8 percent which is lower than the expenditure of the parents in mountain region though they are very close. In the case of Terai region, the range of expenditure on mobile phone by parents is 71.3 percent which is the highest in the geographical region. This indicated that the expenditure on mobile phone of the parents belonging to Terai region is higher compared to the parents of mountain and hill regions. The data indicate that the majority of the parents indicated that affordability range of expenditure on mobile phone should be in between NPR.100 to 500 per month.

The above figure shows that the affordability range of majority 67.5% parents is from NPR. 100 to 500 per month in mobile phone while a significant percentage of 12.7% have monthly expenses below Rs 100.00. The parents in Terai region expense more money per month compared to Mountain and Hill.

The majority of the parents mentioned that they can pay up to NPR 300 for cell phone. However, more parents were found ready to pay up to NPR 500 per month on the use of mobile phone if it adds value to children's education. They mentioned that the inter-operator domestic call charges are still expensive. However, the charge of SMS is reasonable to them. They were found enthusiastic to use mobile phone either to call or SMS for education purpose and promotion of early grade reading of their children as this is the long-term investment to children.

Figure 5.2: Bar diagram of average monthly expenses of the parents on mobile phone (number in percent)



5.3.3 Cell Phone Application and SMS Use

Out of the total expected parents (525), 502 of them (97%) responded the questions on cell phone application and SMS use in their daily life and education purpose. They agreed the use of cell phone in their daily life as per need for communication though a few of them (3%) were not ready to use mobile phone. Moreover, 95 percent of the parents mentioned that they have been using cell phone to make calls by themselves though a few of them (5%) were not using cell phone.

Regarding the use of SMS, out of 489 parents responded the question. Out of them, 53.4 percent of the parents agreed to use SMS through their mobile. They have been receiving SMS and replying to others as per need. It was found that 46.2 percent of parents use their mobile for sending SMS to others as and when needed. However, more than one-third of the parents (38.7%) disagreed to use SMS. This is due to the lack of understanding value of SMS and communication mechanism.

5.3.4 Interest towards the Use of Cell Phone Application and SMS

Out of 495 respondents, 84 percent parents found that they were enthusiastic to use mobile phone as it has been an integral part of life. Regarding this, 8.1 percent of them did not accept as part of life to communicate their messages to others. Out of the total respondents (497), 88.7 percent agreed that they were interested to use their cell phone for children's learning process.

In addition to the above, out of total 491 parents, 71.7 percent agreed that they are interested to use SMS to communicate the learning progress of their children to others and to get information from school management and teachers as well to understand the learning status of their children. However, a few of them (19.6%) disagreed to communicate to school management and teaches about the learning progress and difficulty of their children.

5.3.5 Usefulness of Cell Phone Application and SMS

Regarding the usefulness of cell phone call and replies to the concerned persons, Out of 504 parents, 97 percent of them agreed that cell phone was highly useful to them to communicate with friends and relatives. Among 502 parents, 96.2 percent of them agreed that cell phone was highly useful to communicate about children's learning progress to school management and teachers and getting information from them through mobile phone. With respect to the efficiency due to the use of mobile phone, among 497 parents 90.1 percent of them felt that the use of the cell phone saved their valuable time and helped to get valuable information in time. Regarding the usefulness of SMS application for different purposes, out of 497 parents, 76.3 percent of them agreed that SMS could be very useful to monitor children's learning progress and communication to school management and teachers about their children's learning and difficulties the children faced during the learning.

5.3.6 Preference towards Cell Phone Application and SMS Use

A total of 500 parents expressed their opinions about their preference on cell phone use and SMS applications. Among them, 90 percent of them agreed that cell phone was their first preference to communicate to the relevant persons, school and others as per need. Out of the total respondents, 55.8 percent agreed that they preferred to use SMS over other ways of communication to send invitations, greetings, secret codes over mobile phone. Furthermore, 76.3 percent of the respondents agreed that they preferred to communicate over cell phone to talk about their children's educational status in school and learning difficulties they have faced. Out of the total respondents, 53.5 percent of them agreed that they preferred SMS over other ways of communication to arrange meeting with head teachers, teachers and others if necessary.

5.3.7 Perceived Price of Cell Phone Application and SMS Use

Perceived price of cell phone services (call and SMS) among parents was measured as one of the constructs in order to measure the attitude towards cell phone based application and SMS. A total of 495 parents provided their opinion about perceived price of cell phone charges.

Among them 51.2 percent agreed that cell phone charges were affordable to them, Out of the total respondents, 79.5 percent of them agreed that they could pay cell phone charges if it could be used in educational purpose of their children, In addition, 76.4 percent of the respondents agreed that they would be happy to pay for SMS charges if it helped in learning of their children, Amongst the respondents, 75.6 percent of them agreed that they could pay charges to download educational songs, videos, stories in mobile for their children. Among them, 72.8 percent of them were also found very happy to pay for their cell phone charges to let their children access online stories, rhymes, lessons with a view to promoting their learning.

5.3.8 Perceived Quality of Telecom Service Provider and SMS Use

The parents were asked about the quality of cell phone service of their network operators which affects their wider application. Out of total 500 respondents, 56.4 percent of them agreed that their call connects in the first attempt whereas 22.4 percent did not agree with this. This group felt that it is difficult to connect the network and continuation of communication.

Among the respondents, 37.1 percent of them agreed that they could send SMS without network failures whereas 44.5 percent reported failures while sending SMS. However, 87.1 percent agreed that the quality of cell phone service was very good. It was found that 78.6 percent of the respondents mentioned that the quality of the service providers is effective.

5.4 Attitude of the Parents on Cell Phone Application

In the following sections, the attitude of the parents on cell application has been presented with respect to its specific themes**.**

5.4.1 Attitude towards use of Cell Phone Application

Out of the total respondents, a total of 495 expressed their attitude on the mobile phone application and use. Among the respondents, 91.1 percent of them agreed that they should have been felt happy to use their cell phone to call a teacher. 89.8 percent of them opined that they would have felt excited to call over a cell phone for their children's learning progress, difficulties and reading practice. Among the respondents, 88.9 percent of them agreed that they would be happy to use their cell phone to let children call toll free number and listen educational songs, stories. Moreover, 84.4 percent were found eager to use cell phone to download educational videos, songs for children's reading progress. In addition,

78.4 percent of them agreed to use cell phone for online contents for reading practice of early grade students.

5.4.2 Attitude towards the use of SMS Application

Out of the total expected parents (525), a total of 490 responded the attitude items on the use of mobile phone and SMS. Out of them, 76.2 percent expressed their excitement to apply SMS service in their children's learning process and sharing the learning of their children with school management and teachers. Out of the total respondents, 78.9 percent of them mentioned that they should have been happy to receive SMS about school information on leaves and meetings. Among the respondents, 78.6 percent were eager to send SMS to query about their children's home assignments to teachers. Out of the total respondents, 77.2 percent of them opined that they should have been felt happy to use SMS interactively like chatting to share their children learning progress, learning difficulties and reading practices in school and home as well.

5.4.3 Mean Score on Constructs towards Cell Phone Use

Mean opinion score of constructs used to measure the attitude of parents towards cell phone use was analyzed using descriptive statistics for Mountain, Hill and Terai geographical regions. Analysis of variance (ANOVA) was carried out to find out whether there is a difference in the opinion of parents on the specific themes of mobile phone application between these geographical regions. The mean score is at maximum score of 5.The descriptive statistics along with results from ANOVA is given in the Table 5.6

The description of the results in summated scales of items measured for each construct to measure the attitude towards the cell phone use have been discussed in following section.

5.4.3.1 Information

This construct representing that the parents can make and receive phone call by themselves. The mean opinion score of the construct Information of parents in Mountain, Hill, and Terai out of 5 is 4.317, 4.573, and 4.497 respectively. Although the score is significantly high in each region the result of analysis of variance shows that there is a significant different in terms of information to use cell phone among parents of three regions.

Table 5.6: Descriptive Statistics with the Results from ANOVA on Parents' Attitude on Constructs related to Cell Phone

Parents' Attitude toward the Constructs related to Cell phone Use						
Details		**Descriptive Statistics**			**ANOVA**	
Construct	**District**	**Valid N**	**Mean**	**Std. Dev**	**F**	**Sig.**
Information	Mountain	123	4.317	0.764	5.127	.006
	Hill	218	4.573	0.636		
	Terai	158	4.497	0.767		
Interest	Mountain	122	3.963	0.702	8.236	.000
	Hill	213	4.059	0.801		
	Terai	153	4.301	0.640		
Usefulness	Mountain	120	4.311	0.520	1.112	.330
	Hill	212	4.403	0.537		
	Terai	154	4.377	0.556		
Preference	Mountain	121	3.955	0.788	3.540	.030
	Hill	217	4.101	0.738		
	Terai	155	4.194	0.710		
Perceived Price	Mountain	120	3.521	0.933	4.447	.012
	Hill	214	3.713	0.874		
	Terai	152	3.414	1.108		
Perceived Quality	Mountain	116	3.468	0.857	34.158	.000
	Hill	212	3.785	0.737		
	Terai	152	4.189	0.554		
Attitude	Mountain	108	3.994	0.575	3.029	.049
	Hill	206	4.108	0.618		
	Terai	150	4.185	0.638		

5.4.3.2 Interest

Interest represents the parents' interest to use cell phone to make and receive calls by themselves. The mean opinion score of the construct Interest of parents in Mountain, Hill, and Terai out of 5 is 3.963, 4.059, and 4.301 respectively. This shows that the level of interest is higher among parents in Terai followed by Hill and Mountain. The result from ANOVA shows significant difference in interest among parents of Mountain, Hill, and Terai to use cell phone.

5.4.3.3 Usefulness

This construct represents the utility feeling of cell phone among parents as per geographic region in its use. The mean opinion score of the construct Usefulness of parents in Mountain, Hill, and Terai out of 5 is 4.311, 4.403, and 4.377 respectively. Although the score is

significantly high in each region the result of analysis of variance shows that there is no significant different in terms of Usefulness to use cell phone among parents of three regions. Cell phone among parents in all three regions is equally useful.

5.4.3.4 Preference

Preference represents the parents' preference to communicate in cell phone over other channels of communication. The mean opinion score of the construct Preference of parents in Mountain, Hill, and Terai out of 5 is 3.955, 4.101, and 4.194 respectively. This shows that the level of preference is higher among parents in Terai followed by Hill and Mountain. The result from ANOVA shows significant difference in preference level among parents of Mountain, Hill, and Terai to communicate through cell phone over other channels of communication.

5.4.3.5 Perceived Price

This construct represents the perceived price as affordable of cell phone call charges to use cell phone among parents as per geographic region. The mean opinion score of the construct perceived price of cell phone call charges among parents in Mountain, Hill, and Terai out of 5 is 3.521, 3.713, and 3.414 respectively. Although the score is significantly low compared to other constructs in each region the result of analysis of variance shows that there is significant different in terms of perceived price to use cell phone among parents of three regions. Also the results represent that the Cell phone charges have been perceived costly by parents in all three regions.

5.4.3.6 Perceived Quality

This construct represents the perceived quality in terms of connectivity as better in cell phone among parents as per geographic region. The mean opinion score of the construct perceived quality of cell phone calls among parents in Mountain, Hill, and Terai out of 5 is 3.468, 3.785, and 4.189 respectively. Although the score is fairly low compared to other constructs in each region the result of analysis of variance shows that there is significant different in terms of quality of connectivity to use cell phone among parents of three regions. Also the results represent that the quality of cell phone calls have been perceived lowest by parents in Mountain, followed by Hill and Terai. This means that quality of connectivity is better in Terai, good in Hill and Poor in Mountain.

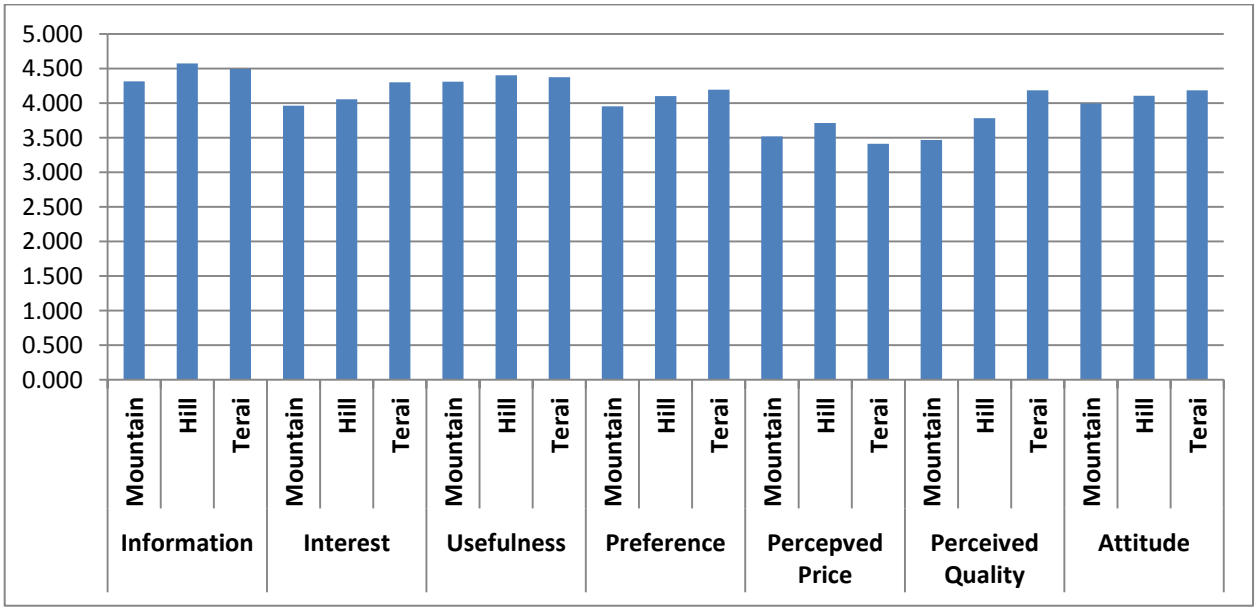
5.4.3.7 Attitude

The parent's attitude to make cell phone to make calls, use online and offline contents in early grade education have been measured in summated scales as per geographic region. The mean opinion score of the construct attitude among parents in Mountain, Hill, and Terai out of 5 is 3.994, 4.108, and 4.185 respectively. The score is fairly high in each region and the result of analysis of variance shows that there is significant different in terms of attitude to use cell phone among parents of three regions. Also the results show that the attitude of parents in Terai is high followed by Hill and Mountain.

The graphical presentation of the mean scores of the constructs as mentioned above is given in the Figure 5.3.

Parents from all three geographical regions have evaluated usefulness of the cell phone similarly whereas significant difference has been observed on evaluation of all other constructs. Statistics showed that Interest, Preference, Perceived quality, and Attitude towards cell phone use among parents of Terai region have been observed to be higher than the parents of Hill and Mountain regions. The parents of hill regions have been found more informed about cell phone use compared to parents of Terai and Mountain regions. But, the parents of hill region perceived the price of cell phone use is affordable than the parents of Mountain and Terai respectively.

Figure 5.3: The graphical representation of the mean opinion score of the constructs to measure parents' attitude on the use of Cell Phone



5.5.1 Mean Attitude Score towards SMS use

The measure of mean score describing measure of attitude towards SMS use by parents has been presented in table below.

Mean score of the constructs used to measure the attitude of parents towards SMS use was analyzed using descriptive statistics in all three geographical locations. Analysis of variance (ANOVA) was carried out to figure out whether there is a significant statistical difference in the attitudes of parents towards SMS use with respect to geographical regions of Nepal. The measures of descriptive statistics are given in the Table 5.7.

The description of the results in summated scales of items measured for each construct to measure the attitude towards the SMS use in cell phone have been discussed in following section.

5.5.1.1 Information

This construct representing that the parents can send and receive SMS by themselves in their mobile phones. The mean opinion score of the construct Information of parents in Mountain, Hill, and Terai out of 5 is 3.051, 3.341, and 2.753 respectively. The score is significantly low in Terai region below average represents that the parents of Terai need more awareness and orientation to use SMS. The result of analysis of variance shows that there is a significant different in terms of information to use SMS among parents of three regions.

5.5.1.2 Interest

Interest represents the parents' interest to send and receive SMS in cell phone to exchange messages over other means of messaging. The mean opinion score of the construct Interest of parents in Mountain, Hill, and Terai out of 5 is 3.328, 3.883, and 3.735 respectively. This shows that the level of interest is higher among parents in Terai followed by Hill and Mountain. The result from ANOVA shows significant difference in interest among parents of Mountain, Hill, and Terai to use SMS in cell phone.

5.5.1.3 Usefulness

This construct represents the Usefulness of SMS in cell phone to parents as per geographic region in its use. The mean opinion score of the construct Usefulness of parents in Mountain, Hill, and Terai out of 5 is 3.667, 3.968, and 3.848 respectively. Although the score is significantly high in each region the result of analysis of variance shows that there is

significant difference in terms of Usefulness of SMS to be used in use cell phone among parents of three regions.

Table 5.7: Parents' Attitude toward SMS Use

Parents' Attitude toward SMS Use						
Details		**Descriptive Statistics**			**ANOVA**	
Construct	**District**	**Number of Respondents**	**Mean**	**Std. Deviation**	**F**	**Sig.**
Information	Mountain	117	3.051	1.314	7.763	.000
	Hill	205	3.341	1.405		
	Terai	150	2.753	1.435		
Interest	Mountain	119	3.328	1.104	10.999	.000
	Hill	213	3.883	0.928		
	Terai	155	3.735	1.131		
Usefulness	Mountain	120	3.667	1.015	3.407	.034
	Hill	219	3.968	0.911		
	Terai	158	3.848	1.152		
Preference	Mountain	119	3.147	1.026	3.233	.040
	Hill	218	3.390	0.997		
	Terai	157	3.478	1.265		
Perceived Price	Mountain	121	3.661	0.996	5.646	.004
	Hill	218	3.991	0.984		
	Terai	156	3.679	1.175		
Perceived Quality	Mountain	122	2.656	1.066	6.448	.002
	Hill	218	2.885	1.270		
	Terai	159	3.176	1.261		
Attitude	Mountain	113	3.723	0.875	2.839	.059
	Hill	218	3.955	0.751		
	Terai	150	3.920	0.988		

5.5.1.4 Preference

Preference represents the parents' preference to communicate in cell phone through SMS over other ways of communication. The mean opinion score of the construct Preference of parents in Mountain, Hill, and Terai out of 5 is 3.147, 3.390, and 4.478 respectively. This shows that the level of preference to use SMS is higher among parents in Terai followed by Hill and Mountain. The result from ANOVA shows significant difference in preference level among parents of Mountain, Hill, and Terai to communicate using SMS through cell phone over other ways of messaging.

5.5.1.5 Perceived Price

This construct represents the perceived price as affordable SMS charges in cell phone among parents as per geographic region. The mean opinion score of the construct perceived price of SMS charges in cell phone among parents in Mountain, Hill, and Terai out of 5 is 3.661, 3.991, and 3.679 respectively. The result of analysis of variance shows that there is significant different in terms of perceived price to use SMS in cell phone among parents of three regions. Also the results represent that the SMS charges in cell phone have been perceived costly by parents in all three regions.

5.5.1.6 Perceived Quality

This construct represents the perceived quality to send SMS without network failures as better in cell phone among parents as per geographic region. The mean opinion score of the construct perceived quality of cell phone calls among parents in Mountain, Hill, and Terai out of 5 is 2.656, 2.885, and 3.176 respectively. Although the score is below average in Mountain and Hill region the standard deviation is greater than 1 in each case. The result of analysis of variance shows that there is significant difference in terms of SMS use in cell phone among parents of three regions. Also the results represent that the quality of SMS service in cell phone have been perceived lowest by parents in Mountain, followed by Hill and Terai. This means that quality of SMS connectivity is better in Terai, and poor in Hill and Mountain.

5.5.1.7 Attitude

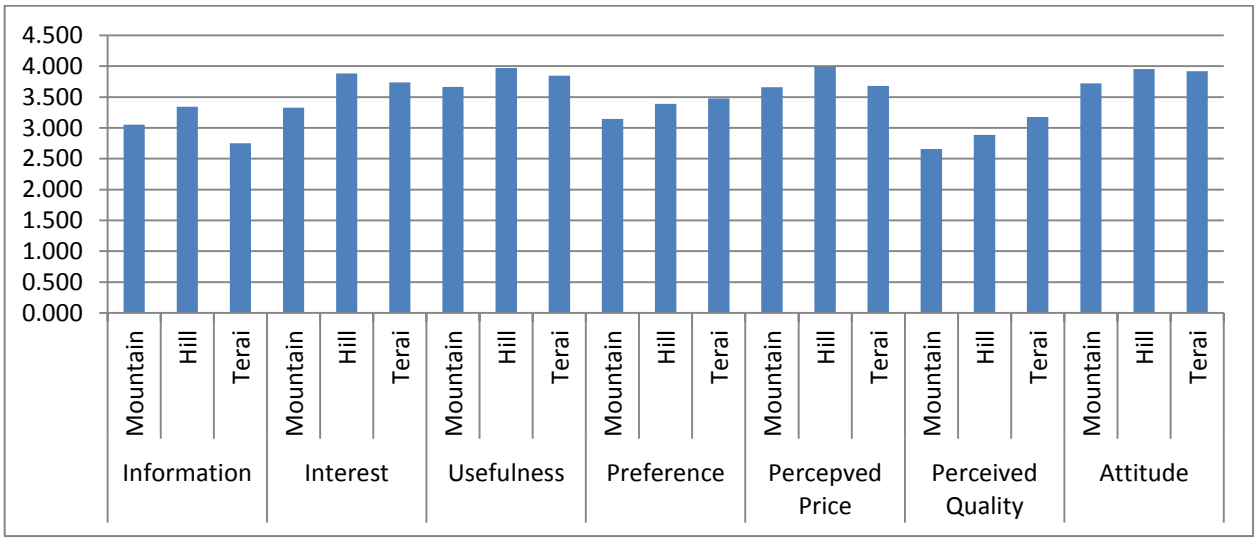
The parent's attitude to send and receive SMSs on various uses of early grade education especially in monitoring has been measured in summated scales as per geographic region. The mean opinion score of the construct attitude among parents in Mountain, Hill, and Terai out of 5 is 3.723, 3.955, and 3.920 respectively. The score is above average 3.000 in each region and the result of analysis of variance shows that there is no significant difference in terms of attitude to use SMS among parents of three regions.

Mean scores of constructs has been presented in the Figure 5.4.

Parents from all three geographical regions have shown similar attitude towards SMS use. However, their opinion on all other constructs as per region was observed differently. Descriptive statistics showed that Interest, Usefulness, Perceived quality, and Perceived Price of SMS use among parents of Hill region have been observed to be higher than the parents of Terai and Mountain regions. The parents of hill regions have been found more informed about SMS use compared to the parents of Mountain and Terai regions respectively. But, the

parents of Terai region preferred to use SMS more than the parents of Mountain and Hill regions respectively.

Figure 5.4: Parents' Mean Attitude Scores on the Constructs towards SMS use



5.6 Regression Analysis of Parents' Attitude towards the use of Cell Phone Application and SMS

A regression analysis was conducted to identify the effect and contribution of constructs in formation of attitude towards use of cell phone and SMS among parents in early grade education. The regression result on the constructs of attitude is given in the Table 5.8.

