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IMPLEMENTING E-LEARNING IN FAR WESTERN REGION OF NEPAL

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ABSTRACT

The rapid developments of internet and communication technologies have materially altered many characteristics and concepts of the learning environment. E-learning is highly beneficial to developing countries and believed to have high potential for governments struggling to meet a growing need of education while facing shortage of expert teachers, shortage of update textbooks and limited teaching materials. The objective of this study is to investigate the vital challenges of implementing e-learning systems in far western region of Nepal. The results of this study provided basic mechanism for improving higher education in developing countries. There are a number of commercial or free e-learning systems in the market. Majority of these e-learning systems provide lot of functions and modules. Some courses are entirely based on e-learning instead of traditional learning model. E-learning system also offers graphs and charts of student's results. This system is based on linear workflow. That means students can see new learning resources and tests only after previous was done. Students can also create their own learning plan by defining dates. System is able to export this plan into general calendar format or remind students via e-mail.

Contribution/Originality: This study is one of very few studies which have investigated basic mechanism for improving higher education in developing countries. There are a number of commercial or free e-learning systems in the market. Majority of these e-learning systems provide lot of functions and modules. The paper contributes the first logical analysis on e-learning system that offers effective use of e-learning system. The paper's primary contribution is that students can also create their own learning plan using e-learning mechanism. Furthermore, system is able to export this plan into general calendar format or remind students via e-mail.

1. INTRODUCTION

The exceptional development of information and communication technology (ICT) is showing its roaring effects in every aspects of human