Table 5.8: Regression Analysis of Parents' Attitude towards use of Cell Phone Application and SMS

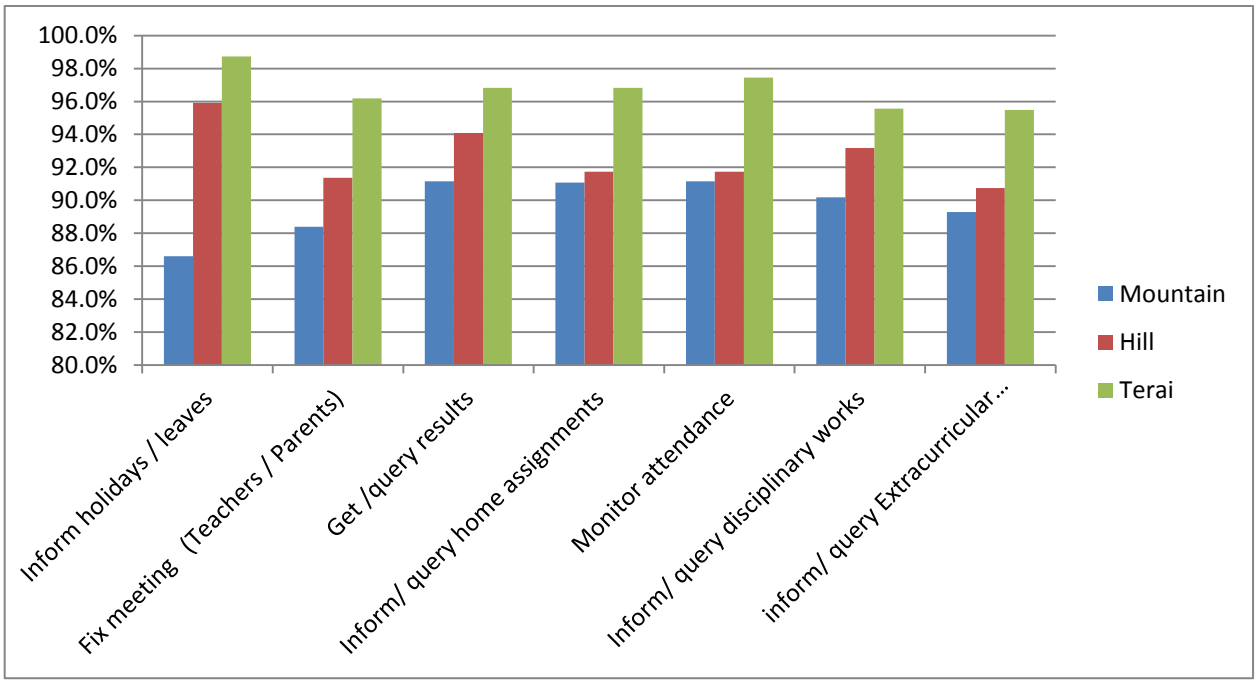
Dependent	Independent	Standardized Beta	Sig.
Attitude towards cell phone use (R^2=0.550)	(Constant)		.102
	Information	-.004	.906
	Interest	.091	.028
	Preference	.171	.000
	Perceived Price	.183	.000
	Perceived Quality	.140	.001
	Usefulness	.396	.000
Attitude towards SMS use (R^2=0.571)	(Constant)		.000
	Information	.263	.000
	Interest	.196	.000
	Preference	.231	.000
	Perceived Price	.245	.000
	Perceived Quality	.033	.414
	Usefulness	-.038	.281

The information only about cell phone use did not contribute to form attitude of parents but all other constructs that are Interest, Preference, Perceived Price, Perceived Quality, and Usefulness contributed significantly to form attitude towards cell phone use. However, the constructs such as Perceived Quality and Usefulness did not contributed to form attitude towards SMS use. The above regression results explain the robustness and validity of the model used to measure the attitude of parents towards cell phone and SMS use for different educational purposes.

5.7 Readiness of Parents and School Personnel for Monitoring Children's Learning through SMS

Attitude of parents and school personnel towards their readiness to use SMS on the key aspects were measured in this study. Out of total 522 parent respondents, in an average 490 parents indicated their readiness. The respondents presented in percentile selected 'Yes' to show their readiness to send and receive SMS through their mobile phone in relation to monitoring of their children's reading practice in home. The responses of the parents on the monitoring of the children's learning progress are presented in Figure 5.4.

Figure 5.4: Readiness of the Parents on Monitoring by Geographical Region

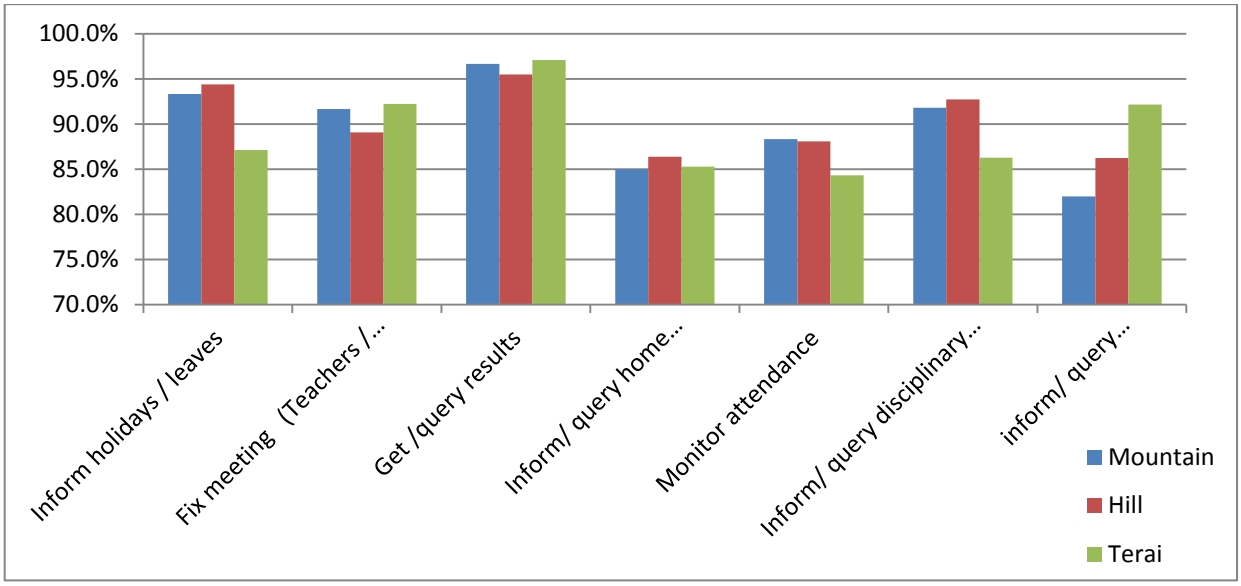


The above figure shows the readiness of the parents to inform through SMS to school in various disciplines of activities in the horizontal axis. The result shows that more than 85 percent of the parents from all three regions reported their readiness. Also, it has also been

noticed that the parents of Terai region (above 95%) showed their eagerness to use SMS in teaching learning followed by the parents of Hill and Mountain.

Similarly the readiness shown by School Personnel to use SMS to inform parents in various disciplines of child activities as per geographical region is presented in Figure 5.5.

Figure 5.5: Readiness of School Personnel on Monitoring by Geographical Region



The above figure shows the readiness of the Teaching personnel to inform through SMS to parents in various disciplines of activities in the horizontal axis. The result shows that more than 82 percent of the Teachers from all three regions reported their readiness. Teachers showed comparatively lower level of readiness to inform attendance and homework through SMS however they showed their readiness to inform results, holidays, and meetings.

5.8 Perspective of School Personnel

The perspective of parents on cell phone application was measured and interpreted and described in terms of main and subthemes in this section. The key themes of the data are existing SMS gateway application and cell phone use, approach of cell phone application, SMS monitoring of the children's learning of early grades, use of mobile phone application, cost of mobile phone application, language in use in SMS and strategy for the use of mobile phone for education promotion such as early grade reading and sharing of the school information from school management to parents. The attitudes of the parents were measures on the use of mobile phone application in terms of subthemes that consisted of information, interest, usefulness, preference, quality of network connection. The interpretations of the data on the main and subthemes obtained from the parents are described in this section.

5.8.1 Possession of Type of Cell Phones with School Personnel

Out of total 281 respondents, 267 (95.0%) school personnel reported their type of cell phone is in Table 5.9.

Table 5.9: Distribution of Type of Cell Phone with School Personnel by Geographical Region

District	Type of Mobile Phone (Number in percent)			Total
	Bar phone	Feature Phone	Smart Phone	
Mustang	9	8	38	55
Kaski	11	26	72	109
Banke	27	27	49	103
Total	47 (17.6 percent)	61 (22.8 percent)	159 (59.6 percent)	267

Out of the total respondents (281), 267 reported (90%) that 70.4 percent have Smart phone, 18.5 percent has feature phone and 11.1 percent possesses Bar phone. These are the mostly use cell phone in different geographical regions in Nepal.

5.8.2 Selection of Cell Phone Operator by School Personnel

A total of 278 school personnel reported type of SIM cards they have been using at present. The use of SIM cards means the agencies who have providing their network services to the people in different parts of Nepal. The distribution of their responses is presented in Table 5.10.

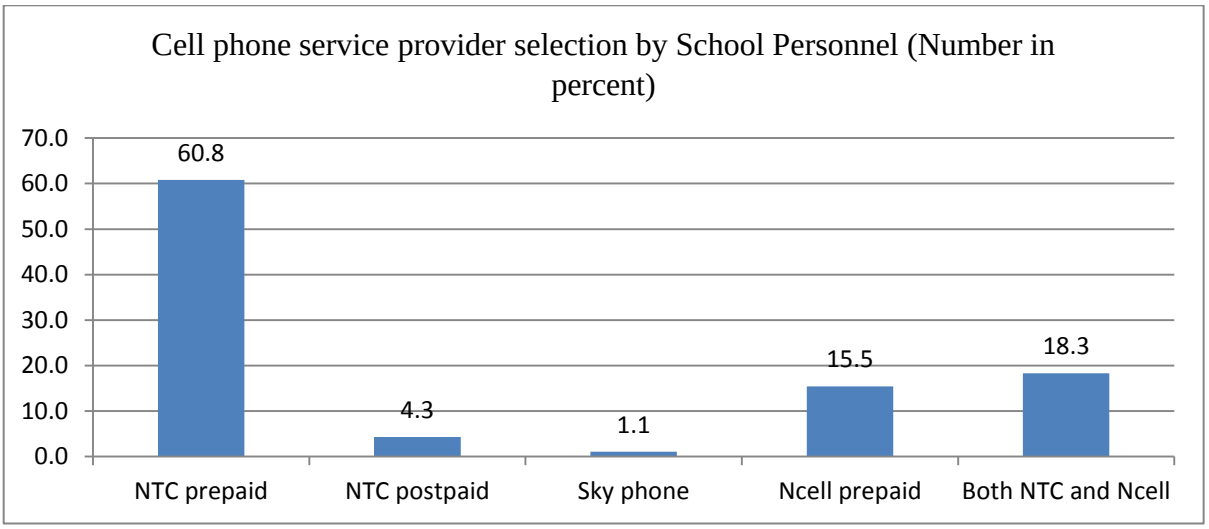
Table 5.10: Distribution of Service Providers by School Personnel in Geographical Region (Number in parentheses indicate percent)

Service Selection	NT	Ncell	Both	Total
Mountain	58 (95.08)	0	3 (4.92)	61
Hill	68 (61.82)	22 (20)	20(18.18)	110
Terai	58 (54.21)	21 (19.63)	28 (26.17)	107
Total	184 (66.2)	43 (15.5)	51 (18.3)	278

The overall distribution of school personnel as per telecom service providers have been presented graphically in Figure 5.6.

Among 28 school personnel from all three districts, 75 percent were found using Nepal telecom service, 7.1 percent used Ncell while 17.9 percent were using dual network (NT&Ncell) service.

Figure 5.6: Distribution of Cell Phone Service Provider by School Personnel



The results in graph above show that majority of teaching personnel are having Nepal Telecom SIM cards while 15.5% teaching personnel are Ncell users in single SIM. A significant 18.3% Teaching personnel are using Dual SIM of Nepal Telecom and Ncell.

5.9 Mean Attitude Score on Constructs towards the use of Cell Phone

The mean score of constructs used to measure the attitude of school personnel towards cell phone use was measured and analyzed using descriptive statistics for Mountain, Hill and Terai regions of Nepal. The analysis of variance (ANOVA) was also carried out to figure out whether there is a significant statistical difference in the opinions of school personnel between the geographical regions. The descriptive statistics along with results from ANOVA is given in the Table 5.11.

The data presented in the Table 5.11 shows that there was no significant difference among teaching personnel of three geographical regions in terms of Information, Usefulness, Preference, and Perceived price of cell phone use. However, there is the significant difference of the means scores of school personnel of three geographical regions the constructs that are Interest, Perceived Quality and Attitude towards cell phone use. School personnel of Terai region showed higher Interest and attitude towards use of cell phone compared to Hill and Mountain regions. However, the Perceived quality of the service of cell phone among school personnel was found better in Terai region compared to Mountain and Hilly region respectively.

Table 5.11: Descriptive Statistics along with the Results from ANOVA

School Personnel's Attitude toward Cell Phone						
Details		**Descriptive Statistics**			**ANOVA**	
Construct	**District**	**Number of Parents**	**Mean**	**Std. Deviation**	**F**	**Sig.**
Information	Mountain	60	4.642	0.522	2.268	.105
	Hill	110	4.732	0.427		
	Terai	105	4.790	0.378		
Interest	Mountain	61	4.213	0.686	3.614	.028
	Hill	107	4.248	0.688		
	Terai	105	4.452	0.599		
Usefulness	Mountain	58	4.477	0.496	1.112	.330
	Hill	106	4.572	0.398		
	Terai	101	4.578	0.454		
Preference	Mountain	59	4.093	0.868	2.534	.081
	Hill	110	4.177	0.679		
	Terai	104	4.332	0.594		
Perceived Price	Mountain	56	3.863	0.704	1.328	.267
	Hill	109	3.804	0.887		
	Terai	104	3.635	1.125		
Perceived Quality	Mountain	59	3.734	0.750	13.069	.000
	Hill	103	3.563	0.802		
	Terai	100	4.087	0.659		
Attitude	Mountain	59	4.199	0.504	4.529	.012
	Hill	106	4.250	0.564		
	Terai	103	4.420	0.447		

The graph of the mean scores of constructs used to measure attitude towards cell phone application among school personnel of three districts is in Figure 5.7.

5.9.1 School Personnel's Mean Attitude Score towards SMS use

The mean score of constructs used to measure the attitude of school Personnel towards SMS use was analyzed using descriptive statistics in all three geographical regions. The analysis of variance (ANOVA) was also carried out to figure out whether there is a significant statistical difference in the attitudes of school personnel towards SMS use in the geographical regions. The result is given in the Table 5.12.

Figure 5.7: School Personnel's Mean Attitude Scores on Constructs towards the use of Cell Phone

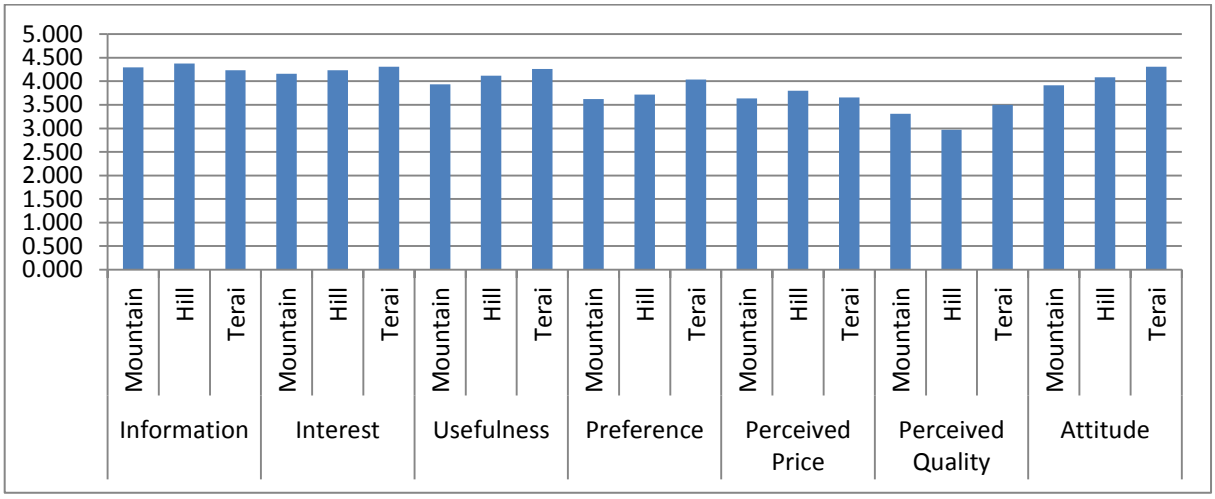


Table 5.12: School Personnel's Attitude towards SMS use

School Personnel's Attitude toward SMS use						
Details		**Descriptive Statistics**			**ANOVA**	
Construct	**District**	**Number of Respondents**	**Mean**	**Std. Deviation**	**F**	**Sig.**
Information	Mountain	59	4.297	0.915	0.609	.545
	Hill	108	4.380	0.867		
	Terai	103	4.233	1.089		
Interest	Mountain	59	4.161	0.822	0.715	.490
	Hill	106	4.231	0.741		
	Terai	106	4.307	0.758		
Usefulness	Mountain	61	3.934	0.892	3.617	.028
	Hill	111	4.117	0.760		
	Terai	106	4.264	0.694		
Preference	Mountain	60	3.625	1.011	4.828	.009
	Hill	109	3.720	0.901		
	Terai	103	4.034	0.870		
Perceived Price	Mountain	60	3.633	0.991	0.692	.501
	Hill	108	3.796	0.945		
	Terai	107	3.654	1.142		
Perceived Quality	Mountain	58	3.310	1.063	6.240	.002
	Hill	107	2.972	1.103		
	Terai	104	3.500	1.106		
Attitude	Mountain	57	3.917	0.784	6.694	.001
	Hill	104	4.084	0.732		
	Terai	102	4.311	0.544		

School personnel from three geographical locations perceived that there was not any difference towards SMS use in terms of Information, Interest, and Perceived price. However, school personnel of three geographical Location Mountain, Hill, and Terai have different experience in using SMS and attitude towards it in terms of Usefulness, preference, perceived quality and attitude.

5.9.2 Regression analysis of school Personnel's Attitude towards use of Cell Phone Application and SMS

The data obtained from the school personnel on attitude towards use of cell phone and SMS were collected and tabulated. The regression analyses of these data were carried out. The result of regression analysis is given in the Table 5.13.

Table 5.13: Regression Analysis of School Personnel's Attitude towards use of Cell Phone use and SMS

Dependent	Independent	Standardized Beta (β)	Sig.
Attitude towards cell phone use among teaching personnel (R^2=0.420)	(Constant)		0.004
	Information	0.080	0.187
	Interest	0.268	0.000
	Usefulness	0.196	0.007
	Perceived Price	0.160	0.006
	Perceived Quality	0.094	0.118
	Preference	0.115	0.078
Attitude towards SMS use among Teaching personnel (R^2=0.571)	(Constant)		0.000
	Information	0.023	0.606
	Interest	0.200	0.001
	Usefulness	0.292	0.000
	Perceived Price	0.146	0.002
	Perceived Quality	0.127	0.010
	Preference	0.245	0.000

The data presented above that interest, usefulness, and perceived price only contributed to form attitude towards use of cell phone among school personnel while other variables Information, preference, and perceived quality did not cause to form attitude towards cell phone use. In case of attitude towards SMS use among school personnel, interest, usefulness, preference, perceived price and quality constructs contributed positively to develop their attitude to use mobile phone in their daily life and education promotion while Information did not cause any effect on attitude formation.

5.10 Frequency, Suitable Time and Preferred Language to use SMS Service among Parents and School Personnel

5.10.1 Frequency of SMS used

So as to find the attitude towards SMS, various dimension of SMS use have been evaluated to ordinary people and school personnel of EGRP geographical locations. The distribution of Frequency of SMS use, average SMS sent per week, preferred time and language to send SMS, and reason for selecting the language as per geographical location of parents and school personnel was analyzed. The summary of the results has been tabulated in Table 5.14.

Table: 5.14 Frequency of SMS used

Frequency of SMS used						
Respondent	**District**	**Number of Respondent**	**Very frequent (%)**	**Occasional (%)**	**Sometimes (%)**	**Don't use (%)**
Parents (N=473)	Mountain	115	1.7	17.4	44.3	36.5
	Hill	212	5.2	24.1	46.2	24.5
	Terai	146	2.7	12.3	41.8	43.2
Teaching personnel (N=278)	Mountain	61	9.8	80.3	6.6	3.3
	Hill	110	16.4	71.8	5.5	6.4
	Terai	107	13.1	72.9	5.6	8.4

The results in above table show that majority of parents have used SMS. Among all 36.5%, 24.5%, and 43.3% parents of Mountain, Hill and Terai respectively reported that they don't use SMS. Remaining parents reported that they use SMS however frequency of use is very less. Among school personnel a few 3.3%, 6.4%, and 8.4% from Mountain, Hill, and Terai respectively reported that they don't use SMS. Also, most of them reported that they use SMS very occasionally.

5.10.2 Frequency of SMS used on weekly basis

The distribution of parents and school personnel regarding their volume of SMSs used per week according to geographical location has been evaluated to validate the attitude towards SMS use. The results have been tabulated in Table 5.15.

The results in above table show that majority of parents use 1 SMS per week while majority of Teaching Personnel reported that they use one SMS per day. Among all 36.5%, 24.5%, and 43.3% parents of Mountain, Hill and Terai respectively reported that they don't use SMS. Remaining parents reported that they use SMS however frequency of use is very less. In case

of Teaching Personnel results show that Teaching Personnel use SMS very frequently compared to parents. Among teaching personnel only 2.9%, from Terai reported that they don't use SMS. Also, most of them reported that they use SMS very occasionally.

Table 5.15: Frequency of SMS on Weekly basis

Frequency of SMS used						
Respondent	**District**	**Number of Respondent**	**>10 SMS per week (%)**	**7 SMSs per week (%)**	**1 SMSs per week (%)**	**Don't Use (%)**
Parents (N=386)	Mountain	115	1.7	17.4	44.3	36.5
	Hill	212	5.2	24.1	46.2	24.5
	Terai	146	2.7	12.3	41.8	43.2
Teaching personnel (N=256)	Mountain	60	5.0	81.7	13.3	0.00
	Hill	110	4.5	75.4	20.0	0.00
	Terai	104	17.3	72.1	7.7	2.9

5.11 Preference of Time for SMS

The responses of the parents and school personnel were collected on the preferred time to use cell phone to send SMS. The data obtained from them are given in Table 5.16.

Table 5.16: Preference of Time for sending SMS to the relevant Persons

Preferred time to use cell phone to send SMS						
Respondents	**District**	**Number of Respondent**	**As per need (%)**	**Morning (%)**	**Evening (%)**	**Leisure time (%)**
Parents (N=409)	Mountain	94	2.1	6.4	91.5	0.0
	Hill	192	1.0	12.5	85.9	0.5
	Terai	123	0.0	10.6	89.4	0.0
School personnel (N=267)	Mountain	60	0.0	0.0	25.0	75.0
	Hill	104	0.0	8.7	26.9	64.4
	Terai	103	0.0	4.9	20.4	74.8

The table 5.16 shows that majority of parents (above 85%) from Mountain, Hill, and Terai reported that they prefer to send SMS in evening time following by morning time. In the case of school personnel, the most referred time to send SMS is leisure time (above 64%) followed by evening time (20%). The results show that parents normally give time to children in the evening for reading.

The data from the parents and school personnel were collected on preferred languages among English, Nepali, and own mother language used by respondents in SMS communication has

also been surveyed with parents and teaching personnel and data was analyzed. The distribution of result as per geographic regions is in Table 5.17.

Table 5.17: Preferred Language to use in SMS

Measurement of preferred language used in SMS communication (Number in percent)						
Respondents	**District**	**Number of Respondents**	**English language**	**Nepali language**	**Mother language**	**English & Nepali**
Parents (N=425)	Mountain	97	24.7	73.2	2.1	0.0
	Hill	191	29.8	66.5	3.7	0.0
	Terai	137	10.2	59.9	29.9	0.0
Teaching personnel (N=275)	Mountain	59	44.1	47.5	1.7	6.8
	Hill	109	40.4	56.0	1.8	1.8
	Terai	107	26.2	57.9	12.1	3.7%

Here, the SMS to be used in Nepali language means parents and Teaching Personnel type English alphabets to constitute a Nepali or Mother Language word to communicate in SMS in Roman language.

The result in Table 5.17 shows that above 60% parents reported they preferred Nepali language to send SMS while only 10 to 30% of the parents preferred English language to communicate through SMS. A significant percentage 29.9% parent in Terai reported their preference to send SMS is their own mother language. In case of teaching personnel they prefer almost equal to send SMS in Nepali as well as in English language. Also, significant 12.1% teaching personnel mentioned that they prefer to use their own language to send SMS.

Also, reason was sought regarding selection of language in SMS communication among parents and teaching personnel based on geographic region. The distribution of result is in Table 5.18.

Table 5.18: Reason of Preferred Language used in SMS

Reason for the Preference of Language (Number in percent)					
Respondents	**District**	**Number of Respondents**	**Easy to use in cell phone**	**Don't know other language**	**My own choice**
Parents (N=422)	Mountain	96	46.9	14.6	38.5
	Hill	192	37.0	24.0	39.1
	Terai	134	29.1	18.7	52.2
School personnel (N=272)	Mountain	59	42.4	10.2	47.5
	Hill	109	48.6	5.5	45.9
	Terai	104	43.3	2.9	53.8

Result in Table 5.18 shows that majority (above 38%) of parents in Mountain, Hill, and Terai mentioned the reason as their own choice followed by Easy to use in cell phone and don't know other language. In case of Teaching Personnel in Mountain, Hill and Terai, they (above 90% in total) mentioned the reasons as their own choice and easy to use almost equally. Whereas a few below 10% mentioned don't know other language as reason to use their selected language.

5.12 Perspective of District Education Personnel on Cell Phone Application

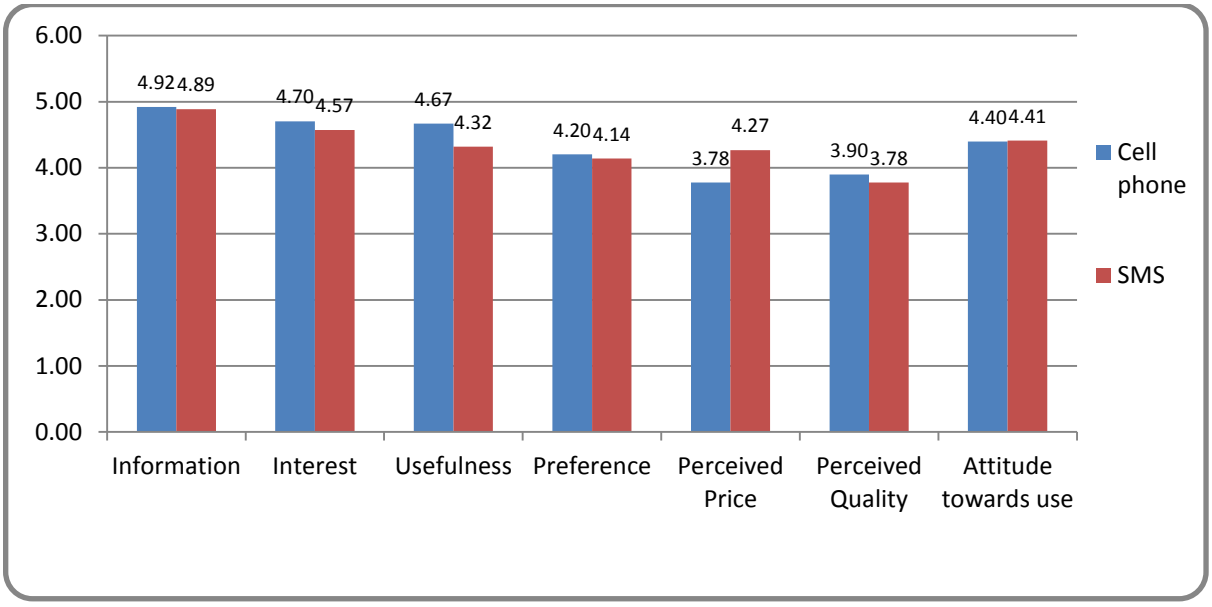
The perspective of DEO personnel on cell phone application was measured and interpreted and described in terms of main and subthemes in this section. The key themes of the data are existing SMS gateway application and cell phone use, approach of cell phone application, SMS monitoring of the children's learning of early grades, use of mobile phone application, cost of mobile phone application, language in use in SMS and strategy for the use of mobile phone for education promotion such as early grade reading and sharing of the school information from school management to parents. The attitudes of the DEO personnel were measures on the use of mobile phone application in terms of subthemes that consisted of information, interest, usefulness, preference, quality of network connection. The interpretations of the data on the main and subthemes obtained from the parents are described in this section.

5.12.1 DEO Personnel's Mean Score of Attitude towards Cell Phone and SMS

Mean opinion score of constructs of cell phone and SMS use among DEO personnel or teaching support personnel of sample districts consisting resource persons, School Supervisors, DEO officials, District Coordinators, Reading Motivators, and Community Mobilizers was evaluated and compared. The comparative table of mean opinion score out of maximum score of 5 has been evaluated and is presented graphically in Figure 5.8.

The results in figure 5.8 show that these respondents were well informed and interested about use of cell phone and SMS service. Cell phone and SMS had been highly useful to fulfill their responsibility and prefer to use cell phone services to communicate. SMS service was perceived to be less affordable than cell phone call services where quality of service had been observed to be above average only. These people were found having very positive attitude towards use of cell phone and SMS services in education support functions.

Figure 5.8: Mean opinion score on Constructs to measure the attitude towards use of cell phone call and SMS



CHAPTER 6: SYNTHESIS AND IMPLICATION

6.1 Background of the study

The Early Grade Reading Program (EGRP) is a five-year program (2015-2020) funded by the United States Agency for International Development (USAID) Nepal to assist the Government of Nepal (GON)/Ministry of Education (MOE) to improve reading skills of all community school students in grades 1 to 3. This program will primarily support the government's National Early Grade Reading Program (NEGRP) began in July 2014 and was a part of the School Sector Reform Plan (SSRP) till July 15, 2016 and currently has been one of the components of School Sector Development Program (SSDP, 2016-2023). This feasibility study on cell phone application for home based early grade reading practice is intended to find out the innovative ways for parents and children to use cell phone applications for home-based EGR practice.

The purpose of this 'Feasibility study on cell phone application for home based early grade reading practice is to assist the program in planning for cell phone use/applications for home-based support and SMS monitoring of early grade reading. The specific objectives of the study are to take stock of the existing SMS gateway application/service providers, their costs and coverage, to gauge the extent of and attitudes towards cell phone use among the target population, to identify/assess the existing SMS gateway applications and cell-phone use and identify potential approaches for using cell-phone applications to engage parents and community members in home-based support and SMS monitoring for early grade reading. Based on the field data, a strategy as a detailed concept note has been developed for piloting the use of cell phones to engage parents and children in home-based support and SMS monitoring for early grade reading.

6.1.1 Study Design

The study design was based on mixed methods that included quantitative and qualitative data from the sample respondents. The study was conducted in three sample districts namely, Kaski (hill), Mustang (mountain) and Banke (Terai).

6.1.2 Study Themes

The study covers three main themes that are stock of cell phone use, attitude towards cell phone use and preferred language, approach and strategy to use cell phone and SMS application with background information of the respondents. The stock of cell phone include

own mobile phone, types of mobile phone, mobile phone service provider, monthly expenses on mobile phone, communication to school using mobile phone and parents having mobile phone. The attitude towards cell phone includes the themes that are use of cell phone, use of SMS, communication through cell phone, monitoring of children's learning progress through SMS, expenses on cell phone, connectivity of cell phone, reading promotion and practice, and school information sharing. The third theme entitled preferred language, approach and strategy to use cell phone and SMS application includes use of cell phone for educational purpose, frequency of SMS use, number of SMS sending to the relevant persons, preferred time to send SMS to relevant persons, preference towards the use of language in SMS, reasons to use the selected language in SMS and readiness to use SMS on school information.

6.1.3 Respondent

The key respondents were the parents of early grades (1-3), school personnel and District Education Personnel. The school personnel consisted of head teacher, teachers, reading motivator, and members of School Management Committee and Parents Teacher Association. The district education personnel include District Education Officer, school supervisor, resource person, and community mobilization officer representing NGOs. In addition to them, the key personnel of Ministry of Education and Central Line Agencies were also the key informants of this study. There was a total 525 parents, 281 school personnel, 28 District Education Personnel, 12 representatives of MOE/CLAs and 11 representatives of service providers. The actual respondents of this study vary with respect to the research themes of the study.

6.1.4 Instrument

Seven different types of interview schedules based on the study themes were developed to collect data from different respondents. These instruments were for parents, school personnel (head teacher, teachers, reading motivators, members of SMC and PTA) and District Education personnel (District Education Office, school supervisor, resource persons, Community Mobilization Officer representing NGO). In addition to this, Focus Group Discussion Guidelines on the specific themes of cell phone application for parents and school personnel were also developed for parents and school personnel to collect information on specific themes of the study. The qualitative data obtained from FGD on specific themes were used while interpreting the results obtained from quantitative data and their triangulation.

6.2 Status of telecom service in Nepal

After the enactment of the Telecommunications Act, 2053 (1997), the telecommunications sector was opened to the private sector. Prior to that, the government operator, the Nepal Telecommunications Corporation (NTC), presently converted into a government company Nepal Doorsanchar Company Limited (NDCL) formally known as Nepal Telecom was the only telecom operator in the country. Currently six organizations are licensed to provide telephones in the country. They are Nepal Telecom, Ncell, United Telecom Limited, Smart Telecom, Nepal Satellite Telecom Pvt. Ltd and CG telecom. NDCL is the only wire-line operator in Nepal. Apart from wire-line, NDCL has also deployed nationwide CDMA and GSM network to cover all districts and population of the country. Also, it has deployed WiMax service network in the country.

Ncell is GSM service provider and has a nationwide coverage. United Telecom Limited and Smart Telecom are also licensed to provide all kinds of services across the nation while other two are rural operators. As per MIS Report, Issue 102, Nepal Telecommunication Authority, published on August 2017 the overall subscriber base position of all operators is shown in Table 6.1. According to the report, the internet subscriptions through GSM mobile services have grown up to more than 58.72%. The overall distribution of Internet subscriptions and contribution of service providers are in Table 6.2.

NDCL and Ncell have laid out their Optical fibre cable along East west Highway of Nepal. NTA has awarded approval to existing operators to lay down OFC along Pushpalal LokMarga in the mid hill range across east to west of Nepal. Except few remote mountainous region operated through satellites, all other parts of Nepal have been covered through OFC and microwave network.

There are more than 20 plus Internet service providers in Nepal. They are having a subscriber base of more than 227,792. They are providing services mainly through wireless, cable and OFC. Among these prominent six operators have subscriber bases more than 10k. The World link communications has subscribers more than 100,000 and Subisu have around 60,000 subscriber bases.

Table 6.1: Subscriber Base of Telephone Services, (as of 14 April, 2017)

Services / Operators	Fixed		Mobile		Others		Total
	PSTN	WLL	GSM	CDMA	LMS	GMPCS	
NDCL	680835	121532	14998775	1475975	-	-	17277117
UTL	-	50133	-	-	476734	-	526867
NCEll	-	-	15495158	-	-	-	15495158
STM*	**2832	-	-	-	155	-	2987
NSTPL*		2984	-	-	368684	-	371668
STPL	**598	-	1530550	-	-	-	1531148
Others	-	-	-	-	-	1742	1742
Total	**684265**	**174649**	**32024483**	**1475975**	845573	1742	**35206687**
	858914		**33500458**		**847315**		

Services	Subscription (%)
Fixed	**3.24**
Mobile	**126.44**
Others (LMS, GMPCS)	**3.20**
Total	**132.88**

Table 6.2: Internet Subscriptions, (as of 14 April, 2017)

Services	Subscribers						Total
	NDCL	UTL	Ncell	STPL	STM	ISPs	
Dialup (PSTN+ISDN)	3622	-	-	-	-	1522	5144
Wireless	-	-	-	-	-	55788	55788
Cable Modem/ Optical Fibre	-	-	-	-	-	170487	170487
ADSL	178389	-	-	-	-	-	178389
GPRS,EDGE,WCDMA	8012851	-	6783320	134143		-	14930314
CDMA 1X, EVDO	136573	63202	-	-	-	-	199775
WiMAX	16545	-	-	-	-	-	16545
VSAT based Internet	-	-	-	-	13		13
Total	8347980	63202	6783320	134143	13	227797	**15556455**
	Internet Penetration (%)						**58.72**

In the sample districts Nepal Telecom and Ncell has better coverage in Terai (Banke) and Hill (Kaski) districts while Mountain (Mustang) and remote rural areas are covered mainly by Nepal Telecom. District wise user data of cell phone service could not be obtained but based on this research the distribution of users have been discussed in the following section. Also, urban and city area has Internet service by ISPs while rural and remote are not served. Mobile broadband is the only option to use internet in rural areas.

6.3 Profile of Respondent

Types of respondents were Parents, School Personnel, DEO personnel and representatives of Central Line Agencies (CLAs) of Ministry of Education. The school personnel consisted of

head teacher, teacher, reading motivator, members of school management and teacher association and community mobilization officer representing NGO. The District Education Personnel are District Education Office, School Supervisor and Resource Persons. The representatives of MOE and CLAs are the focal persons working with EGRP and technical persons of ICT working in MOE and DOE. The profile of respondents has been described in terms of gender, education background, occupation, age, and mother tongue.

The sample districts were Banke (Tarai), Kaski (hill) and Mustang (Mountain). Altogether there were 522 parents (100%) and only 499 (95.6%) respondents recorded their gender, where 183 (36.7%) were male, 315 (63.1%) female and 1(0.2%) others. Regarding the school personnel, out of 281 (100%), the actual numbers of respondents who have mentioned their gender were 257 (91.5%) in which the composition of gender is 56.4 percent male and 43.2 percent female.

Out of the total parents representing three sample districts, 172 (32.9%) were from Banke, 224 (42.9 %) from Kaski, and 126 (24.1%) from Mustang. The representation of the respondents from Kaski and Banke is the highest where from Mustang is the lowest.

Out of the total school personnel (281), there were 107 (38.1%) respondents from Banke, 112 (39.9%) from Kaski, and 62 (22.1%) from Mustang. The representation of the school personnel from Kaski and Banke is nearly equal and highest whereas the representation from Mustang is the lowest.

Out of the total DEO personnel, there were 11 (39.3%) from Banke, 11 (39.3%) from Kaski and 6 (21.4%) from Mustang. The representation of the respondents from Kaski and Banke is equal and highest where from Mustang is the lowest. This status was based on the availability of the official positions created by government in the District Education Office in the sample districts.

6.3.1 Gender

Out of 522 parents participated in the interview, only 499 respondents recorded their gender, where 183 (36.7%) were male, 315 (63.1%) female and 1(0.2%) others. In the day time, some of the males in the sample households went to work (agriculture work, labour etc.) and they were not available at home during the interview. Because of this situation, there was a more participation of female respondents compared to the male in this study.

Out of 281 school personnel interviewed, 257 (1.5%) reported their gender where 145 (56.4%) were male, 111 (43.2%) female and 1 (0.4%) others. The composition of gender is

56.4 percent male and 43.2 percent female. The number of male is more by 13.2 point percent. There were 24 respondents (8.5%) who did not indicate the gender.

The total respondents of District Education Personnel including NGO representatives were 28. Out of them, 3(10.7%) did not specify their gender. So, the actual respondents were 25 (89.3%) that consisted of 84 percent male and 16 percent female.

6.3.2 Education Background

Out of total 525 parents, a total of 472 (89.9%) respondents specified their education background. Out of them 53 parents (10.1%) did not mention their educational status. Among the respondents 36 (7.6%) were illiterate, 210 (44.5%) were literate, 132 (28%) had basic education, 75(15.9%) had secondary level education, 16 (3.4%) had Bachelor Degree and 3 (0.6%) had Master Degree and above.

Among the total school personnel (281), 5.7 percent were literate, 11.5 percent had basic education, 36.5 percent had secondary education, 34.4 percent had Bachelor Degree and 11.9 percent possessed Master Degree. The data reveal that (46.3%) school person respondents possess Bachelor Degree and above. Only a few percent of them (5.7%) were under literacy category. Out of the total DEO personnel (28), two of them (71.4%) did not respond their education background. Amongst them, 42.3 percent possessed Bachelor Degree whereas 57.7 percent hold Master Degree.

Almost all respondents have adequate education background. So, they can understand the uses of cell phone application for different purposes in their daily life such as early grade reading promotion, monitoring of educational progress and learning difficulties of children, relevancy of education, and efficient use of time and return of the investment in future.

6.3.3 Age Group

The age group of the parents and school personnel was categorized into below 20, 20 to 25, 26 to 30, 31 to 40, 41 to 50 and 51 to 60 and above groups. The age of the district educational personnel was grouped into: (i) 26-30 years (ii) 31 to 40 years (iii) 41 to 50 years and (iv) 51 to above years. Most of the parents (69.1%) were found in the age group of 26 to 40. A few respondents (16.4%) were within the age group to 20-30. Almost all DEO personnel (79%) belong to the age group 31 to 50 year whereas a few of them (14%) were above 50 year age group.

About 40 percent of the respondents belong to 31 to 40 year age group. More than one-third 39.5 percent of data source were the respondents of this age group. Most of them (69.1%) are in the age group of 26 to 40. The data obtained on the study were from matured age group

(31-50) of school personnel. Thus, the data of the study represent different age groups that covered all possible experiences in cell phone application for education purpose, reading promotion and practice of early grades children.

6.3.4 Mother Tongue

The type of mother tongue of the respondents consisted of *Awadhi, Maithili, Nepali, Tharu* and others (*Newari, Tamang, Rai, and Bhojpuri* etc.). Out of the total parents (522), 89.3 percent belongs to Nepali language whereas remaining (10.8%) belongs to the mother tongue consisting of 3.6 percent *Maithili*, 3.6 percent *Awadhi* and 3.6 percent *Tharu*. Out of the total school personnel (281), 87.3 percent belongs to Nepali language whereas remaining (12.7%) are of mother tongue consisting of 2.5 percent *Maithili*, 3.4 percent *Awadhi*, and 1.8 percent *Tharu*, and 5 percent other language. Out of the total DEO personnel respondents (28), 89.2 percent belongs to Nepali language whereas remaining (10.8%) are of mother tongue consisting of 1.2 percent *Maithili*, 2.1 percent *Awadhi*, and 1.0 percent *Tharu* and 7.1 percent other languages.

The data indicated that almost all respondents have been using Nepali language for speaking and writing as well. The percent of the respondents having mother tongue were found at the range of (1.3-7.1) % in the sample households of the study districts. The data revealed that almost all the district educational personnel have been using Nepali language in the form of *Roman* text to send SMS through their mobile phone. They felt convenient to use either Nepali language in Roman text for communication through their mobile phone.

6.4 Stock of Cell Phone Use

The stock of cell phone include own mobile phone, types of mobile phone, mobile phone service provider, monthly expenses on mobile phone, communication to school using mobile phone and parents having mobile phone. The data obtained on these subthemes from the parents, school personnel and DEO personnel are presented in the following sections.

6.4.1 Own Mobile Phone

Out of 525 parents interviewed, 483 (93.4%) parents have their own mobile phone whereas only 34 (6.6%) did not have their own mobile phone. All school personnel and District Education Office (DEO personnel) have been using mobile phone for their purposes and education activities. The concern is to what extent the mobile phones they possess are appropriate to use for educational purposes. However, there is potentiality of the use of appropriate mobile phone for early grade reading promotion and education purposes with necessary encouragement.

6.4.2 Spouse's Mobile Phone

Out of the total parents interviewed (525), 410 respondents (80.7%) answered that their spouses have their own mobile phone. The spouses who have mobile phone were also representing from early grades. Those who did not have mobile phone were using mobile phone of the elder brothers, sisters and other family members.. Among them, almost all spouses have their mobile phone whereas a few of them (19.3%) mentioned that their spouses do not have their mobile phone. Almost all spouses of school and district education personnel have their mobile phones and using for their daily life purposes to fulfill their requirements. Thus, the mobile phones of both parents and their elder spouses can be used for early grade reading promotion and education purposes at home and to communicate from home to school and District Education Office.

6.4.3 Types of Mobile Phone

Out of 525 target parents, 496 (94.5%) responded the question whereas 29 (5.5%) were the missing cases during the study. Amongst the 94.5 responded parents, 45.6 percent have Smart Phone, 30.8 percent have Bar Phone and 23.8 percent have Feature Phone. Most of the school personnel (35%) have been using bar phone whereas almost all of them (56%) have smart phone. A few of them (9%) have feature phone. Almost all DEO personnel (87%) have smart phone and remaining (13%) have feature phone. The data reveal that the majority of the respondents have mobile phone that can be used for communication and SMS for education purposes and promotion of early grade reading. There is need for facilitation to use mobile phone for education purpose and promotion of early grade reading.

6.4.4 Mobile Phone Service Provider

Mobile phone service providers were classified into three categories: (i) Nepal Telecom (Namaste/NTC post-paid/Sky Phone), (ii) Ncell (Pre-paid/Ncell post-paid) and (iii) both that include NTC and Ncell. Out of the total parents interviewed (525), 508 (96.8%) responded the question on service provider. Almost one-third of the respondents (31.1%) have been using NTC pre-paid whereas the users of NTC post-paid and Sky Phone are one percent and 2.4 percent respectively. The users of the Ncell pre-paid and post-paid are 55.7 percent and 0.6 percent respectively.

Out of the total school personnel (281), 278 (98.9%) were actual respondents of the service providers whereas 3 (1.1%) of them were non-respondents. The data revealed that 65.1 percent and 15.5 percent were using NTC and Ncell services respectively. Those who have been using NTC services, most of them (60.8%) were using pre-paid whereas a few of them (4.3%) were using post-paid service. However, 1.1 percent of respondents were using sky

phone Out of all total DEO personnel respondents (28) 60.7 percent of them have been using NTC prepaid whereas 14.3 percent use the post-paid service. This indicates that the DEO personnel preferred to use pre-paid NTC service. Also, 7.1 percent of the DEO personnel have been using NCell prepaid service whereas 17.9 percent have been using both NTC and NCell service which is mostly available service in the country.

Thus, most of the parents have been using either Ncell or NTC prepaid mobile phone though Ncell prepaid was found mostly preferred by parents. Though the respondents have their choice to prefer any type of mobile phone service providers, mostly preferred was found to be NTC pre-paid service by Teaching and DEO personnel which is most popular and rooted in the country.

6.4.5 Type of Mobile Phone

The types of cell phone generally in use were Bar Phone, Feature Phone, and Smart Phone in the country. Out of 525 total parents as respondents, 45.6 percent have Smart Phone, 30.6 percent have Feature Phone and 30.8 percent have Bar Phone. The data reveal that the majority of parents (45.6%) have Smart Phone. Though the sample school personnel were 281, the actual respondents were 267. Out of the actual respondents, 159 respondents (59.6%) have the Smart Phone, 61 respondents (22.8%) possess feature phone and 47 of them (17.6%) have Bar Phone in the study districts. Regarding this, the respondents in the sample districts were found that they have Bar Phone (11.1%), Feature Phone (18.5%) and Smart Phone (70.4%). The data revealed that the respondents have been using smart phone which are useful to use for receiving and sending SMS, use audio visual contents, internet and multimedia based services that are useful for education and other purposes of their daily life. However, a few of them use either Bar Phone or Feature Phone.

6.4.6 Monthly Expenses on Mobile Phone

The monthly expenses were categorized into: (i) NPR 0-100 (ii) NPR 101-300 (iii) NPR 301-500 and (iv) NPR 501 and above. Some of the parents (35.4%) have their monthly expenses on their mobile phone in between NPR 101 to 300 whereas some (32.1%) spend around NPR 301 to 500 per month. A few of them (19.8%) spend more than NPR 500. Regarding the monthly expenditure of the school personnel on the use of cell phone, Out of 281 (100%) respondents, 279 (99.3%) responded whereas two of them (0.2%) did not answer. Some of them (45.2%) spend more than NPR 502 per month. Some of them (30.5%) spend in between NPR 301 to 500 per month. A few of the respondents (22.9%) have been spending in between NPR 101 to 300 per month. About 75.7 percent of school personnel have been spending on mobile phone in between NPR 301 to more than NPR 500 per month as per their need.

Hence, the data indicated that about two-third of the school personnel are ready to spend more than NPR 300 each month. Out of the total DEO personnel (28), 78.6 percent mentioned that their monthly expenditure is NPR 501 and above. Out of them, 3 (10.7%) respondents indicated that their monthly expenditure is in between NPR 100 to 300 and 3 (10.7%) respondents reported that his/her expenditure is less than NPR 100.

These data revealed that majority of the parents can afford on the average NPR 500 whereas some of them can manage up to NPR 300 per month for mobile phone. These parents can be motivated to use mobile phone for the promotion of early grade reading and education purposes for their children. School personnel can be further encouraged to use mobile phone for education purposes and home-based learning of children. Almost all district DEO personnel have been using mobile phone for their daily life and education purpose. There is need of encouragement for those respondents who are reluctant to use mobile phone for education purposes such as getting information from and sending and replying to school management and monitoring of their children's activities.

6.4.7 Communication using Mobile Phone

Most of the parents (52.3%) interviewed were found that they communicated occasionally to school management about their children's learning progress and difficulties. Some of them (37.9%) never communicated to school management and teachers. A few of them (5.8%) do not have their mobile phone so that they did not communicate to school management about their children's information on learning. However, 4 percent of the parents reported that they have been communicating their children's learning progress and other information to school management using their mobile phone. Out of the total school personnel (281), only 274 valid responses have been received, Out of total 207 (75.5%) used to communicate to parents occasionally. Amongst the teaching personnel respondents, 38 (13.9%) of them used to communicate the student's progress and learning difficulties to parents only in regular basis. Out of the total DEO personnel (28), it was found that almost all of them (89.3%) have been using their mobile phone to collect the information required to them in urgent case or to provide information of DEO to school management though there is not a regular practice on this initiative.

The data indicated that most of the parents were found communicating on occasional basis about their children's learning progress and difficulties and any other information to school management and teachers. It was also known that there is not a regular communication between school personnel and parents about the progress and learning difficulties of children

using mobile phone. Thus, there is need of encouragement to parents, school personnel, and DEO personnel to use mobile phone for communication between parents and school personnel and DEO personnel as well for education purposes and promotion of early grade reading.

6.4.8 Parents having Mobile Phone

Out of 525 parents interviewed, 483 (93.4%) have their own mobile phone whereas only 34 (6.6%) did not have their mobile phone. Eight of them (1.5 %) were non-respondents for this concern. The data revealed that as mentioned by 64.4 percent of the school personnel, more than 75 percent of parents in the community have their own mobile phones. Out of the total district education personnel (28), 21 respondents (75%) indicated that almost all the parents (76%) have their cell phone and have been using in their daily life and education purposes. Six of the respondents (21.4%) mentioned that more than 51 percent of the parents have their mobile phone and have been using in their daily life. Therefore, there is potential to encourage the parents to use their mobile phones for early grade reading promotion and education purposes.

6.5 Measuring Attitude towards Cell Phone Use

The attitude towards cell phone use includes the themes that are use of cell phone, use of SMS, communication through cell phone, monitoring of children's learning progress through SMS, expenses on cell phone, connectivity of cell phone, reading promotion and practice and school information sharing. The attitude of the parents on eight subthemes on cell phone towards its use was measured. Under this category, the data on preferred language, approach and strategy to use cell phone and SMS application were collected from the respondents.

The District Education Personnel are Resource Person (RP), School Supervisor (SS), Reading Motivator (RM), Community Mobilization Officer (NGO) and ICT personnel of District Education Office. They were inquired about the different aspects of cell phone and its use in education purposes and promotion of early grade reading. With a view to measure the attitude of District Education Personnel, eight subthemes were developed based on the main theme. Therefore, their attitudes were measured towards the different aspects of the cell phone, its relevant areas and their uses for educational purposes, promotion of early grade reading and monitoring of the activities of school.

6.5.1 Use of Cell Phone

The total parents as respondents towards the use of cell phone were 525 though number of non-respondents (NR) varies with respect to the attitudinal items. Almost all parents (90.7%) strongly agreed the need for using cell phone in their daily life and education purposes. Out of the total school personnel (281), almost all of them (93.8%) were found that they have been using cell phone to make and receive call on the matters related to their daily life and education purposes. Out of the total personnel of District Education Office (28), almost all of them (90.5%) have been using cell phone for their purposes in their daily life and education requirements for their children. All the respondents felt that the cell phone has been a part of their daily life and they are attentive to use cell phone for education purpose. Thus, the data indicated that they can use their mobile phones for early grade reading, monitoring of children's learning progress and difficulties and the progress of schools through communicating with the school management and relevant persons, monitoring of school's activities making an efficient use of their time.

6.5.2 Use of Cell Phone for Education Purpose

Out of the total parents sampled (525), almost all the parents (69.9%) though 79 of them were remained as non-respondents have been using cell phone occasionally to communicate the education status such as children's learning progress and difficulties, developing reading skills and habit of their children. A few of them (19.1%) have been using cell phone on regular basis to communicate about their children's education to schools. A few of them (5.4%) did not communicate to school whereas a negligible percent of respondents never communicated and 5.6 percent did not have the preference of communication about their children learning progress and difficulties. Out of the total school personnel (281), almost all of them (75.5%) have been using cell phone occasionally to communicate the education status such as children's learning progress, developing reading skills and habit of their children to schools. Seven of them (2.5%) did not respond the question and a few of them (13.9%) have been using cell phone on a regular basis to communicate about their children's education to schools. A few of them (9.5%) did not communicate to school whereas a negligible percent of respondents never communicated. Out of the total DEO personnel respondents (28), 27 responded the question. Almost all of them (71.4%) on occasional basis have been communicating the learning progress and difficulty of their children to school. A few of them (25%) used to respond the children's concerns on a regular basis. A very few of them (3.8%) were not positive to use to their mobile phone for this purpose.

The data revealed that almost all the respondents have started to communicate their children's educational status and learning difficulties to schools. This indicates that there is a high potentiality of using cell phone for educational purpose. DEO personnel are also highly positive to use mobile phone for educational purposes.

6.5.3 Use of SMS

Out of 525 parents, 481 parents responded the items on the use of SMS. Most of the parents (49.7%) have been using SMS in their daily life. They can read the SMS received from others and can send SMS to their relevant persons. However, some of them (42.0%) were found that they have not been using SMS to communicate to others. They need orientation on the use and relevancy of SMS to communicate each other and for education purposes. Out of the total school personnel (281), almost all of them (87.5%) have been using SMS through mobile phone. Almost all DEO personnel (88.9%) have been using SMS to communicate each other by sending, receiving and reading SMS in their daily life. The data indicated that all the respondents have been using SMS in their daily life for different purposes that include monitoring of school's activities, promotion of early grade reading of children and communication of relevant information to relatives, friends and other concerned persons. The data indicated that the mobile phones can be used for education purposes and promotion of early grade reading of their children as well. This is a very positive indication of the use of mobile phone for the promotion of reading and developing the reading skills of early grades.

6.5.4 Frequency of use of SMS

The total parents were 525 whereas 52 (9.9%) remained as non-respondents (NR) to the frequency of the use of SMS. Out of 473 total respondents (90%), more than one-third (33.2%) of them did not use SMS. Some of them (44.4%) have been using their mobile phone to send SMS whereas a few of them (18) used to send SMS on occasional basis. Only a few percent (3.6%) has been using mobile phone for sending SMS very frequently. Out of the total school personnel (281), seven (2.5%) remained as non-respondents (NR). Out of the total actual respondents (278), almost all of them (74.1%) have been using SMS occasionally through their mobile phone. A few of them (5.8%) uses SMS only sometime as per their requirements. Amongst the respondents, a few of them (6.5%) do not use mobile phone at all. Out of the total district education personnel (28), almost all of them (82.1%) responded that they have been using their mobile phone on occasional basis to communicate to the school management, relatives, friends and others as per need. A few of them (14.3%) said that they use SMS very frequently though there is a minimum percent of respondents (3.6%) use SMS sometimes as per their need.

The data revealed that the frequency of the SMS use varies with respect to parents, school personnel and district education personnel. They have been using mobile phone as per their need to fulfill their requirements. This is a positive indication that there is a high possibility of using mobile phone for education purpose and promotion of reading of early grades. This process needs to be encouraged by providing continuous encouragement to education personnel on this matter.

6.5.5 Number of SMS sending to relevant Persons

Out of the total 525 parents, 386 responded this question whereas 139 (26.5%) remained as non-respondents. More than two-third of the respondents (68.9%) used to send SMS once a week as per their need whereas a few of them (23.1%) have been sending seven SMS per week. Out of the total 281school personnel, 256 (91.1%) responded this theme whereas 25 (8.9%) remained as non-respondents. The data indicated that only a few percent (15.2%) of the respondents have been sending more than ten messages a week. The percent of sending SMS around seven messages and one message per week is very nearest (43 to 42 %). Five percent of district education personnel used to send SMS around seven messages per week. 35.7 percent of the district education personnel send more than 10 messages a week is 35.7. A minimum percent of them (14.3%) used to send SMS once a week only as per their need. Thus, the data reveal that the number of SMS sending to the relevant persons depends upon their need and willingness. However, the respondents were found realized the need of using their mobiles to send SMS to school management to monitor the progress and learning difficulties of their children and monitoring of school progress. This indicates that there is a high possibility of using mobile phone for education and promotion of reading of early grade through a continuous encouragement of the relevancy of mobile phone for education purpose and reading promotion of early grade children.

6.5.6 Preference of the Time for SMS sending to relevant Persons

Regarding the concern of time while sending SMS, out of the total 525 respondents, 409 responded this question whereas 16 (22.1%) remained as non-respondents. More than two-third of the respondents (68.9%) used to send SMS once a week as per their need. whereas a few of them (23.1%) have been sending seven SMS per week. Out of the total 281 school personnel, 267(95%) responded this theme whereas 14 (5%) remained as non-respondents. Almost all district education personnel responded that they preferred leisure time to send SMS through their mobile phone. A few of them (10.7-17.9)% preferred either morning or evening time. The data reveal that time preference for sending SMS varies with respect to the parents. This means that they are flexible of the preference of time while sending SMS. The

school and district education personnel preferred leisure time to send SMS, which saves their working time and efficient use of time as well. Thus, the timing of SMS plays a valuable role to use mobile phone for education purpose and promotion of early grade reading of their children.

6.5.7 Preference of the use of Language in SMS

Out of the total 525 respondents, 430 responded the reasons for the preference to the use the language in SMS whereas 95 (18.1%) remained as non-respondents. More than two-third of the parents uses Nepali language while sending SMS to others as per their need. More than one-fifth of the respondents preferred to use English language for sending SMS to others. A very few of them uses mother tongue while sending SMS whereas there is a negligible percent of respondents using both Nepali and English languages. Out of the total 281 school personnel, 275 responded this theme whereas 6 (2.1%) remained as non-respondents. More than half of the school personnel use Nepali language while sending SMS to others. More than one-third of them preferred to use English language for SMS. A very few of them (5.8%) uses mother tongue while sending SMS to others, whereas there is a negligible percent of respondents (3.6%) using both Nepali and English languages. Most of the respondents (67.9%) preferred to use Nepali language in Roman letter while sending SMS through their mobile phone. About one-third of them (28.6%) have been using English language as they have knowledge and skills of English language. A few of them (3.6%) said that they use mother tongue as well in Roman letter. Thus, a majority of the respondents have been using Nepali language in Roman text while sending SMS through their mobiles. The data indicated that there is a variation of the use of language while sending SMS. There is a higher preference to Nepali language followed by English while sending SMS. Thus, either Nepali or English language should be used in SMS while using mobile phone for education and reading promotion purpose. It is imperative to understand here than sending SMS in Nepali and mother language means that respondents used to type English letters to form Nepali or mother language word in roman type.

6.5.8 Reasons for the Preference of Language in SMS

While asking the reason to select the particular language to send SMS, out of total 525 parent respondents only 422 (80.4%) were the valid responses. Among the valid ones 182 (43.1%) mentioned their own choice while 155 (36.7%) mentioned the reason as easy to type. While 85 (20.1%) respondents mentioned the reason they don't know. Among the 281 teaching personnel 272 (96.8%) have provided the reason of their selection of language. Out of the valid responses 135 mentioned the reason as their own choice 122 (44.9%) mentioned the

reason as easy to use. Among 28 DEO personnel interviewed to identify the reason of their language selection, only 27 of them have responded. Out of 27 valid responses 14 (51.9) % mentioned their own choice while 12 (44.4%) mentioned the reason as easy to type the message.

The results show that respondents prefer the language due to their own choice of communication and typing friendliness with the letter in cell phone.

6.5.9 Number of SMS sending to relevant Persons

Out of the total 525 parents, 386 responded this question whereas 139 (26.5%) remained as non-respondents. More than two-third of the respondents (68.9%) used to send SMS once a week as per their need whereas a few of them (23.1%) have been sending seven SMS per week. Out of the total 281 school personnel, 256 (91.1%) responded this theme whereas 25 (8.9%) remained as non-respondents. The data indicated that only a few percent (15.2%) of the respondents have been sending more than ten messages a week. The percent of sending SMS around seven messages and one message per week is very nearest (43 to 42 %). Five percent of district education personnel used to send SMS around seven messages per week. 35.7 percent of the district education personnel send more than 10 messages a week. A minimum percent of them (14.3%) used to send SMS once a week only as per their need. Thus, the data reveal that the number of SMS sending to the relevant persons depends upon their need and willingness. However, the respondents were found realized the need of using their mobiles to send SMS to school management to monitor the progress and learning difficulties of their children and monitoring of school progress. This indicates that there is a high possibility of using mobile phone for education and promotion of reading of early grade through a continuous encouragement of the relevancy of mobile phone for educational purpose and reading promotion of early grade children.

6.6 Communication through Cell Phone

Almost all parents (80.0%) were found interested and ready to communicate to teachers, friends and relatives using cell phone though a few of them (13 %) were found reluctant on the use of SMS. They are ready to use mobile phone to communicate the progress and learning difficulties of their children to school management as per their need. Almost all school personnel (91.5%) out of the total (281) have a strong preference on the use of cell phone to communication for different purposes that included sending the messages to parents, relatives, friends and guests and monitoring of the activities of school. Regarding the use of cell phone, almost all district educational personnel (94.6%) were found interested to

communicate learning progress of their children to school management, teachers, and parents using cell phone. They have been using mobile phone in their daily life as per need for making an efficient use of time and effective communication to relative and school management. The data indicated that use of cell phone for calling, receiving call and sending SMS is popular amongst all type of the respondents. They were found ready to expand the use of mobile phone and SMS for early grade reading promotion and education purposes of their children and strengthening the communication between the relevant persons of the community, school and DEO personnel.

6.7 Monitoring Children's Learning Progress through SMS

Out of the total parents (525), almost all of them (74.3%) preferred to send SMS to school personnel to monitor the progress and learning difficulties of their children though a few of them (14.8%) were found reluctant. Out of the total school personnel (281), almost all of them (82.4%) agreed that SMS can be used for monitoring children's progress using mobile phone and communication of relevant activities of daily life. Only a few of them (8.6%) were not positive on this matter. Almost all district education personnel (90.0%) indicated their preference to monitor the learning progress and difficulties of their children using mobile phone, though a few of them (7.5%) were not ready to use mobile for this purpose. The respondents have been using mobile phones to some extent to communicate to schools management and teachers to understand the situation of school as well. Thus, there is a high prospective to initiate the use of mobile phone for monitoring the children's learning, especially for developing reading habit and skills of children and communication between education personnel and school management for better learning and promotion of early grade reading of children.

6.8 Expenses on Cell Phone

Out of the total parents (525), most of them (70.9%) were found ready to pay the charge of the cell phone to education purposes though a few of them (18.4%) hesitated to afford such cost. Out of the total school personnel (281), most of them (67.0%) were happy to pay cell phone charges to send SMS for education purposes and promotion of early grade reading. Regarding this, a few of them (21.4%) were not positive. Most of the district education personnel (83.5%) out of total respondents (28) were found ready to pay the charge required for cell phone to use for education purpose for the children of early grades. A few of them (13.7%) were found reluctant to pay the charge of cell phone to use in education purpose. Almost all respondents realized that they should use mobile phone and SMS to monitor

children's learning progress and difficulties, school activities and to collect other relevant information as well. They were found ready to afford the cost required for downloading educational songs, videos, stories for facilitating the children's learning, and promotion of reading. Thus, majority of the respondents were found ready to use cell phone for educational and daily life purposes.

The suggestion was that the service charges of the mobile phone need to be affordable by the parents and school personnel living in rural parts of Nepal. Those who do not have willingness they should be oriented to make them understand the relevancy of the cell phone in promotion of early grade reading and education. However, there is a high acceptance of the use of cell phone for education purposes that should be utilized and promoted with the support of Ministry of Education and concerned agencies.

6.9 Connectivity quality in Cell Phone

Out of the total respondent parents (525) most of them (66.4%) indicated that they have good connectivity of cell phone in their communities of the sample districts (Banke, Mustang and Kaski). A few of them (19.7%) did not agree this. Amongst the school personnel (281), almost all of them (64.4%) were found happy with the connectivity of the existing cell phone. A few of them (16.6%) were found dissatisfied on the existing connectivity of the cell phone. Out of the total district education personnel (28), almost all of them (81.6%) expressed that the connectivity of the existing service of the mobile phone is excellent and can be connected easily. A few of them (11.8%) felt that the connectivity is poor and felt the need of improvement for the efficient use of cell phone.

Thus, the existing connectivity of the cell phone found helpful to use the cell phone for education and daily life purposes of the customers. Those who were found dissatisfied with the connectivity of the cell phone are generally from remote location. However, the data indicated that there is a good connection in most of the communities in the sample districts. The connectivity is supportive to use mobile phone for educational purposes in these districts.

6.10 Readiness for the use of SMS on School Information

The data revealed that almost all parents (93.3%) have been sending and receiving SMS about the school information on the activities listed above through SMS using their mobiles. The data revealed that almost all education personnel (86.8%) have been sending and receiving SMS about the school information on the activities listed in the table above through SMS using their mobiles. A few of them (9.9%) did not use SMS for receiving and sending

school information. The total respondents for this concern were 28 where as one them remained as non-respondent. A total of 27 respondents (96.4%) responded the items related to their readiness to send and receive SMS through their mobiles. Almost all respondents (90.3%) were found positive to send and receive SMS through their mobile phone about the sharing of school information. The details of the school information are listed in the above table. Only a few respondents (5.7%) were not ready to use their mobile phone for this purpose.

The data indicated that there is an encouraging ground that all respondents have already initiated to some extent to use mobile phone to communicate school management and teachers about their children are learning progress and difficulties. They have been receiving the information from the school as well. Further, it is obvious that there is necessity for developing a systematic approach to promote the existing practices of using mobile phone effectively for promotion of early grade reading and overall monitoring of their children's education progress and the activities of school as well.

6.11 Reading Promotion and Practice

Out of the total parents (525), almost all of them (82.6%) were found eager to use their cell phone for reading and education purposes of their children. A few of them (9.1%) were not enthusiastic for this. Almost all the school personnel (91.9%) of the total 281 (100%) respondents expressed that they have willingness to use mobile phone to promote reading habit and developing reading skill of their children and communication to school management. A few of them (3.1%) were found that they did not have such willingness. Out of 28 district education personnel, almost all of them (93.6%) showed their interest to monitor the learning progress and difficulties of children and reading practice of early grade children. Only a few of them (3.6%) were not positive to use SMS for monitoring the learning progress and difficulties of their early grade children. Almost all respondents were found keen to use cell phone for education purposes, monitoring school status and communication amongst district educational personnel and school management (head teacher and teachers) with a view to efficient management of time. Thus, cell phone could be utilized for reading promotion and education purposes of their children that include promotion of reading habit and skill of children.

6.12 School Information Sharing

Out of 525 parents, almost all of them (78.9%) were found interested to receive SMS about the school holidays and learning progress of their children and sharing all the school

information each other. Only a few of them (12.4%) were not ready for this. Out of the total school personnel (281), almost all school personnel (79.7%) felt that they are happy to receive and provide the information from school and are ready to respond the query of schools about their children's education progress and status of reading as well. A few of them (10.3%) were not positive on this matter. Out of the total district education personnel (28), most of them were found enthusiastic to get school information through SMS from school management and teachers. A few of them (3.6%) were not found ready to use mobile phone for these purposes.

A few of the respondents were not positive to share school information by using mobile phone and SMS. This is due to their inadequate knowledge and lack of understanding of the relevancy of mobile phone and its uses in their daily life and education purposes and promotion of their children's education. However, the data indicate a clear picture that almost all the respondents are ready to use SMS to get information from the schools and replies to school management as per need. Thus, there is a high possibility to use mobile phone for educational purposes of their children.

6.14 Implication

The main implications of the cell phone application in education field, especially for early grade reading promotion will be the following:

6.14.1 Support to ICT Program

Cell phone application is as a part of ICT. Its application should be an integral part of ICT program to utilize this service effectively in education field. Its effective utilization will contribute to strengthen the activities initiated by Ministry of Education at District Education Office, local authority and school level.

6.14.2 Strengthening Communication

The key stakeholders are ready to utilize cell phone application in education field at different levels (e.g. Ministry of Education, District Education Office, local authority, school and community). So, this device and services should be utilized establishing an appropriate mechanism amongst them for strengthening communication on education related activities providing necessary support to them.

6.14.3 Establishing the Institution Linkage

The application of cell phone in education field will increase the communication amongst educational institutions and personnel engaged in the system. It will help timely and efficient

communication amongst them that would contribute for further institutional linkage in education activities.

6.14.4 Increasing the Engagement of the Parents with School

The application of cell phone for communication between school, parents and even with District Education and local authority will help to bring the parents nearest to the education system. This will assist in developing a rapport with school, parents and children. The use of cell phone to communicate, especially between parents and school will help to improve the teaching learning process in school and will build a system of proper communication amongst themselves.

6.14.5 Effectiveness of Monitoring

The application of cell phone will be an effective and efficient device for monitoring of education activities amongst all education institutions. This will be useful to get essential information and data required for the system that will save the cost and facilitate effective utilization of human resources in the system and subsystems. Ultimately, it will contribute in proper decision making timely and increasing system efficiency.

6.14.6 Support to Increasing Education Efficiency

The proper application of cell phone in education activities is required to increase education efficiency in the system at different levels through proper and timely sharing of information. Thus, there is need of start up the using of cell phone in education field with policy support and empowering the existing human resources available in the system and collaborating with Telecom service providers in the country.

CHAPTER 7: APPROACH AND STRATEGY FOR CELL PHONE APPLICATION

The study on the cell phone application at home and school level for education purpose and promotion of early grade reading has presented a number findings based on the data obtained through the analysis of primary and secondary data. As guided by the findings of the study multiple alternatives have been identified that would help to cell phone application for education activities and promotion of reading of early grades children at school and home. As cell phone is an integral component of ICT that can be used in reading, teaching, and learning process either in early grades at home by parents, school management and teachers. The technical feature of cell phone application, approach and strategy of its use in the education field and promotion of early grade reading are presented below:

7.1 Scenario of Key Stakeholders on using Cell Phone Application

This section presents the information based on the findings from analysis of data collected from the key stakeholders of education field including parents of early grades children, school personnel, personnel of District Education Office, and Senior Officers of Ministry of Education and central level line agencies. The school personnel include head teachers, teachers, members of school management and Parents Teachers Association whereas the personnel of District Education are District Education Officer, school supervisor, Resource Persons and administrative and technical officers. They are well knowledgeable, informative and accept the use of technology in promotion of education. They are ready to afford the reasonable cost of cell phone application in education field using device type based on its utility and value. Therefore, there is high accessibility and affordability of these stakeholders to use cell phone application in education.

Regarding the parents, they are of different economic status so that the expenditure of cell phone should not be compared with the personnel of school and District Education Office and senior officials of Ministry and central line agencies. Therefore, the accessibility and affordability cost of cell phone application were further analyzed to identify its feasible approaches. For this purpose, cross sectional study of parent's population with respect to possession of cell phone type and their education, occupation, and average monthly expenses was carried out to understand their affordability status.

7.1.1 Device types Vs Parents' Education Background

The data on device types and education background of the parents indicated that amongst all parents, 3.3 percent of them are illiterate who possess bar phone. Amongst the illiterate parents category 1.8 percent have feature phones. Out of these parents, remaining 94.9 percent have either smart phones or are capable to use smart phones based on their literacy and formal education achievements. This showed that with respect to education background of the parents and device they have indicates that parents are ready to utilize the cell phone application to education field. (Refer Annex IV for the details of the data on device type and education background of the parents).

7.1.2 Device type Vs Occupation of Parents

The analysis of the relation between occupation of parents and cell phone device type used, 18.2 percent of the parents who have been using Bar Phone were farmers whereas 4.3 percent were labors. The data reveals that that the parent are capable to use smart phone and feature phone to use audio visual and multimedia applications which are useful devices to early reading promotion. (Refer Annex V for the details of the data on device type and occupation background of the parents).

7.1.3 Device type Vs Parents' Monthly Expenditure on Cell Phone

The monthly average expenditure on cell phone is even less than NPR. 100.00. The expenditure is independent of device types, only 4.5 percent of them were found in Bar Phone user. The Smart Phone user parents are around 50 percent. The data reveals that that the parent are capable to use smart phone and feature phone to use audio visual and multimedia applications which are useful devices to early reading promotion. (Refer Annex VI for the details of the data on device type and monthly expenditure of the parents).

In overall, the availability of services and trend to use smart phone is widespread among people of Nepal irrespective of their education, occupation, and income. Therefore, there is a strong feasibility to utilize cell phone application in education at school and home for promotion of early grade reading. However, there is the need of providing support to the parents through the availability of effective services, conducting awareness, proper guidance, and promotion of the education activities initiated by them through cell phone application.

7.2 Technical Feature of Cell Phone Application

The technical features of cell phone should be supportive to use in education field including early grade reading promotion. With this core objective, technical feature of cell phone application is has been discussed in brief.

Cell phones are fundamentally telephone devices that can help us to communicate while on move. Later with the integration of value added services, computer technology, and touch screen features these devices are used becoming single device with multiple number of functions. Later with the advancement of internet technology its integration with smart phones now smart phones are virtually converged with all kinds of services with the help of mobile applications called Apps. As per availability and features of the devices cell phones are available in bar phone, feature phone and smart phone categories. Even now feature phones have lost the relevancy.

Bar phone have key pads in it and they are used for voice calls, SMS, and audio players like music with memory card and FM radios. Features phones have key pads with comparatively big screen than bar phone and are capable for audio visual services. Smart phones have touch screen features to input the commands for all kinds of functions. It has large screen almost in its size and it can be used with graphics, audio, visual and multimedia services. These phones are capable to use mobile Apps to enable smart phone into one device for all.

7.3 Feasibility of using cell phone functions in Education

The existing system of cell phone application is feasible and supportive to run the different types of education activities and there is a wider scope of using cell phone application in education field. Following are presented as examples.

7.3.1 Feasible use of Audio Visual (AV) based Application in cell phone (visual for Smart and Feature phones)

(a) Record own generated audio visual education stories, songs, rhymes, anthems, slogans, mantras, activity briefings of tours/observations, experience sharing and so on can be delivered through Smart and Feature Phones in all three geographical belts of Nepal.

(b) The recorded stories, songs, rhymes, anthems, slogans, mantras can be downloaded from free sources, listened and shared.

7.3.2 Feasible use of Cell Phone as Internet and Multimedia Applications

The following education activities are feasible by using Smart Phone:

(a) Down load and use of curriculum and course content based online and offline books, references, teaching aids from official and prescribed sources.

(b) Download and use of texts, pictures, photos, videos, supporting the lesson plan and class activity from online and offline sources.

(c) Use of dictionary and e-library.

(d) Carrying out the creative assignments such as related to general knowledge and sharing of creative ideas.

(e) Demonstrative and activity based teaching practices either in classroom or even at home.

(f) Sharing of all types of digital contents amongst teachers, friends and parents.

7.3.3 Feasible uses of SMS based Service Applicable

The Bar, Feature Phone and Smart Phone can be used for SMS based application for the following education activities:

A. Reading and Learning Activity

(a) The cell phone application through Bar, Feature and Smart mobile phones can be used for different types of reading and learning activities. The following are presented as examples:

(b) Listening and reading short stories

(c) Sharing of information of the useful links and addresses about online/stored contents to the relevant persons.

(d) Correction of error in textbook or in any education materials by providing information

(e) Revision of the contents of the text books

(f) Sharing of numbers, lessons and texts

B. Information Sharing and Communication (Individual, Group, or Mass)

(a) Arrangement of teacher meeting, parents' meeting and sharing of the decision

(b) Sharing of the information on relevant accidental events

(c) Sharing of school closures, holiday, disaster, sickness, changed of schedule and programs, organization of extra-curricular activities

(d) Sharing of feedback to parents, students, teachers and members of School Management Committee and Parents Teacher Association

(e) Monitoring of the activities related to school, teachers, parents, students and providing support through SMS.

C. Information to the Parents about School related Activity

The following types of information can be shared amongst the parents and teachers and can get replies as well:

(a) Sharing of the examination results of student

(b) Providing home assignments, project works etc. to students and confirmation of the progress.

(c) Taking the disciplinary actions as necessary from school and informing parents

7.4 Approach

The study indicated that there is readiness amongst the personnel of Ministry of Education and central line agencies, school and District Education to use mobile phone application in education. Moreover, eagerness is there among parents to use cell phone based applications however they are unaware of the correct way to use it. With a view to initiating the cell phone application in education field, the following will be the main approaches:

7.4.1 Readiness of Ministry of Education and Central Line Agency

ICT has been an integral part of education. Ministry of Education has been investing on ICT realizing its importance in education sector. In the context of rapid development of technology, ICT can play a significant role in education sector for effective and efficient use of resources of the country in education development. Thus, Ministry of Education and central level line agencies should be ready for the utilization of cell phone application at school and home for early grade reading promotion and monitoring the school activities,

7.4.2 Readiness of District and Local Authority

The central, district local authority agencies should be ready to the application of cell phone in education field, especially in early grade reading promotion. To achieve this objective, Ministry of Education and central level line agencies should be oriented on the application of cell phone in education field and early grade reading. Then after, they should provide orientation to the personnel of District and local authority on why there is need of using cell phone in education field and why it is necessary for promotion of education and early grade reading. This process helps to prepare the central, district and local authority agencies to be ready to use mobile phone in education field and promotion of early grade reading.

7.4.3 Developing Willingness of School Teachers and Management Body

There is necessary to develop willingness of school and parents to use mobile phone in education field and early reading promotion in school. The school head teachers and members of school management body of the schools are the key persons to accept the use of any type of technology in school. Therefore, they should oriented and trained in cell application in education field to make effective management of school and improving teaching learning process in schools.

7.4.4 Motivating Parents and Children

The parents are the key persons who contact school teachers and management body of school. They are responsible to monitor the activities of school and teaching learning process in school. The mutual support of school teacher and management body of school and parents certainly contribute in effective teaching and efficient use of the resources for education development in the country. Thus, the parents should be motivated to use cell phone for effective communication between school management and parents with a view to a better teaching learning and achieving quality education.

In addition to the above, the children are the beneficiary of the use of cell phone. So, it is necessary to inform the children how cell phone is planned to use and what its benefits to school management, parents and students as well.

7.4.5 Collaboration with Telecom Service Providers

Technically call, SMS and Internet based applications and solutions are available. The types of cell phone in use, the services that can be obtained are different either they are offered by telecom and content service providers or by the device itself. The use of smart phone and Internet is increasing and is going to be main stream of cell phone possession among all stakeholders very shortly. Therefore, this study has identified the various services that can be used based on the device types (Bar phones, Feature phones, and Smart phones). Regarding this, telecom service providers can play a vital role in the use of cell phone in education field, especially starting from early grades. Thus, the Ministry of Education has to work closely with the telecom service providers to bring the use of cell phone in education and its sustainability. The MOE has to explore a low cost option of using cell phone in education field working with telecom service providers.

7.4.6 Monitoring and Follow up Support to Local Authority

During the course of the using cell phone in education field with an appropriate program in school level, there is need of its close monitoring and follow up support to all the stakeholders involved in this process. This system will help to improve the quality of cell phone application and service delivery to the parents. Thus, the central level line agencies have to develop a mechanism of monitoring and technical support to all stakeholders participated in this process.

7.5 Strategic Procedures

The strategic procedure on cell phone application is proposed in education field and promotion of early grade reading in the context of Nepal. This aimed at engaging parents and

children in home-based support and SMS monitoring for early grade reading. In addition to this, the personnel of District Education Office and school; and members of school management and Parents Teacher Association (PTA) can use cell phone application for sharing the school information and monitoring the education activities.

7.5.1 Policy Support from Ministry and Central Line Agency

The discussion with the Ministry of Education, central line agency, provincial and local authority should be carried out to make cell phone application as an integral part of ICT. Their support should be harnessed to utilize the cell phone application in education field. This will help to initiate the cell phone application at different level for education purposes.

7.5.2 Developing Education Program

This study found that SMS services can be used to monitor various education and performance related activities. These monitoring teacher and students attendance, sharing of the information of the holidays/leaves in school amongst teachers and students, communication of the home assignments, assigning the project work to students, sharing the examination results, collection of the feedback, arrangement of meetings, and disciplinary actions, Under this scenario the central level agencies should prepare education program required for the cell phone application on promotion of early grade reading and education activities. For this, there is need of technical support from the experts of ICT to make the program effective to the target group and sustainable.

7.5.3 Orientation on Cell Phone Application

The central level agencies have to develop orientation program on cell phone application to education activities and promotion of early grade reading. The orientation should be conducted at different levels that are (i) orientation to central personnel who have been working at ICT, program, monitoring and evaluation and the senior personnel of policy level, (ii) orientation to the district level personnel on the application of cell in education activities and promotion of reading of early grade at school and home through the mobilization of school management, teachers and parents, (iii) orientation to school management and teachers on cell phone application for education activities and promotion of reading for early grades and (iv) orientation to parents on the application of cell phone for the promotion of early grade reading and education activities and their roles and responsibilities at home to support their children in learning process.

7.5.4 Monitoring and Technical Support

The central agency has to prepare a system of monitoring of the application of cell phone in education activities and promotion of reading of early grades. This system should be an integral part of the cell phone application at home and school for promotion of reading of early grade children. Based on the monitoring report and feedback obtained from the field the strategy of the cell phone application should be updated to make this system and process appropriate to the local context of school.

7.5.5 Application of Cell Phone in Education Activity

Various alternatives with respect to the nature of the cell phone devices can be proposed to use in education activities. A matrix of application devices, applicable services and types of engagement for education activities is given as an example below:

Table 7.1: Comparative Matrix on the Applicable Device and Education Activity

Applicable Devices	Applicable Service	Education Activity
Bar phone, feature phone, Smart phone.	Phone call and SMS	Short stories, communicate links, share contents and their sources
Memory card based bar phone, feature phone, smart phone	Sharing contents	Audio contents to listen stories, songs, rhymes, slogans from official & free sources.
Smart phones	Audio visual, internet and multimedia based contents	Useful texts/lessons, photos, visuals, demonstrative activities using offline and online sources.

7.5.6 SMS application solution model with Responsibility Matrix

So as to implement the SMS based services there are three different models are available. Each model has been evaluated based on its requirement, responsibility of work, and features. These are the basis to select one model among three alternative to implement SMS based applications in early grade reading. Their comparative chart is in Table 7.2.

Table 7.2: SMS solution model vs Responsibility Matrix

Model	Model Vs Responsibility Matrix					
	Agency Agreement	Obtain Code	HW & OS	Interconnect media	Technical support	Application development
Model-1	Client	Client	Client	Client	SMS provider	SMS provider
Model-2	Client	SMS Provider	Client	SMS Provider	SMS provider	SMS provider
Model-3	with SMS provider	SMS Provider	SMS provider	SMS Provider	SMS provider	SMS provider

7.5.7 Model with Feature Matrix

The models described above are different in terms of their features and implementation schedules. Based on the requirement cost, security, and time also varies. So as to ease EGRP to select one SMS based solution among three alternatives Model vs. feature matrix has been given in Table 7.3. This table compares the features like cost per SMS, Initial implementation time, security, control, legal procedural parts and volume of SMS to be used against each model.

Table 7.3: SMS application solution model vs Feature Matrix

Model	**Model Vs. Feature matrix**					
	Per SMS cost	**Time**	**Security**	**SMS volume**	**Control**	**Agency agreement**
Model-1	Lowest	Long	High	High	Client + SMS provider	Client responsibility
Model-2	Lower	Medium	Moderate	High	Client + SMS provider	Client responsibility
Model-3	High	Short	Moderate	Medium	SMS provider	With SMS provider only

7.5.8 Variable Cost of Model

The cost is a primary component to be considered before actual field work. The SMS solution model to be adopted has been evaluated in terms of total cost incurred to implement the model. Total cost consists of fixed and onetime cost as well as variable cost. These costs are average estimates of costs based on the data obtained from the field and telecom and SMS service providers. The matrix of the variable cost is in Table 7.4.

7.5.9 SMS application models Vs Total Cost

The SMS application model demands a certain amount of money which is common for each model. The total cost varies in each model based on the number of SMSs used with respect to given period. Based on the volume of SMS to be used in a year, the total cost to get incurred has been computed and compared for each model to implement the solution. The comparative chart is in Table 7.5.

Table 7.4: Variable Cost of Model

Fixed and Onetime costs			Variable costs		
SN	**Activity based costing (Fixed & Onetime)**	**Cost in '000 NPR**	**SN**	**Activity (per SMS use)**	**Cost in NPR**
1	Agreement/Liaison (One time)	500	1	Per SMS cost (as per agreement with TSP)	0.5
2	Setup/HW/Media (One time)	1000	2	Per SMS cost (as per agreement with SMS provider)	1.5
3	S/W application cost (One time)	1000			
4	O&M Charges (4 Man / 1 year) (Fixed)	1000			
	Total cost	**3500**			

Table 7.5: Comparative Cost of Each Model with respect to number of SMS to be used in a year.

SN	Volume of SMS transactions (per year)	Model 1 (Fixed + Variable cost)	Model 2 (Fixed + Variable cost)	Model 3 (Variable cost)
1	1,000,000	4,000,000.00	3,500,000.00	1,500,000.00
2	2,000,000	4,500,000.00	4,000,000.00	3,000,000.00
3	3,000,000	5,000,000.00	4,500,000.00	4,500,000.00
4	4,000,000	5,500,000.00	5,000,000.00	6,000,000.00
5	5,000,000	6,000,000.00	5,500,000.00	7,500,000.00
6	6,000,000	6,500,000.00	6,000,000.00	9,000,000.00
7	7,000,000	7,000,000.00	6,500,000.00	10,500,000.00
8	8,000,000	7,500,000.00	7,000,000.00	12,000,000.00
9	9,000,000	8,000,000.00	7,500,000.00	13,500,000.00
10	10,000,000	8,500,000.00	8,000,000.00	15,000,000.00

The above comparison shows that up to 3 million SMSs uses in a year adoption of model 3 is suitable while Model 1 and 2 are comparable from cost point of view. Therefore, considering

3 million or more number of SMSs to be used in a year, model 1 and 2 incur similar cost while model 3 is different than 1 &2. Thus Model 3 is suitable where 3 to 5 million SMSs are used in a year.

8. Pilot Test the Project of Cell Phone Application

This section consists of preparatory and other activities to be carried out to conduct the Pilot project to use SMS based cell phone application in early grade education in sequential order.

8.1 Preparatory Activity

The description to the some of the activities for planning and implementation of the pilot project on cell phone application are the following:

8.1.1 Ensuring Cell Availability

Cell phone coverage is generally available across the country. QoS improvement and broadband access is in progress. Project Implementation Unit can official request Telecom service provider through MoIC/NTA to work on improvement, if required.

8.1.2 Preparation of Detail Project Plan

Finalization of service requirement specifications for the use of call, SMS and multimedia application are as follows:

(a) Set the target group and goal.

(b) Finalize the approach for phone call, SMS, & multimedia based application

(c) Finalize and test the service provisioning.

(d) Ensure the technical readiness to operate cell phone call based audio service, SMS based service, multimedia based AV service; its medium, modality of operation, & cost sharing.

(e) Ensure the technical readiness for service operation.

(f) Conduct the testing

8.1.3 Ensure Accessibility

All teaching personnel and almost all parents (above 95%) have accessibility to cell phone. The program unit may partially compensate to those parents who do not have access to cell phone, if required. Moreover, increasing trend of smart phone use across the world including Nepal shall ensure the accessibility. Also, information, education and awareness about the benefits of cell phone use in education can further improve the accessibility. The cost of bar type cell phones are available at very low price below NPR 1000.00 to high around NPR 100k for latest models of smart phones.

The cost of service use for parents in case of call is affordable but actual perceived price of SMS and data service is high. For the parents below the poverty line the cost of service used is high. The cost may be compensated to parents for basic and limited use of information and contents. For this purpose, government agencies can facilitate to offer the services on discounted price by justifying the cause and partnering with telecom service providers.

8.1.4 Prepare the database

(a) Collect the cell phone data consisting of cell phone number, alternate number, address, data update channel of parents, teaching personnel, teaching support personnel.

(b) Digitization of collected data into the database with proper backup

8.1.5 Develop Awareness

(a) Parents, teaching, and teaching support personnel should be made aware on the proper use of cell phone and SMS based application with their benefits. Awareness shall be made by communicating the most contributing factors obtained from regression analysis with examples.

(b) To develop the awareness information dissimilation from various channels may be used. Social marketing campaigns using local channels are most effective ones.

8.1.6 Develop the Contents

(a) SMS contents with their templates in Nepali and local languages

(b) Audio contents to be used with telephone system and cell phone calls

(c) Visual contents

(d) Interactive digital contents available on mobile applications

(e) Publish booklet, guide books with detail procedure to access and availability of online and offline contents

(f) Make available the content through a single source, increase visibility

8.1.7 Conduct Demonstration and Orientation

a) Conduct orientation program to teaching personnel

b) Conduct demonstration to parents groups along with the early grade children

8.2 Pilot Test the Project of Cell Phone Application

As there is feasibility of the cell phone application in education activities, there is need of pilot testing a small project on cell phone application. The details are given the matrix below:

Table 7.6: Matrix of Pilot Project on Cell Phone Application

SN	Activity	Responsibility	Timeframe (Cumulative)
1	**Structural Setup:** Constitute an appropriate mechanism in collaboration with DOE to pilot test of the project on cell phone application	DOE/CLA/EGRP	Within 1 Month
2	**Preparation of Project Implementation Plan:** Detail formation of Service requirement specification with detail pilot project plan	EGRP/DOE/CLAs	Within 2 Months
3	**Ensure Availability:** Communicate officially, hold discussion and request to ensure service availability through MOE/MoIC/NTA to TSPs for rural mountain (if possible).	EGRP/DOE/CLAs	Within 1months.
4	**Preparation of the database:** Develop data collection form and collect the cell phone data consisting of cell phone number, alternate number, address, teaching personnel, teaching support personnel, and data update channel. Digitization of collected data into the database with proper backup.	EGRP/DOE/CLAs/DEO	Within 2.5
5	**Ensure the Accessibility:** Cell phone device (compensate some part to those who do not have), Top-up value (average use).	EGRP/DOE/CLAs/DEO	Within 1 month
6	**Technical Support:** Setup the technical solution: Agreement with Service providers.	EGRP/DOE/CLAs/DEO	Within 1month
7	**Content Development:** Develop the contents for SMS/call/audio visual for pilot test using mobile phone application	EGRP/DOE/CLAs/DEO	Within 2 months
8	**Awareness Building:** Develop the awareness (Orientation & Demonstration to parents & Teachers)	EGRP/DOE/CLAs/DEO	Within same period
9	**Pilot Project Implementation**: Pilot the programs in 3 districts of EGRP representing mountain, hill and Terai and collect feedback	EGRP/DEO/DoE	Within one year
10	**Impact Evaluation:** Evaluate the process and impact of the pilot project on cell phone application	EGRP/DEO/DOE	Within one academic year
11.	**Organizing Sharing Workshop:** Conduct sharing workshop on the pilot project on cell phone application	EGRP/DEO/DOE	Last month of the academic year
12.	**Revision of the Strategy:** Revise the strategy incorporating the findings of the report on process and impact evaluation.	EGRP/DEO/DOE	Completion of the study and then in 3weeks

CHAPTER 8: SUMMARY OF FINDING AND RECOMMENDATION

8.1 Profile of Respondents

The study was conducted in three sample districts namely, Mustang (mountain), Kaski (Hill) and Banke (Terai). The total respondents were 525 parents, 281 school personnel and 28 District Education Personnel from these sample districts. The actual respondents vary with respect to questions on the themes, subthemes and items of attitudinal constructs of the study. A gist of their background information is presented in below sections that would help to understand the findings and recommendations of the study.

8.1.1 Gender

The composition of gender of the responding parents was 183 (36.7%) male, 315 (63.1%) female and 1(0.2%) others. In case of the parents, there is 26.4 percent more female. Regarding the 281 total school personnel participated in the survey, their gender composition is 56.4 percent male and 43.2 percent female amongst 257 (91.5%) actual respondents. The number of male is more by 13.2 point percent. Regarding the DEO personnel, the actual respondents were 25 (89.3) and their gender composition was 84 percent male and 16 percent female. The percent of male is more by 68 percent in case of District Education personnel. However, the number of female's participation in interview and focus group discussion is appreciable.

8.1.2 Age Group

Amongst the total respondents of the parents, most of the parents (69.1%) were found in the age group of 26 to 40. A few of them (16.4%) were within the age group to 20-30. Regarding school personnel, about 40 percent of the parents belong to 31 to 40 age group and more than one-third of them belong to 39.5 age category. All DEO personnel (79%) belong to the age group 31 to 50 whereas a few of them (14%) were above 50 year age group. The data of the age group indicated that the study represents different age groups that covered a diverse and valuable experience in cell phone application for education purpose and reading promotion and practice of early grades children.

8.1.3 Education Background

Out of the total respondents (525), 472 (89.9%) responded the question among which 36 (7.6%) were illiterate, 210 (44.5%) were literate, 132 (28%) had basic education, 75 (15.9%) had secondary level education, 16 (3.4%) had Bachelor Degree and 3 (0.6%) had Master Degree and above. Amongst the total school personnel (281), 5.7 percent were literate, 11.5

percent had basic education, 36.5 percent had secondary education, 34.4 percent had Bachelor Degree and 11.9 percent possessed Master Degree and some of them (46.3%) had Bachelor Degree and above. Only a few percent of them (5.7%) were under literacy category. Out of the total DEO personnel (28), 42.3 percent possessed Bachelor Degree whereas 57.7 percent belonged to Master Degree.

The data of education background of the respondents indicate that almost all of them have adequate education background to understand the uses of cell phone application for different purposes in their daily life and education purpose such as early grade reading promotion, monitoring of educational progress and learning difficulties of children, relevancy of education, and efficient use of time and future return.

8.1.4 Occupation

The occupation of the respondents who participated in the survey in terms of percentage were 3.2 teachers, 54.5 farmers, 16.9 labour workers, 4.3 service holders, 11.3 small or medium business people and 9.7 other category who did not specify their occupation. The data indicated that more than 50 percent of the respondents were farmers. Out of the total school personnel (281), 64 (24.5%) were head teachers, 126 (48.3%) teachers, 55 (21.1%) members of SMC and 16 (6.1%) members of PTA. There were 20 percent of the respondents (7.1%) who were the members of SMC and PTA belonging to the occupations that are agriculture work, small business etc. Regarding the major occupation of district education personnel, there were government service holders. However, the majority of them (75%) have agriculture as their secondary occupation to support to their daily life and the remaining (25%) have a small enterprise supported by their family members.

The occupation of the respondent indicates that there is a diversity of respondent's occupations that include teaching service, agriculture, labor work, government and non-government service, business and others. As there are more than 50 percent farmers representing rural people, they were the major source of data for this study.

8.1.5 Mother Tongue

Out of the total parents 469 responding the concern on mother tongue, almost all of them (89.3%) belong to Nepali language whereas remaining (10.8%) belongs to the mother tongue consisting of 3.6 percent *Maithili*, 3.6 percent *Awadhi* and 3.6 percent *Tharu*. Amongst the total school personnel responding the question, 87.3 percent belongs to Nepali language whereas remaining (12.7%) are of mother tongue consisting of 2.5 percent *Maithili*, 3.4 percent *Awadhi*, and 1.8 percent *Tharu* and 5 percent other languages. Regarding the

personnel of District Education Office, 90.6 percent of them belong to Nepali language whereas remaining (11.4%) are of mother tongue consisting of 1.2 percent *Maithili*, 2.1 percent *Awadhi*, and 1.0 percent *Tharu* and 7.1 percent other languages.

The data indicated that almost all respondents have been using Nepali language for speaking and writing as well. The percent of the respondents having mother tongue were found at the range of 1.3-7.1 % in the sample households of the study districts. The data revealed that almost all the respondents have been using Nepali language in the form of *Roman* text to send SMS through their mobile phone as they felt convenient to use Nepali language.

8.2 Existing Telecom Services

The existing Telecom services are described in terms of service availability, service accessibility, Voice call based solution (Toll free service), Service Accessibility, and SMS based solution. These are linked with the use of mobile phone for education purpose in general and specific in early grade reading.

8.2.1 Service Availability

Telecom service business is liberalized Sector. Maximum 80 percent FDI is allowed. Telecommunications Act, 2053 & Regulation 2054 are the main legal frameworks. Several Policies like Frequency Policy, ICT Policy, and Broad Band Policy are in place. Two operators Nepal Telecom & Ncell are the major players that cover above 95 percent market share (NTA-MIS).

Global system of mobile communications (GSM) is the leading technology and 4G is the latest introduction in Nepal Telecom services. Cell phone network coverage is available across the country. Quality of service is not satisfactory due to geographical terrain, electricity, and remoteness. However, Nepal Telecom and Ncell have coverage with comparatively good quality service for voice and data in the densely populated cities and urban areas of Nepal. In rural areas of Mountain and Hill geographical regions, Nepal Telecom provides a better service than Ncell, whereas in rural areas of Terai, Ncell has a better coverage than Nepal Telecom. Furthermore**,** Internet service providers have a significant presence in core cities of urban areas of Nepal. Moreover, companies like Sparrow SMS, Focus one, Infiquer solutions have been providing standard and customized service solutions for SMS and other over the top (OTT) contents with different value added services.

8.2.2 Service accessibility: Voice call based Solution (Toll free service)

Nepal Telecom and Ncell both offer toll free services to their customers. NT's Toll free number range is 1660-01-XXXXX; where XXXXX can be chosen by client as per availability. These numbers can be accessed by NT subscribers only. Other operator subscribers and Int'l subscribers cannot access this service. Ncell Toll free number range is +97798-XXXXXXXX that can be can be accessed by all subscribers but it is Free for Ncell subscribers only. Other operators have to pay as per prescribed call charges to use these services. Two models are available for operations but telecom service provider based model is feasible one. In this model, system features of telecom service provider are used and the problem of traffic dimensioning is not a problem.

8.2.3 Service Accessibility: SMS based Solution

Third party operators provide the services. Two models of the services are major. Modality 1: Use own SMS GW, Server, code, media, operate at own premises and out-source the technical support. This model has following features. This model is costly, secure, and suitable for long term and large volume transactions. However, its initial setup liaison is complex and time consuming, customized and control. The Ministry of Home Affairs practiced such model for disaster alerts and Inland Revenue department for tax payment confirmation. Modality 2: Use the service as a client of SMS service provider that out-sources the entire service. This model has the features that have lowest initial setup cost, secure but can have issue with shared code, suitable for short-term and small/medium volume. This model is a completely outsourced model.

8.3 Current Practice of Using Cell Phone in Education Institutions

In education field, Higher Secondary Education Board (HSEB), TU, and Higher Secondary School Association of Nepal (HISSAN) have been using SMS services for result announcement. Several educational institutions, especially schools are using Notice Board Service of NT for information dissemination about leave, holidays in school. The existing practices are SMS alerts/ reminders, periodic parent teacher communication calls. In addition to this, there is a practice to broadcast SMS tips for closed group, notices and reminders broadcasts. There is an increasing trend to use mobile Apps instead of SMS. For example: bus tracking system, mobile Apps sync with SMS, multiuser features etc. NCED focuses on use of smart phones in training and development programs to teachers and promote others to use the technology to the extent possible.

National Centre for Education and Development (NCED) has been using mobile App for teachers and online training practice to use Model application. NCED uses cell phone service to collect responses of TV/Radio programs through call and SMS. The results showed that these programs received responses when linked with incentives and prizes. The Curriculum Development Centre **(**CDC) started e-library concept to upload digital contents that are targeted to the training to teachers and facilitating the learning of students. CDC has a focus to develop interactive contents for student's learning. The Ministry of Education (MOE) has been focusing on developing contents and based on e-pub versions and made them available in smart phones. Moreover**,** there is Midas free app in practice. There is a mobile app for grade 10 students, especially for visually impaired students developed by CDC. These types of applications are accessible to all.

8.4 Stock of Cell Phone Use

The stock of mobile phone is one of the major themes of the study that consisted of six subthemes. These subthemes were used to measure the stock of cell phone use. These subthemes are own mobile phone, spouse's mobile phone, types of mobile phones, mobile phone service provider, monthly expenditure on mobile phone and communication to other relevant persons and school management using mobile phone.

8.4.1 Own Mobile Phone

Out of 525 (100%) parents interviewed, 483 (93.4%) of them were found that they have their own mobile phone whereas only 34 (6.6%) did not have their mobile phone. The remaining 8 parents (1.5%) did not have mobile phone as they did not realize its need. Regarding this, the estimation of the school personnel (64.4%) was that on an average more than 75 percent of parents in the community have their own mobile phone and have been using in their daily life purposes. The parents having mobile phone indicated by the school personnel are very close to the data on the possession of mobile obtained from parents. The personnel of school and District Education Office stressed that the parents should have mobile phone appropriate to use for educational purpose. Therefore, there is need for encouraging the parents to use their mobile phones for early grade reading promotion and education purposes as required in their daily life.

Recommendation

Almost all parents and the personnel of school and DEO have been using mobile phone for their personal purpose. They should be oriented that how they can use their mobile phone for education purposes and monitoring the learning of their children.

8.4.2 Spouse's Mobile Phone

Amongst the parents interviewed, 410 (80.7%) of them mentioned that their spouses have their own mobile phone though there are a few spouses (19.3%) did not have their mobile phone. The family members included the elder brothers and sisters or other members within the family of early grade children who can help their brothers and sisters. Thus, the mobile phones of both parents their spouses, or even family members can be used for education purposes at home and early grade reading promotion and to communicate from home to school and District Education Office as well.

Recommendation

Almost all the spouses of the sample parents have their mobile phone and parents also possess mobile phone. This is a positive indication that there is a high potentiality of communication amongst the parents using the mobile phones of either parents or their spouses about the matters related to education and sharing of the school information between parents and school management including concerned teachers.

8.4.3 Types of Mobile Phone

Out of 525 target parents, 496 (94.5%) indicated the types of mobile phones they have. Amongst the parents (94.5%), 45.6 percent have Smart Phone, 30.8 percent have Bar Phone and 23.8 percent have Feature Phone. Most of the school personnel (35%) have been using bar phone whereas almost all of them (56%) have smart phone. A few of them (9%) have feature phone. Almost all DEO personnel (87%) have smart phone and remaining (13%) have feature phone. Thus, the data reveal that the majority of the respondents have mobile phone though their types are different that can be used for communication and SMS for education purpose and promotion of early grade reading.

Recommendation

The parents and personnel of school and District Education Office have different types of mobile phones. Thus, while developing the messages and communication procedures on education and early grade reading matters, there is need of consideration of the appropriateness of mobile phones they possess for efficient communication amongst them.

8.4.4 Telecom Service Provider

Out of 508 parents ((96.8%) responding the question on telecom service providers, almost one-third of them (31.1%) have been using NTC pre-paid whereas the users of NTC post-paid and Sky Phone are one percent and 2.4 percent respectively. The users of the Ncell pre-paid are 55.7 percent and 0.6 percent are using post-paid option.

Out of the total school personnel (281), 278 (98.9%) responded that 65.1 percent and 15.5 percent were using NTC and Ncell services respectively. Those who have been using NTC services, most of them (60.8%) were using pre-paid whereas a few of them (4.3%) were using post-paid service. However, 1.1 percent of respondents were using sky phone.

It was found that 60.7 percent of the DEO personnel have been using NTC prepaid whereas 14.3 percent use the post-paid service. This indicates that the customers preferred to use pre-paid NTC service. Out of all total respondents (28), 7.1 percent have been using Ncell prepaid service whereas 17.9 percent have been using both NTC and Ncell service which is mostly available service in the country.

Thus, most of the parents have been using either Ncell or NTC prepaid mobile phone though Ncell prepaid was found mostly preferred. Though the School personnel and DEO Personnel have their choice to prefer any type of mobile phone service providers, their most preference was found NTC pre-paid service which is most popular and rooted in the country.

Recommendation

The services of either NTC or Ncell under pre-paid option should be used while planning to use mobile phone for education purposes such as early grade reading promotion in school. The use of NTC or Ncell services depend on the geographical regions of the country that will be determined the quality of their connectivity and service delivered to the users.

8.4.5 Type of Mobile Phone

Out of 525 total parents as respondents, 45.6 percent have Smart Phone, 30.6 percent have Feature Phone and 30.8 percent have Bar Phone. The data reveal that the majority of parents (45.6%) have Smart Phone. Amongst the total school personnel (281), 267 (95%) responded the types of mobile phone they possess. Amongst them, 159 respondents (59.6%) have Smart Phone, 61 respondents (22.8%) possess feature phone and 47 of them (17.6%) have Bar Phone.

Regarding this, the respondents in the sample districts were found that they have Bar Phone (11.1%), Feature Phone (18.5%) and Smart Phone (70.4%). Thus, the data revealed that the respondents have been using different types of cell phone which are useful to use for receiving and sending SMS for education and other purposes of their daily. However, a few of them use either Bar Phone or Feature Phone.

Recommendation

The parents and personnel of school and District Education Office have been using different types of mobile phone that was determined by the cost of affordability. Thus, while

developing program to use mobile phone for education purposes, there is need of consideration of the most appropriate mobile within the affordable cost for sustaining the use of mobile in the field of education.

8.4.6 Monthly Expenses on Mobile Phone

Some of the parents (35.4%) have their monthly expenses on their mobile phone in between NPR 101 to 300 per month whereas some (32.1%) spend around NPR 301 to 500 per month. A few of them (19.8%) spend more than NPR 500. Regarding the monthly expenditure on cell phone of the school personnel, some of them (45.2%) spend more than NPR 502 per month. There is about one-third of them (30.5%) are found spending in between NPR 301 to 500 per month. A few of them (22.9%) have been spending in between NPR 101 to 300 per month. Out of the total DEO personnel (28), 78.6 percent mentioned that their monthly expenditure is NPR 501 and above. Among them, 3 (10.7%) respondents indicated that their monthly expenditure is in between NPR 100 to 300 whereas 3 respondents (10.6%) reported that his/her expenditure is less than NPR 100.

The data revealed that most of the parents can afford on average NPR 500 whereas some of them can manage up to NPR 300 per month for mobile phone. On the average 75.7 percent of school personnel have been spending on mobile phone in between NPR 301 to more than NPR 500 per month as per their need. Hence, the data indicated that about two-third of the school personnel are ready to spend more than NPR 300 each month. The personnel of DEO can afford more than NPR 500 as per need.

Recommendation

The parents can afford at least NPR.500 for the communication related to their daily requirement and education purpose. The personnel of school and DEO can afford more than NPR. 500 if they are motivated to use for education purpose in addition of fulfilling their requirements. Thus, the parents and personnel of school and DEO should be motivated to use mobile phone for the promotion of early grade reading and education purpose for their children with the support of an appropriate program and procedures of using mobile phone.

8.4.7 Communication using Mobile Phone

The parents who responded the question was 499 (95 %.).Amongst them, most of them (52.3%) were found that they communicate occasionally to school management about their children's learning progress and difficulties. Some of them (37.9%) never communicated to school management and teachers. A few of them (5.8%) do not have their mobile phone so

that they did not communicate to school management about their children's information on learning. However, 4 percent of the parents reported that they have been communicating regularly their children's learning progress and other information to school management using their mobile phone.

Amongst 190 (67.6%) of school personnel, 56 (29.5%) of them used to communicate to the parents as necessary. 23 (17.4%) of them used to communicate the student's progress and learning difficulties to parents only in urgent cases.

Almost all of DEO personnel (89.3%) have been using their mobile phone to collect information required to them in urgent cases or to provide information of DEO to school management though this is not a regular practice amongst them.

The data indicated that most of the parents were found communicating on occasional basis of their children's learning progress and difficulties and any other information to school management and teachers. It was also known that there is not a regular communication between school personnel and parents about the progress and learning difficulties of children using mobile phone. The communication of DEO personnel to school depends on their requirement to provide and obtain information from school.

Recommendation

There is need of encouragement to parents, school personnel and DEO personnel to use mobile phone for communication between parents and personnel of school and DEO as well for education purposes and promotion of early grade reading. There should be specific program to motivate them to use mobile phone for education purpose.

8.5 Measuring Attitude towards Cell Phone Application

Eight subthemes related to different aspects of cell phone were developed to measure the attitude of the parents towards the use of cell phone. These subthemes are use of cell phone, use of SMS, communication through cell phone, monitoring of children's progress through SMS, charge of cell phone and reading promotion and practice. The District Education Personnel are Resource Person (RP), School Supervisor (SS), Reading Motivator (RM), Community Mobilization Officer (NGO) and ICT personnel of District Education Office were inquired about the different aspects of cell phone and its use in education purposes and promotion of early grade reading.

8.5.1 Use of Cell Phone

Out of the total parents (525) interviewed 476 (90.7%) responded the use of cell phone though responses varies with respect to attitudinal items. Almost all of them (90.7%) strongly agreed the need for using cell phone in their daily life and education purposes. Almost all school personnel (93.8%) out of 281 were found in the support of parents' opinion. Amongst the DEO personnel (28) almost all of them (90.5%) have been using cell phone for their purposes in their daily life and communication with schools as well whenever necessary. All the respondents felt that cell phone has been a part of their daily life and are attentive to use cell phone for education purpose.

Thus, the data obtained from different types of respondents on the use of cell phone indicated that they can use their mobile phones for early grade reading, various education purposes, monitoring of children's learning progress and their learning difficulties and the progress of schools through communicating with school management and relevant persons. They felt that the use of mobile phone helps to make an efficient use of time.

Recommendation

The parents and personnel of school and District Education Office have the positive attitude towards the use of cell phone for education purpose and promotion of early grade reading. They should be encouraged to use mobile phone for various education purposes, monitoring of children's learning progress and their learning difficulties and the progress of schools through communicating with school management and relevant persons whenever needed.

8.5.2 Use of Cell Phone for Education Purpose

Almost all parents (69.9%) though 79 (17.7%) of them remained as non-respondents have been using cell phone occasionally to communicate the education status of their children's learning progress and difficulties to school though a few of them (19.1%) have been using cell phone on regular basis to communicate about their children's education to schools. A small number of parents (5.4%) did not have the preference of communication about their children learning progress and learning difficulties to school. This is due to lack of awareness on the use of mobile phone in their daily life.

Out of the total school personnel (281), almost all of them (75.5%) have been using cell phone occasionally to communicate the education status such as children's learning progress, developing reading skills and habit of their children to parents though a few of them (13.9%) have a regular practice to communicate about their children's education to schools though a smaller number of school personnel (9.5%) did not use their mobile phone to communicate to

school management and teachers. Almost all personnel of District Education Office (71.4%) were found that they have been communicating from District Education Office to school on occasional basis as per need and getting information from school as required to them.

The data revealed that almost all the respondents have started to use their mobile phone to communicate from them to school and parents whenever needed depending upon their requirements. The data indicate that there is a high potentiality of using cell phone for educational purpose from parents and personnel of school and DEO. This enthusiasm needs to be utilized in education field.

Recommendation

As the parents and personnel of school and District Education Office have a strong willingness to use mobile phone for communication amongst them in terms of their daily requirements and education purposes, there is need of backing the initiative they have started with technical support that might be orientation on use of mobile for education purposes such as early grade reading and monitoring of school activities that would help the efficient use of time.

8.5.3 Use of SMS

Most of the parents (49.7%), almost of school personnel (87.5%) and DEO personnel (89.9%) have been using SMS in their daily life. They can read the SMS received from others and can send SMS to their relevant persons. However, some of parents (42.0%), personnel of school (12.5%) and DEO personnel (11.1%) were not on this direction. This is due to the lack of understating of multiple use of mobile phone in education field, especially promotion of early grade reading.

The data indicated that all the respondents have been using SMS in their daily life for different purposes that include monitoring of school's activities, promotion of early grade reading of children and communication of relevant information to relatives, friends and other concerned persons. The data indicated that the mobile phones can be used for education purposes and promotion of early grade reading of their children as well. This is a very positive indication of the use of mobile phone for the promotion of reading and developing reading skills of early grades.

Recommendation

The parents and personnel of school and DEO have started to use mobile for education purpose and their daily requirements. This is an appreciable initiative that should be utilized in education promotion and communication for monitoring of school activities. They need

orientation on the use and relevancy of SMS to communicate each other and promotion of education purposes.

8.5.4 Frequency of the use of SMS

Out of 473 parents (90%), nearly half of them (44.4%), almost of school personnel (74.1%) out of 278 respondents and almost all DEO personnel (82.1%) have been using their mobile phone to send SMS to the concerned persons as per requirement and need of sharing information of education. However, a few of parents (3.8%), school personnel (5.8%) and DEO personnel (14.3%) were found that that they use SMS very frequently to the concerned persons on the subject required. It was found that more than one-third (33.2%) of parents did not use SMS whereas a few of school personnel (5.8%) uses SMS only sometime as per their requirements. A few of DEO personnel (14.3%) were found that that they use SMS very frequently whereas a minimum percent of them (3.6%) use SMS sometimes as per their need. The data revealed that the frequency of the use of SMS varies with respect to parents and personnel of school and District Education Office. They have been using mobile phone as per their need to fulfill their requirements. This is a positive indication that there is a high possibility of using mobile phone for education purpose and promotion of reading of early grades.

Recommendation

The process of using mobile phone for sending and receiving SMS from different persons as required is the positive indication of the use of mobile phone. This process needs to be encouraged through providing continuous encouragement to education personnel on this matter that would certainly help to use SMS for the promotion of education activities and early grade reading.

8.5.5 Number of SMS sending to relevant Persons

Amongst parents respondents (73.5%), more than two-third of them (68.9%) used to send SMS once a week as per their need whereas a few of them (23.1%) have been sending seven SMS per week. Regarding this, a few of the school personnel (15.2%) have been sending more than ten messages a week. The range of the school personnel who have been sending SMS around seven messages and one message per week is about 43 percent. With respect to this concern, 35.7 percent of the district education personnel send more than 10 messages a week. A minimum percent of them (14.3%) used to send SMS once a week only as per their need. However, it was found that a few of them (5%) used to send SMS around seven messages per week.

Thus, the data reveal that the number of SMS sending to the relevant persons depends upon their need and willingness. However, the respondents were found realized the need of using their mobiles to send SMS to school management to monitor the progress and learning difficulties of their children and monitoring of school progress. This indicates that there is a high possibility of using mobile phone for education and promotion of reading of early grade through a continuous encouragement of the relevancy of mobile phone for education purpose and reading promotion of early grade children that should be supported by the scheme of using of mobile phone.

Recommendation

The practice of sending SMS to school has started to a very little extent from the parents and school personnel. Regarding DEO personnel, they used to send SMS to school as per their need for sending urgent information and receiving from schools. Thus, there is need of providing orientation especially for parents and school personnel to use SMS for the sharing of school information and to make an effective mechanism of communication between school and parents. Based on this, there is need of developing scheme for using mobile phone for education purpose with respect to geographical regions.

8.5.6 Preference of the Time for SMS sending to relevant Persons

Regarding the concern of time while sending SMS, among the parents, 409 (77.9%) responded the question on time preference for SMS whereas 16 (22.1%) remained as non-respondents. More than two-third of them (68.9%) used to send SMS once a week as per their need, whereas a few of them (23.1%) have been sending seven SMS per week. A total of school personnel, 267(95%) responding this question, almost all district education personnel preferred leisure time to send SMS through their mobile phone though a few of them (17.9%) preferred either morning or evening time.

The data reveal that time preference for sending SMS varies with respect to the parents and personnel of school and District Education Office. However, the school and district education personnel preferred leisure time to send SMS, which saves their working time and efficient use of time as well. Thus, the timing of SMS plays a valuable role to use mobile phone for education purpose and promotion of early grade reading of their children though there is a flexibility of the preference of time while sending SMS amongst the respondents.

Recommendation

The preference of the time for sending SMS from parents to school and reverse is flexible though they prefer their free time. This aspect should be considered while developing

program to use mobile phone for education purpose in schools though parents and personnel of school and District Education Office are highly flexible to use their time for this purpose.

8.5.7 Preference of the use of Language in SMS

430 (81.9%) parents indicated their preference of language to use in SMS. Amongst them, more than two-third of the parents uses Nepali language while sending SMS to others as per their need whereas more than one-fifth of them preferred to use English language. A very few of them uses mother tongue while sending SMS whereas there is a negligible percent of respondents using both Nepali and English languages.

Regarding this concern, amongst the school personnel, 275 (97.9%) responded the question and found that more than half of them use Nepali language while sending SMS to others. However, more than one-third of them preferred to use English language for SMS. A very few of them (5.8%) uses mother tongue while sending SMS to others, whereas there is a negligible percent of respondents (3.6%) using both Nepali and English languages. Most of them (67.9%) preferred to use Nepali language in Roman letter while sending SMS through their mobile phone. About one-third of them (28.6%) have been using English language as they have knowledge and skills of English language. Only a few of them (3.6%) use mother tongue as well in *Roman* letter.

Thus, a majority of the respondents have been using Nepali language in *Roman* text while sending SMS through their mobile phones. The data indicated that there is a variation of the use of language while sending SMS amongst the respondents. There is a higher preference to Nepali language in *Roman* text followed by English while sending SMS. Thus, either Nepali or English language should be used in SMS while using mobile phone for the purposes of education and reading promotion for early grades.

Recommendation

The preference of language to use in SMS sending their mobile phone should be flexible depending upon their choice. However, the priority is on Nepali language and English so that this option should be considered while planning to use mobile phone for education purpose. The parents having low education background should be trained to use the language either Nepali or English in SMS for encouraging them to use mobile phone in education activities such as for developing habit of reading and skill of early grade children.

8.5.8 Reasons for the Preference of Language in SMS

Out of the total parents (525), 430 (81.9%) of them indicated the reasons for the preference to use language in SMS. Out of them, more than two-third of them uses Nepali language while

sending SMS to others as per their need. More than one-fifth of them preferred to use English language for sending SMS to others. A very few of them uses mother tongue while sending SMS whereas there is a negligible percent of them using both Nepali and English languages. Out of the total 281(100%) school personnel, 275 (97.9%) mentioned the reasons of language preference. More than half of them use Nepali language while sending SMS to others. More than one-third of them preferred to use English language for SMS though a very few of them (5.8%) uses mother tongue while sending SMS to others, However, a negligible percent of them (3.6%) using both Nepali and English languages. Most of them (67.9%) preferred to use Nepali language in letter *Roman* while sending SMS through their mobile phone. About one-third of them (28.6%) have been using English language as they have knowledge and skills of English language though a few of them(3.6%) use mother tongue as well in *Roman* letter. Thus, a majority of the respondents have been using Nepali language in *Roman* text while sending SMS through their mobiles.

The data on the reasons of the preference of language indicated that there is a variation of the use of language while sending SMS. There is a higher preference to the use of Nepali language followed by English while sending SMS to others. Thus, either Nepali or English language should be used in SMS while using mobile phone for education and reading promotion purposes.

Recommendation

The parents and school personnel has the high preference to use either Nepali or English language so that they should be trained in the use of these language while promotion to use mobile phone for education purpose. DEO personnel are ready to use both language Nepali and English. However, they should use the language compatible to parents and school personnel.

8.5.9 Number of SMS sending to relevant Persons

Amongst the total 386 (73.5%) parents respondents, more than two-third of them (68.9%) used to send SMS once a week as per their need whereas a few of them (23.1%) have been sending seven SMS per week. Out of the 256 (91.1%) school personnel, only a few of them (15.2%) have been sending more than ten messages a week. It was found that some of the parents (43%) used to send seven messages per week whereas 42 percent of them send only one message per week as per need. Five percent of district education personnel used to send SMS around seven messages per week whereas 35.7 percent of them send more than 10

messages per week. A minimum percent of them (14.3%) used to send SMS once a week only as per their need.

Thus, the data reveal that the number of SMS sending to the relevant persons depends upon their need and willingness. However, the respondents were found realized the need of using their mobiles to send SMS to school management to monitor the progress and learning difficulties of their children and monitoring of school progress. This indicates that there is a high possibility of using mobile phone for education and promotion of reading of early grade through a continuous encouragement of the relevancy of mobile phone for education purpose and reading promotion of early grade children.

Recommendation

As the number of messages determines the cost of affordability, the parents and personnel of school and DEO should be oriented to make an efficient use of mobile phone for education purpose. This option should be addressed with due consideration while designing the program for using mobile phone for education purpose, especially for the promotion of early grade reading in school and at home as well with providing necessary support to the children.

8.5.10 Communication through Cell Phone

Almost all parents (80.0%) were found interested and ready to communicate to teachers, friends and relatives using cell phone though a few of them (13 %) were found reluctant on the use of SMS. They are ready to use mobile phone to communicate the progress and learning difficulties of their children to school management as per their need.

Almost all school personnel (91.5%) out of the total (281) have a strong preference on the use of cell phone to communication for different purposes that included sending the messages to parents, relatives, friends and guests and monitoring of the activities of school.

Regarding the use of cell phone, almost all district educational personnel (94.6%) were found interested to communicate learning progress of their children to school management, teachers, and parents using cell phone. They have been using mobile phone in their daily life as per need for making an efficient use of time and effective communication to relative and school management.

The data indicated that use of cell phone for calling, receiving call and sending SMS is popular amongst all type of the respondents. They were found ready to expand the use of mobile phone and SMS for early grade reading promotion and education purposes of their children and strengthening the communication between the relevant persons of the community and personnel of school and DEO.

Recommendation

The parents and personnel of school and DEO are ready to use mobile phone for communication related to education purpose. There is need of encouragement and support from District Education Office and local authority to use mobile phone for education purpose amongst parents and personnel of school and District Education Office.

8.5.11 Monitoring of Children's Learning Progress through SMS

Almost all the parents (74.3%) preferred to send SMS to school personnel to monitor the progress and learning difficulties of their children though a few of them (14.8%) were found reluctant. Regarding this concern, almost all school personnel (82.4%) agreed that SMS can be used for monitoring children's progress using mobile phone and communication of relevant activities of daily life. Almost all district education personnel (90.0%) indicated their preference to monitor the learning progress and difficulties of their children using mobile phone, though a few of them (7.5%) were not ready to use mobile for this purpose. It was found that the personnel of District Education indicated that the school personnel have been using mobile phones to some extent to communicate to schools management and teachers to understand the situation of school as well.

Thus, there is a high prospective to initiate the use of mobile phone for monitoring the children's learning, especially for developing reading habit and skills of children and communication between education personnel and school management for a better learning and promotion of early grade reading of children.

Recommendation

The parents and personnel of school and District Education Office are positive and supportive to use mobile phone for monitoring of school and sharing of learning progress and difficulty of learning of children. There is need of developing a systematic procedure to promote this activity amongst them with a continuous support from the concerned authority.

8.5.12 Expenses on Cell Phone

Most of the parents (70.9%) were found ready to pay the charge of their cell phones while using for education purposes though a few of them (18.4%) hesitated to afford such cost. Regarding this matter, most of the school personnel (67.0%) were happy to pay cell phone charges to send SMS for education purposes and promotion of early grade reading at school and home as ell though a few of them (21.4%) were not positive towards to this end. Most of the district education personnel (83.5%) were found ready to pay the charge of the cell phone

to use for education purpose for the children's education. However, a few of them (13.7%) were found reluctant to pay the charge of cell phone to use in education purpose.

Almost all respondents realized that they should use mobile phone and SMS to monitor children's learning progress and difficulties, school activities and to collect other relevant information from parents, teachers and DEO as well. They were found ready to afford the cost requires downloading educational songs, videos, stories for facilitating the children's learning and promotion of reading. The suggestion was that the service charges of the mobile phone need to be affordable by the parents and school personnel living in rural parts of Nepal.

The data reveal that almost all the respondents are ready to pay a reasonable charge of cell phone while using mobile phone for education purpose. Those who do not have willingness they should be oriented to make them understand the relevancy of the use of cell phone in promotion of early grade reading and education field. However, there is a high acceptance of the use of cell phone for education purposes that should be utilized and promoted with the support of the concerned agencies such Ministry of Education and its central line agencies.

Recommendation

The parents and personnel of school and District Education Office were found ready to use mobile phone with affordable charge from the service providers. The cost of mobile phone while using for education purposes should be affordable and subsidized with the support of service providers to sustain this initiative for certain years.

8.5.13 Connectivity of Cell Phone

Most of the parents (66.4%) indicated that there is a good connectivity of cell phone in their communities of the sample districts (Banke, Mustang, and Kaski) though a few of them (19.7%) disagreed with this. Amongst the school personnel interviewed, almost all of them (64.4%) were found happy with the connectivity of the existing cell phone. However, a few of the school personnel (16.6%) were found dissatisfied the existing connectivity of the cell phone. Regarding this, almost all of the personnel of DEO (81.6%) expressed that the connectivity of the existing service of the mobile phone is excellent and can be connected easily. However, a few of them (11.8%) felt that the connectivity is poor and felt the need of improvement for the efficient use of cell phone.

Thus, the data on connectively of cell phone indicated that the existing connectivity is good though there is interruption in some areas of the sample districts. However, the existing

connectively of the cell phone found helpful to use cell phone in education field and daily life purposes of the customers. Those who were found dissatisfied with the connectivity of cell phone are generally from remote locations of geographical regions. The data indicate that there is a good connection in most of the communities in the urban areas of the sample districts whereas in rural parts the connectivity is poor.

Recommendation

The connectivity of the cell phone varies with respect to the geographical regions in Nepal. The quality of the services of the Telecom service providers varies with respect to the geographical regions. Thus, the selection of the service providers should be made with respect to the geographical regions to make an effective connectivity of cell phone.

8.5.14 Readiness for the use of SMS on School Information

The data revealed that almost all parents (93.3%) and school personnel (86.6%) and the personnel of District Education Office (96.4%) indicated their enthusiasm for sending and receiving SMS about the school information on the activities through SMS using their mobiles. A few of them (9.9%) were not ready for this purpose. Almost all respondents (90.3%) were ready to use SMS to share the school information through their mobile phone. However, only a few of them were not using their mobile phone to communicate school information from school to parent and reverse.

The data indicated that there is an encouraging ground that all respondents have already initiated to some extent to use mobile phone to communicate school management and teachers about their children are learning progress and difficulties. They have been receiving the information from the school as well. Further, it is obvious that there is necessity for developing a systematic approach to promote the existing practices of using mobile phone effectively to promote early grade reading and overall monitoring of their children's education progress and the activities of school as well.

Recommendation

The parents and personnel of school and District Education Office are ready to use mobile phone for education purpose, especially sharing of the school information and monitoring of school activities. Their readiness on the use of mobile should be harnessed for sharing of school information and monitoring of school activities with a core objective of increasing efficiency of school field and promotion of early grade reading.

8.6 Reading Promotion and Practice

Almost all the parents (82.6%), school personnel (91.9%) and personnel of District Education Office (93.6%) were found eager to use their cell phones for reading and education purposes of their children. However, a few of parents (9.1%), school personnel (3.1%) and DEO personnel (3.6%) were not enthusiastic for this purpose. Almost all respondents were found keen to use cell phone for education purposes, monitoring school status and communication amongst district educational personnel and school management (head teacher and teachers) with a view to efficient management of time. Thus, cell phone could be utilized for reading promotion and education purposes of their children that include promotion of reading habit and skill of children with an effective support from school and home.

Recommendation

The parents and personnel of school and District Education Office should be oriented how the mobile phone can be used for promotion of early grade reading and education purpose. Thus, there is need of developing program on the promotion of reading of early grade children using mobile phone. Based on the program, they should be trained in this program to use mobile phone effectively in education activities.

8.7 School Information Sharing

Almost all of parents (78.9%), school personnel (79.7%)and DEO personnel (96.4%) were found interested to receive SMS about the school holidays and learning progress of their children and sharing all the school information each other. Only a few of the parents (12.4%), school personnel (10.3%) and DEO personnel (3.6%) were not ready to use SMS for sharing of school information.

A few of the respondents were not positive to share school information by using mobile phone and SMS. This is due to their inadequate knowledge and lack of understanding of the relevancy of mobile phone and its uses in their daily life and education purposes and promotion of their children's education. However, the data indicate a clear picture that almost all the respondents are ready to use SMS to get information from the schools and replies to school management as per need. Thus, there is a high possibility to use mobile phone for educational purposes of their children.

Recommendation

As the parents and personnel of school and District Education are ready to use mobile for education purpose and sharing of school information, there is need of developing program on this activities to utilize their encouragement properly that would help to make an efficient communication amongst the parents and personnel of school and District Education Office.

ANNEXES

Annex-I: List of officials of CLAs of education and telecom sector

SN	Central level Agencies	Name of the official participated in KII
1.	Ministry of Education (MoE)	Mr. Guru Pd. Mainali, Under secretary Mr. Sushil Khanal, Under Secretary
2	Department of Education (DoE)	Mr. Bishnu Pd. Adhikari Mr. Dinesh Khanal
3	National Center for Education Development (NCED)	Ms. Smita Nepal, Technical officer Mr. Punya Pd. Ghimire, Dy. Director
4	Curriculum Development Center (CDC)	Ms. Renuka Pandey Ms. Rajani Dhimal, Mr. Purusottam Ghimire
5	Education Review office (ERO)	Mr.Uttar Kumar Parajuli,
6	Nepal Telecommunications Authority (NTA)	Mr. Ananda Raj Khanal, Director
7	Nepal Telecom	Ms. Pratima Pradhan, Manager; Mr. Neeraj Neupane, Senior Engineer
8	Ncell	Mr. Milan Mani Sharma, Corporate Communication specialist
9	United Telecom Limited (UTL)	Ms Sarita Pandey, Asst. Manager
10	Sparrow SMS	Mr. Amit Agrawal, CEO
11	Infiquire Solution	Mr. Anup Sherchan, Director

Annex-II: Instrument Schedules

Interview Schedule #1: CLAs NTA/NT/NCELL/VAS provider

The objective of this interview is to study the feasibility of cell phone application for Early grade reading (class 1 -3) program. You are requested to provide your best opinion to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

Informant's profile:

The Agency/Office Name:
The respondent's Name(s):
Role in the agency:
Interview Date/Time:
Interview Place:
Interviewing Team from Avant Garde:

Theme: Service coverage

1. Please tell us about your agency/organization and its business?
2. What is the service coverage of your organization in Nepal?
3. What is the status of your service in Kaski, Banke, and Mustang districts?
4. How many Base Transceiver Stations (BTSs) are operational in each of these three districts and their locations?
5. What about the average service outage in hours in a month in the district?
6. How many users are in the country and in above districts?
7. How many of them use SMS services?

Stock of SMS GW services, applications & providers

8. Does your organization provide SMS gateway based applications as a Value Added Services (VAS) or as a content provider?
   [A] Yes [b] No
9. What are the different (SMS GW based) applications available?
   i. SMS interconnection
   ii. SMS broadcast
   iii. SMS filtering
   iv. SMS based interactive services
   v. Location based SMS services
   vi. Any others, (please specify)……
10. How much it is feasible to use SMS applications in local languages?
11. What is to be done to use SMS applications in any selected local language?
12. How many authorized organizations are there to provide SMS gateway (VAS) services? And who are they?
    i. Telecom Service Providers (TSPs):
    ii. Network Service Providers (NSPs):

iii. ISPs:
iv. Content Providers:
v. Government agencies:

13. What are the provisions (requirements) to obtain (provide) SMS gateway based applications through your organization?
14. Is there any special provision for government's organization or priority areas?

Cost involved in SMS gateway applications/Services and possible model

15. What is the overall cost estimate?
16. What is the setup cost or onetime to start the SMS gateway applications through your organization?
17. Can you elaborate on component wise costs involvement?
    i. One time agreement / approval cost:
    ii. Hardware setup cost:
    iii. Software application cost:
    iv. Media / link cost:
    v. Interconnection cost:
    vi. Operation costs:
    vii. Security deposit amount:
    viii. Others, if any…….
18. What is the cost to use SMS applications in outsource model through your organization?
19. What is your evaluation regarding using own SMS application provider server and outsource model? What are the evaluation parameters?
20. What can be a suitable model to use SMS gateway application and services especially in the education?
21. What is your suggestion to an organization who would like to use SMS GW based interactive application in the field of education?
22. Are there any provisions where the service providers can contribute on cost of service used for basic education and especially early grade reading?

Assessment of potential approaches in using SMS for monitoring?

23. Have you used cell phone application in education field? If yes, for what purpose and how? Are there any reports or studies for referral and which organization could be approached to get the copy?
24. Has your company supported or conducted community/family based cell phone application in other sector like health, agriculture etc? If yes, how and where the reports can be available.
25. What are the possible ways where service providers and public schools can collaborate?
26. In your opinion, how can we use cell phone applications, especially SMS for monitoring of early grade reading of children?
27. Can you share your experiences where cell phone applications like toll free services, SMS services, or internet applications have been used in education especially for early grade reading practice?
28. How do you recommend using cell phone applications in early grade practice reading?

Interview Schedule #2: Parents of early grade (class 1-3) reading children

Dear Respondent,
The objective of this survey is to study the feasibility of cell phone application for home-based Early Grade Reading practice. You are requested to provide your best judgments to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

Respondent's Profile:

Name of Respondent (Optional):…… **Sex:** Male/Female/Other
Address: Tole: …….. Ward No.:……..
VDC/Municipality:…….. District:……
Education: Illiterate/ Basic education (Class1-8)/ Secondary (Class 9-12) / Graduate and above **Occupation:** A. Teacher B. Farmer C. Labor D. Service E. Business F. others
Ethnicity:….. **Religion:**
Number of children: **Number of School going children:**

Name of School: **Mother language:**
Age Group: Below 20 years / 20-25 years / 25-30 years / 30-40 years/ 40-50 years / > 50 years

Section A-Measuring stock of cell phone use

1. Do you have your own mobile phone?
   A. Yes B. No (If No: Whose phone do you use :…….……)
2. Do your spouse also has own mobile phone?
   A. Yes B. No (If No: Whose phone does he/she use :…….……)
3. What type of mobile phone do you have?
   A Bar phone B. Feature phone C. Smart phone
4. Who is your mobile phone service provider?
   A. Nepal Telecom (Namaste/ NT Post-paid / SKY Phone)
   B. Ncell (Pre-paid/ Ncell Post-paid)
   C. Other (Please Specify) ……
5. What is your monthly expense on mobile phone bill/recharge?
   A. Rs 0 - Rs100 B.Rs 101 - Rs 300 C. Rs 301- Rs 500 D. Rs 501 and above
6. Have you ever used your cell-phone to communicate with the teacher about your child's learning?
   A. Never communicated B. Occasionally communicate
   C. Regularly communicate D. Don't have number

Section B: Measuring attitude towards cell phone use

Indicate how much you agree or disagree with each statement on your attitude towards cell phone use and SMS monitoring in home based support for early grade children. Circle one answer that reflects your opinion. (1= strongly disagree", "2=disagree", "3=neither agree nor disagree", "4=agree" or "5=strongly agree" with each statement.)

Q.N.	Statements	Strongly disagree	Dis-agree	Neither agree or disagree	Agree	Strongly agree
1	I have used cell phone to receive calls.	1	2	3	4	5
2	I have used cell phone to make calls.	1	2	3	4	5
3	I have read SMSs over a cell phone.	1	2	3	4	5
4	I have sent SMSs through a cell phone.	1	2	3	4	5
5	It is fascinating to use a cell phone.	1	2	3	4	5
6	I am Interested to use of a cell phone for children education.	1	2	3	4	5
7	I am interested to use SMS to communicate progress of my ward in education.	1	2	3	4	5
8	I am interested to send SMS to Teacher to communicate my child's learning progress.	1	2	3	4	5
9	Cell phone is highly useful to me to communicate with friends & relatives.	1	2	3	4	5
10	Cell phone is highly useful to communicate about my children's reading progress with teachers.	1	2	3	4	5
11	Using cell phone improves my efficiency by saving time.	1	2	3	4	5
12	In my opinion, SMS can be very useful to monitor children's progress in learning.	1	2	3	4	5
13	When it comes to communicate, cell phone is my first preference.	1	2	3	4	5
14	I prefer to use SMS over other ways of communication to send invitations, greetings, secret codes over mobile phone.	1	2	3	4	5
15	I prefer to communicate over cell phone to talk about my children's educational status in school.	1	2	3	4	5
16	I prefer SMS over other ways of messaging to arrange meeting with teachers.	1	2	3	4	5
17	I feel that cell phone charges are affordable.	1	2	3	4	5
18	I can pay cell phone charges used in educational purpose of my ward.	1	2	3	4	5

Q.N.	Statements	Strongly disagree	Dis-agree	Neither agree or disagree	Agree	Strongly agree
19	I shall be happy to pay for SMS, if it helps in children learning.	1	2	3	4	5
20	I can pay charges to download educational songs, videos, stories in my mobile for my children.	1	2	3	4	5
21	I will be happy to pay for my cell phone to let my children access online educational stories, rhymes, lessons.	1	2	3	4	5
22	Usually, I get connected to a call a person in first attempt.	1	2	3	4	5
23	Usually, I can send SMS without network failures.	1	2	3	4	5
24	I consider the quality of cell phone service is very good.	1	2	3	4	5
25	In overall, the quality of my cell phone service is excellent.	1	2	3	4	5
26	I feel happy to use my cell phone to call a teacher.	1	2	3	4	5
27	I feel excited to call over a cell phone for my children's early grade reading practice.	1	2	3	4	5
28	I am happy to use my cell phone to let my children call toll free number and listen educational songs, stories.	1	2	3	4	5
29	I am eager to use cell phone to download educational videos, songs for children's reading progress.	1	2	3	4	5
30	I am ready to use cell phone to use online contents for reading practice of early grade children.	1	2	3	4	5
31	I feel excited to use SMS if it applies in children reading practice.	1	2	3	4	5
32	I feel happy while to receive SMS about school information on leaves, meetings.	1	2	3	4	5
33	I am eager to send SMS to query about my wards home assignments.	1	2	3	4	5
34	I feel happy to use SMS interactively like chatting to share my child's reading practices.	1	2	3	4	5

Section C: Preferred language, approach and strategies to use cell phone and SMS application

7. How frequently do you use short message service (SMS) in your mobile phone?
   a. Very frequently b. Occasionally c. Sometimes d. Don't use
8. In an average how many message do you send in a week?
   a. More than 10 message a week b. Around 7 message a week c. One message a week
9. Which time do you prefer to use cell phone to send SMS?
   a. As per need b. In the morning c. In the Evening d. In leisure time
10. In which language do you prefer to use SMS service?
    a. English language b. Nepali language c. Own mother language
11. What is the reason for your preferred language
    a. Easy to use in cell phone b. don't know other language c. My own choice
12. Indicate your readiness to send and receive SMS through your mobile phone in relation to monitoring of your child's reading practice in home.

i. To inform holidays / leaves	a. Yes	b. No
ii. To fix meeting with teachers	a. Yes	b. No
iii. To get/query results	a.Yes	b. No
iv. To inform/query home assignments	a. Yes	b. No
v. To monitor attendance	a. Yes	b. No
vi. To inform/query disciplinary works	a. Yes	b. No
vii. To inform/query Extracurricular activities	a. Yes	b. No
vii. If any other, please specify……		

Section D: Interview Questions (Qualitative)

13. Have you ever used your mobile phone to help your children in learning? If yes How? If No why?

Answer notes:

14. In what other ways parents can use cell phone and SMS for their children's learning in home?

Answer notes:

15. What can be done by the school to use your cell phone for home based reading of your child's reading?

Answer notes:

Interview Schedule #3: Head Teacher, Teachers, SMC/PTA Members

Dear Respondent,
The objective of this survey is to study the feasibility of cell phone application for home-based Early Grade Reading practice. You are requested to provide your best judgments to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

Respondent's Profile:

Name of Respondent (Optional): **Sex:** Male/Female/Other
Address: School Name: **Mother Language**:
VDC/Municipality: District:
Education: Literate/ Under SLC / SLC / Intermediate/ Graduate/ Masters and Above
Profile: A. Head Teacher B. Class Teacher C. SMC member D. PTA member
Age Group: Below 20 years / 20-25 years / 25-30 years / 30-40 years/ 40-50 years / > 50 years

Section A-Measuring stock of cell phone use

3. What type of mobile phone do you have?
   A Bar phone B. Feature phone C. Smart Phone
4. Who is your mobile phone service provider?
   D. Nepal Telecom (Namaste/ NT Post-paid / SKY Phone)
   E. Ncell (Pre-paid/ Post-paid)
   F. Other (Please specify) ……
5. Around how many parents of your school/community have their own cell phone?
   A. (1-25) % B. (26-50) % C. (51-75)% D. 76% and above
6. What is your monthly expense on mobile phone bill/recharge?
   B. Rs 0 - Rs100 B.Rs 101 - Rs 300 C. Rs 301- Rs 500 D. Rs 501 and above

Section B: Measuring attitude towards cell phone use

Indicate how much you agree or disagree with each statement on your attitude towards cell phone use and SMS monitoring in home based support for early grade children. Circle one answer that reflects your opinion. (1= strongly disagree", "2=disagree", "3=neither agree nor disagree", "4=agree" or "5=strongly agree" with each statement.)

S.N.	Statements	Strongly disagree	Dis-agree	Neither agree or disagree	Agree	Strongly agree
1	I have used cell phone to receive calls.	1	2	3	4	5
2	I have used cell phone to make calls.	1	2	3	4	5

S.N.	Statements	Strongly disagree	Dis-agree	Neither agree or disagree	Agree	Strongly agree
3	I have read SMSs over a cell phone.	1	2	3	4	5
4	I have sent SMSs through a cell phone.	1	2	3	4	5
5	It is fascinating to use a cell phone.	1	2	3	4	5
6	I am Interested to use of a cell phone for children education.	1	2	3	4	5
7	I am interested to receive SMS from parents about student's progress in education.	1	2	3	4	5
8	I am interested to send SMS to parents to communicate their child's learning progress.	1	2	3	4	5
9	Cell phone is highly useful to me to communicate with friends & relatives.	1	2	3	4	5
10	Cell phone is highly useful to communicate children's reading progress with parents.	1	2	3	4	5
11	Using cell phone improves my efficiency by saving time.	1	2	3	4	5
12	In my opinion, SMS can be very useful to monitor children's progress in learning.	1	2	3	4	5
13	When it comes to communicate, cell phone is my first preference.	1	2	3	4	5
14	I prefer to use SMS over other ways of communication to send invitations, greetings, secret codes over mobile phone.	1	2	3	4	5
15	I prefer to communicate over cell phone to talk with parents about their children's educational progress in reading.	1	2	3	4	5
16	I prefer SMS over other ways of messaging to arrange meeting with parents.	1	2	3	4	5
17	I feel that cell phone charges are affordable.	1	2	3	4	5
18	I can pay cell phone charges used in educational purpose.	1	2	3	4	5
19	I shall be happy to pay for SMS, if it helps in children learning.	1	2	3	4	5
20	I can pay charges to download educational songs, videos, stories for student's learning.	1	2	3	4	5

S.N.	Statements	Strongly disagree	Dis-agree	Neither agree or disagree	Agree	Strongly agree
21	I will be very happy to pay for my cell phone to let my children access online stories, rhymes, lessons etc in class.	1	2	3	4	5
22	Usually, I get connected to a call a person in first attempt.	1	2	3	4	5
23	Usually, I can send SMS without network failures.	1	2	3	4	5
24	I consider the quality of cell phone service is very good.	1	2	3	4	5
25	Overall, I consider the quality of cell phone services to be excellent.	1	2	3	4	5
26	I feel happy to use my cell phone to call a parent/guardian.	1	2	3	4	5
27	I am happy to use my cell phone to let my students call toll free number and listen educational songs, stories.	1	2	3	4	5
28	I am eager to use cell phone to download educational videos, songs for children's reading progress.	1	2	3	4	5
29	I am ready to use cell phone to use online contents for reading practice of early grade students.	1	2	3	4	5
30	I feel excited to use SMS if it applies in student's reading practice.	1	2	3	4	5
31	I feel happy while to receive SMS about school information on leaves, meetings.	1	2	3	4	5
32	I am eager to receive parent's SMSs on query of children's home assignments.	1	2	3	4	5
33	I feel happy to use SMS interactively like chatting to share student's reading practices.	1	2	3	4	5

Section C: Language, approaches, strategies to use cell phone and SMS application

7. Have you ever used your cell-phone to communicate with the parents/guardians regarding reading practice of their children?
   A. Never communicated B. Occasionally communicate
   C. Regularly communicate D. Don't prefer to talk in mobile with parents

8. Indicate your readiness to send and receive SMS through your mobile phone with parents in relation to monitoring of student's early grade reading practice in home.

viii.	To inform holidays / leaves	a. Yes	b. No

ix. To fix meeting with parents	a. Yes	b. No
x. To inform/respond results	a. Yes	b. No
xi. To inform/respond home assignments	a. Yes	b. No
xii. To monitor attendance	a. Yes	b. No
xiii. To inform/query disciplinary issues	a. Yes	b. No
xiv. To inform/query Extracurricular activities	a. Yes	b. No
xv. If any other, please specify…….		

9. How frequently do you use short message service (SMS) in your mobile phone?
   b. Very frequently b. occasionally c. Sometimes d. Don't use
10. In an average how many message do you send in a week?
   b. More than 10 message a week b. Around 7 message a week c. One message a week
11. Which time do you prefer to use cell phone to send SMS?
   b. As per need b. In the morning c. In the Evening d. In leisure time e. School time
12. In which language do you prefer to use SMS service?
   b. English language b. Nepali language c. Own mother language
13. What is the reason for your preferred language
   b. Easy to use in cell phone b. don't know other language c. My own choice

Interview Questions (Qualitative)

14. Have you used your mobile phone for helping early grade reading practice of children? If Yes, how? If No, why?

Answer notes:

15. What can be other potential approaches to use cell phone and SMS applications in home based support for children's learning?

Answer notes:

16. What you suggest parents to use their cell phone and SMS application to help their children's learning in home?

Answer notes:

17. What can be done by the school to use cell phone for home based reading of early grade children?

Answer notes:

18. What strategies should be taken by the government to use cell phone and SMS application in early grade children learning?

Answer notes:

Interview Schedule #4: Resource Persons (RPs), School Supervisor (SSs), Reading Motivators (RM), Community Mobilizers (CM), ICT personals, DEO officials

Dear Respondent,
The objective of this survey is to study the feasibility of cell phone application for home-based Early Grade Reading practice. You are requested to provide your best judgments to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

Respondent's Profile:

Name of Respondent: **Sex:** Male/Female/Other
RC Name/ Office name: VDC/Municipality: District:
Mother Language:
Education: SLC / Intermediate/ Graduate/ Masters and Above
Profile: a. RP b. School Supervisor c. CM d. RM e. DEO official f. Other…….
Age Group: 20-25 years / 25-30 years / 30-40 years/ 40-50 years / > 50 years

Section A-Measuring stock of cell phone use

19. What type of mobile phone do you have?
    A Bar phone B. Feature phone C. Smart Phone
20. Who is your mobile phone service provider?
    G. Nepal Telecom (Namaste/ NT Post-paid / SKY Phone)
    H. Ncell (Pre-paid/ Post-paid)
    I. Other (Please specify) ……
21. What is your monthly expense on mobile phone bill/recharge?
    C. Rs 0 - Rs100 B.Rs 101 - Rs 300 C. Rs 301- Rs 500 D. Rs 501 and above
22. Around how many parents of your school/community area may have their own cell phone?
    B. (1-25) % B. (26-50) % C. (51-75)% D. 76% and above

Section B: Measuring attitude towards cell phone use

Indicate how much you agree or disagree with each statement on your attitude towards cell phone use and SMS monitoring in home based support for early grade children. Circle one answer that reflects your opinion. (1= strongly disagree", "2=disagree", "3=neither agree nor disagree", "4=agree" or "5=strongly agree" with each statement.)

S.N.	Statements	Strongly disagree	Dis-agree	Neither agree or disagree	Agree	Strongly agree
1	I have used cell phone to receive calls.	1	2	3	4	5

S.N.	Statements	Strongly disagree	Dis-agree	Neither agree or disagree	Agree	Strongly agree
2	I have used cell phone to make calls.	1	2	3	4	5
3	I have read SMSs over a cell phone.	1	2	3	4	5
4	I have sent SMSs through a cell phone.	1	2	3	4	5
5	It is fascinating to use a cell phone.	1	2	3	4	5
6	I am attentive to use of a cell phone for education purpose.	1	2	3	4	5
7	I am interested to use SMS to communicate learning progress of students.	1	2	3	4	5
8	I am interested to send SMS to Teachers to communicate about student's progress.	1	2	3	4	5
9	Cell phone is highly useful to me to communicate with friends & relatives.	1	2	3	4	5
10	Cell phone is highly useful to communicate about children's reading progress with teachers.	1	2	3	4	5
11	Using cell phone improves my efficiency by saving time.	1	2	3	4	5
12	In my opinion, SMS can be very useful to monitor School's progress.	1	2	3	4	5
13	When it comes to communicate, cell phone is my first preference.	1	2	3	4	5
14	I prefer to use SMS over other ways of communication to send invitations, greetings, secret codes over mobile phone.	1	2	3	4	5
15	I prefer to communicate over cell phone to talk about children's educational status in school.	1	2	3	4	5
16	I prefer SMS over other ways of messaging to arrange meeting with Teachers.	1	2	3	4	5
17	I feel that cell phone charges are affordable.	1	2	3	4	5
18	I feel comfortable to recharge my cell phone account.	1	2	3	4	5
19	I can pay SMS charges used in educational purpose.	1	2	3	4	5

S.N.	Statements	Strongly disagree	Dis-agree	Neither agree or disagree	Agree	Strongly agree
20	I shall be happy to pay for SMS, if it helps in my profession.	1	2	3	4	5
21	Usually, I get connected while calling in first attempt.	1	2	3	4	5
22	Usually, I can send SMS without network failures.	1	2	3	4	5
23	I consider the quality of cell phone service is very good.	1	2	3	4	5
24	Overall, I consider the quality of cell phone services to be excellent.	1	2	3	4	5
25	I feel happy to use my cell phone to call Head Teachers, Teachers, parents and related staffs while fulfilling my responsibility.	1	2	3	4	5
26	I feel excited to use cell phone for getting feedback on early grade reading practice of students.	1	2	3	4	5
27	I am happy to communicate colleagues to inform about the way in listening educational songs, stories from cell phone.	1	2	3	4	5
28	I am eager to use cell phone to share information to download teaching aids like educational videos, songs for students learning purpose.	1	2	3	4	5
29	I am ready to facilitate to use cell phone to use online contents for reading practice of early grade students.	1	2	3	4	5
30	I feel excited to use SMS if it applies in early grade children's reading practice monitoring.	1	2	3	4	5
31	I feel happy while to receive SMS about, teachers, staff information on leaves, meetings.	1	2	3	4	5
32	I am eager to update reports through SMSs about educational progress reports.	1	2	3	4	5
33	I feel happy to use SMS to communicate educational and practical issues regarding early grade reading practices.	1	2	3	4	5

Section C: Language, potential approaches, strategies to use cell phone and SMS application

23. How frequently do you use your cell-phone to communicate with the Teachers, staffs regarding reading practices and process of early grade children?
    B. Never communicated B. Occasionally communicate
    C. Regularly communicate D. Do not prefer to use cell phone

24. How frequently do you use short message service (SMS) in your mobile phone?
    c. Very frequently b. occasionally c. Sometimes d. Don't use
25. In an average how many message do you send in a week?
    c. More than 10 message a week b. Around 7 message a week c. One message a week
26. Which time do you prefer to use cell phone to send SMS?
    c. As per need b. In the morning c. In the Evening d. In leisure time e. Office time
27. In which language do you prefer to use SMS service?
    c. English language b. Nepali language c. Own mother language
28. What is the reason for your preferred language
    c. Easy to use in cell phone b. don't know other language c. My own choice
29. Indicate your readiness to send and receive SMS through your mobile phone with teachers, staffs in relation to monitoring of student's early grade reading practice in home.

xvi.	To inform holidays / leaves	a. Yes	b. No
xvii.	To fix meeting with parents	a. Yes	b. No
xviii.	To inform/respond results	a.Yes	b. No
xix.	To inform/respond personal assignments	a. Yes	b. No
xx. To monitor attendance		a. Yes	b. No
xxi.	To inform/query disciplinary issues	a. Yes	b. No
xxii.	To inform/query professional activities	a. Yes	b. No
xxiii. If any other, please specify…….			

Interview Questions

30. How is the cell phone coverage in your field area? What are the good and poor areas?

Answer Notes:

31. What is the quality of service of cell phone in these areas? What are the problems in general?

Answer Notes:

32. How are you using mobile phone in performing your roles and fulfilling responsibilities?

Answer Notes:

33. How can we use cell phone and SMS application to improve reading practice of early grade reading children?

Answer Notes:

34. What can be other potential approaches to use cell phone and SMS applications in home based support for children's learning?

Answer Notes:

35. What you suggest parents to use their cell phone and SMS application to help their children's learning in home?

Answer Notes:

36. What can be done by the school to use cell phone for home based reading of early grade children?

Answer Notes:

37. What strategies should be taken by the government to use cell phone and SMS application in early grade children learning?

Answer Notes:

Interview Schedule #5: Key officials from Central Line Agencies (CLAs) of Ministry of Education, DOE, CDC, NCED, ERO, COE, and NFEC

The objective of this interview is to study the feasibility of cell phone application for Early grade reading (class 1 -3) program. You are requested to provide your best opinion to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

Name of Respondent: **Office:** ……...
Address:
Position:
Positional Responsibility:

Theme: Governments' policy to use ICT in education

38. What is the government policy to use ICT services to support education sector especially early grade children?
39. Do the policies have provisions to use cell phone in education sector, especially for early grade education? If so, please mention ……..
40. What kind of provisions are there to use cell phone applications like SMS gateway to support early grading reading practice of children?
41. Is there any initiative from your side on cell phone based effort to improve early grade education? If yes, how?

Possible Approaches for using cell phone application in EGRP

42. How do you feel feasibility of using cell phone application for home based support to parents for early grading reading practice for their children?
43. What kind of cell phone services/applications can be useful for early grading reading practice?
44. In your opinion, what should be the approach to use cell phone applications to support children for EGR practice?
45. Please mention the key areas where SMS is useful to help children education?

Strategy to use cell phones applications in EGRP

46. Is there any strategy to use cell phone applications to engage parents and children in home based support and monitoring for early grade reading? If yes, what is it?
47. What may be done to implement the strategy effectively?
48. In your opinion, how SMS can be used to help children education?
49. How can you support to schools and parents if they have willingness to use cell phone to support early grade children's learning?
50. Any specific inputs and suggestions from your side on strategy on cell phone use and SMS monitoring?

Interview Schedule #6: Key officials of District level representatives of telecom service providers.

The objective of this interview is to study the feasibility of cell phone application for Early grade reading (class 1 -3) program. You are requested to provide your best opinion to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

Respondent's Profile:

Name of Respondent: **Sex:** Male/Female/Other
Address: VDC/Municipality: District:
Service provider name: NT / Ncell / other **Profile:** company staff / Franchise staff
Responsibility: office in-charge / technical / customer service / Dealer / Retailer
Education: SLC / Intermediate/ Graduate/ Masters and Above

Theme: Service coverage at Sample district level

51. Including yours, which other companies provide cellular mobile phone service in the district?
    A. NT B. Nell C. Smart D.UTL E. other
52. What are the available services through your network in this district?
    A. Mobile phone calls B. SMS C. 2G internet D. 3G internet E. All of above
53. How many Base Transceiver Stations (BTS) towers are operational in the district and where are they located?
54. What is the VDC level coverage status of cell phone service in the district?
    A. All VDCs covered B. Most of VDCs are covered C. Covered through CDMA

    D. Few are not covered E. most of the VDCs are not covered

55. Please, mention the VDCs which are not covered by cellular phone services in the district?

……..

56. What is the average service outage in hours in a month? And what is the normal service restoration period in hours?

Answer Notes:

57. Estimated how many cell phone customers are being served through your network in this district?
    A. ……. Thousands
    B.

Interview Questions (Qualitative)

58. How can we use cell phone application to improve quality of education?

Answer Notes:

59. Is there any way to use cell phone that improves children's learning?

Answer Notes:

60. Is there any progress made to use cell phone application in educational purposes? If yes, what are the initiatives? And, if No, What may be the reasons?

Answer Notes:

61. If schools and parents are interested to use mobile phone for education purposes, especially monitoring of children progress and communication between parents and schools, how would you like to support to this initiative?

Answer Notes:

62. Do you foresee any possibilities to use cell phone and SMS applications to be used in children education especially in home learning? If yes what are the possibilities?

Answer Notes:

Interview Schedule #7.1: FGD with Parents, SMC &PTA members excluding HTs, Tso

The objective of this interview is to study the feasibility of cell phone application for Early grade reading (class 1 -3) program. You are requested to provide your best opinion to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

FGD's Participants list:

FGD conducted Date/time: **Place:**

SN	Full Name	Full Address	Role	Mobile	Signature
1					
2					
3					
4					
5					
6					

Theme: Stock of Cell phone/SMS users
(Subjects of discussion)

1. *Number of Parents using cell phone in this community. Percentage of SMS service users.*
2. *Opinion on expensiveness of cell phone services and its affordability.*
3. *Query about most suitable time to support children education in home using cell phone applications.*
4. *Opinion about using toll free numbers to avail educational stories, and rhymes.*
5. *Coverage and quality of cell phone service in the area.*
6. *What about the cost of using cell phone and SMS application? What can be the affordable range of prices in terms of monthly expenses?*
7. *In your opinion, what could be the affordable cost of SMS service? Cost per SMS?*
8. *What could be the best timing to communicate in SMS for children's reading monitoring purpose?*
9. *Who could be the right person to communicate in mobile and why?*

Notes:

Theme: Attitude towards use of Cell Phone and SMS application
(Subjects of discussion)

1. *Idea on other cell phone and SMS applications suitable for home-based early grade reading practice.*
2. *Area of Interest of parents to use cell phone applications for home based early grade reading.*
3. *Discussion on the ways SMS service can be made useful to support home based early grade reading practice of children.*
4. *What may be the feasible language to use SMS based application.*
5. *Feasibility of using offline and online contents like educational songs, videos, lessons, books in mobile phone.*
6. *In your opinion, what could be the affordable cost for such contents like songs, videos, books?*
7. *What could be the best timing to use such contents for children's reading monitoring purpose?*
8. *Who could be the right person to use such contents in mobile phone and why?*

Notes:

Theme: Possible approaches to use Cell phone and SMS monitoring
(Subjects of discussion)

1. *Feasibility of using SMS to monitor the progress of early grade reading children.*
2. *Ideas to communicate children's attendance, class schedule, school notices, results, assignments through SMS.*
3. *Other ways to support children education in home using mobile phone and SMS applications.*

Notes:

Theme: Possible strategy to use cell phone & SMS Monitoring
(Subjects of discussion)

1. *What strategies should be taken to use cell phone application to engage children in home based support in early grade reading practice?*
2. *What are your suggestions to school and the central level agencies of GON to use Cell phone application for home based support for EGR children?*

Notes:

Interview Schedule #7.2: FGD with Head Teacher, Teachers, SMC &PTA members

The objective of this interview is to study the feasibility of cell phone application for Early grade reading (class 1 -3) program. You are requested to provide your best opinion to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

FGD's Participants list:

FGD conducted Date/time: **Place:**

SN	Full Name	Full Address	Role	Mobile	Signature
1					
2					
3					
4					
5					
6					

Theme: Stock of Cell phone/SMS users/ Cost/Quality
(Questions for discussion)

10. *How many Teachers use cell phone in this school? And how many of them may be using SMS services?*
11. *How expensive are the cell phone services? Are they affordable?*
12. *What about the coverage and quality of cell phone service in the school area?*
13. *What might be the most suitable time to support children education in home using cell phone applications?*
14. *Opinion about using toll free numbers to avail educational stories, and rhymes.*
15. *What about the cost of using cell phone and SMS application? What can be the affordable range of prices in terms of monthly expenses?*

Notes:

Theme: Attitude towards use of Cell Phone application/Language
(Questions for discussion)

1. *What is your idea towards using cell phone application for home-based early grade reading practice?*
2. *In what ways teachers might be supported to use cell phone applications for home based early grade reading?*
3. *How SMS services can be made useful to support home based early grade reading practice of children?*
4. *What may be the feasible language to use SMS based application.*

Notes:

Theme: Approach to use Cell Phone application
(Questions for discussion)

1. *How will it be feasible to monitor through SMS on progress of early grade reading children?*
2. *What is your idea to communicate attendance, class schedule, notices, results etc through SMS to parents regarding children's progress?*
3. *What could be done to use mobile phone and SMS services to communicate school information to parents?*
4. *What other ways can be there to support children education in home using mobile phone?*
5. *In your opinion what could be other relevant areas of to use SMS applications?*
6. *To whom such SMSs should be send and why?*

Notes:

Theme: Possible strategy to use cell phone & SMS Monitoring
(Questions for discussion)

1. *What strategies should be taken to use cell phone applications to engage parents and children in home based support in early grade reading practice?*
2. *What are your suggestions to school management committee and the central level agencies of GON to use Cell phone application for home based support for EGR children?*

Notes:

Interview Schedule #7.3: FGD with Head Teacher, Teachers, and SMC &PTA members

The objective of this interview is to study the feasibility of cell phone application for Early grade reading (class 1 -3) program. You are requested to provide your best opinion to the questions asked. Your response will be used in aggregate form only and your answers will be kept confidential.

FGD's Participants list:

FGD conducted Date/time: **Place:**

SN	Full Name	Full Address	Institution	Mobile	Signature
1					
2					
3					
4					
5					
6					

Theme: Existing initiatives
(Questions for discussion)

16. *How do you evaluate the status of early grade reading status of children in Nepal and sample district?*
17. *What are the positive sides and areas to improve?*
18. *What are the initiatives of your institution in education sector especially in early grade level students?*
19. *How do you evaluate the idea of using cell phone and SMS application in home based support of early grade reading children?*
20. *In your opinion, what could be the affordable cost of SMS service? Cost per SMS?*
21. *What could be the best timing to communicate in SMS for children's reading monitoring purpose?*
22. *Who could be the right person to communicate in mobile and why?*

Notes:

Theme: Potential approaches to use of Cell Phone application/Language
(Questions for discussion)

7. *In what ways parents might be supported to use cell phone applications for home based early grade reading?*
8. *What could be done to use mobile phone and SMS services to communicate between school activities with parents of early grade reading?*
9. *What other ways can be there to support children education in home using mobile phone? Do you have specific experiences to share and reports to refer?*
10. *Do your organizations have any initiatives in this regard?*

Notes:

Theme: Possible strategy to use cell phone & SMS Monitoring
(Questions for discussion)

3. *What strategies should be taken to use cell phone applications to engage parents and children in home based support in early grade reading practice?*
4. *In what way your agency can be approached to get support for early grading reading children?*
5. *What is your suggestion to the nongovernmental and supporting agencies in this regard?*
6. *What are your suggestions to school management committee and the central level agencies of GON to use Cell phone application for home based support for EGR children?*

Notes:

Annex-III: Interview Protocols and Guidelines

The surveyor designated by Avant-garde shall conduct the self-administered or administered interview with the parents of early grade students in their home locations. Surveyor shall ensure target parents to understand the purpose of the interview and its objectives. The interviewer shall let the informant, if there are any constraints that may limit how the study is reported.

Objective needs

i. To gauge the extent of cell phone use among the respondents (parents/HT/T/RP & SMC/PTA members) of EGRP students?
ii. To gauge the extent of SMS service use among the respondents of EGRP students?
iii. To measure the attitudes towards cell phone use among the target respondents?
iv. To identify the attitude towards cell phone use by respondents in home based support in education of EGRP students?
v. To measure the attitude towards cell phone use among the respondents in home based support for EGRP students?
vi. To identify the potential approaches of SMS monitoring among respondents in home based support for EGRP students.

Preparation and work ethics

1. Be patient: work schedule, result, respondent time,
2. Be neutral: Do not interfere, suggest on any answer. Clarify question, if asked, avoid examples on exception.
3. Avoid making assumptions about the respondent's responses.
4. Be tactful and sensitive.
5. You can display authorized letter/ approval from client whenever required.
6. Survey assignments may not be delegated to any person, friend or relatives.
7. Schedule your everyday work and time.
8. Carry on your Identity card.
9. IF YOU EVER FEEL THAT YOU ARE IN DANGER, STOP THE INTERVIEW IMMEDIATELY AND LEAVE.
10. Update the progress report (Number of data collected to supervisor every evening).

Data collection (survey) guidelines while data collection

1. Make a good first impression with the tentative respondent.
2. Encourage the respondent to participate in the survey.
3. Pay attention to the respondent's requests for confidentiality.
4. You need to visit your allocated set of School, Resource center, households, and community to collect the samples from designated strata as per the method set and explained during training. Avoid skewedness on demographics (age group/ Gender) or dwelling places and verify that indeed the respondent number fulfill the survey requirement of population.
5. Make sure that all the relevant parts of the cover page of the questionnaire are completed and request again if left. DO NOT INSIST OR RECOMMEND for selection.
6. Once the questionnaires are completed, store them in a safe, waterproof place until evening. That evening, carefully check the questionnaires again to ensure that they are legible and that all responses are recorded correctly. Complete write your field impression and report on every day basis.
7. Filter the filled up forms and unfilled forms.

Annex-IV: Device Type Vs Education of Parents

The results in Table below showed that among all parents 3.3% are illiterate and have bar phone. In illiterate category 1.8% have feature phones. Out of these parents, remaining 94.9% are either possessed smart phones or are capable to use smart phones based on their literacy and formal education achievements.

Table: Distribution of Device Type and Education Background of the Parents of the Sample Districts

Device Type	Education Background of the Parents						Total
	Illiterate	Literate	Basic Education	Secondary education	Bachelor	Masters and Above	
Bar Phone	15	64	45	9	2	0	135
	3.3%	**14.3%**	10.0%	2.0%	.4%	0.0%	30.1%
Feature Phone	**8**	**54**	27	16	2	1	108
	1.8%	**12.0%**	6.0%	3.6%	.4%	.2%	24.1%
Smart Phone	9	80	57	46	12	2	206
	2.0%	17.8%	12.7%	10.2%	2.7%	.4%	45.9%
Total	32	198	129	71	16	3	449
	7.1%	44.1%	28.7%	15.8%	3.6%	.7%	100.0%

Annex V: Device Type Vs Occupation of Parents

The analysis of the relation between occupation of parents and cell phone device type used show that 18.2% bar phone users were farmers and 4.3% were labors. While relating average monthly cell phone expenses being less than NPR 100.00 with device types, only 4.5% were found in bar phone user.

Table: Distribution of Device Type and Occupation Background of the Parents of the Sample Districts

Device Type	Occupation						Total
	Teachers	Farmers	Labors	Service holders	Businessmen	Others	
Bar Phone	4	80	19	5	11	15	134
	.9%	**18.2%**	**4.3%**	1.1%	2.5%	3.4%	30.5%
Feature Phone	3	53	26	5	9	12	108
	.7%	**12.1%**	**5.9%**	1.1%	2.1%	2.7%	24.6%
Smart phone	7	107	28	9	30	16	197
	1.6%	24.4%	6.4%	2.1%	6.8%	3.6%	44.9%
Total	14	240	73	19	50	43	439
	3.2%	54.7%	16.6%	4.3%	11.4%	9.8%	100.0%

Annex VI: Device Type Vs Average monthly expenses in cell phone by parents

A cross sectional study of average monthly expenses incurred by parents to pay monthly bills and recharge their prepaid account has been carried out. The results are in table below;

Table: Average Monthly expenses of Parents on Cell Phone Use as Device Type

Phone Type	Average Monthly Recharge Amount				Total
	< Rs 100	Rs 101 to Rs 300	Rs 301 to Rs 500	Rs 500 and Above	
Bar Phone	22	59	46	26	153
	4.5%	**12.0%**	9.3%	5.3%	31.0%
Feature phone	**14**	**46**	42	15	117
	2.8%	**9.3%**	8.5%	3.0%	23.7%
Smart Phone	27	72	68	56	223
	5.5%	14.6%	13.8%	11.4%	45.2%
Total	63	177	156	97	493
	12.8%	35.9%	31.6%	19.7%	100.0%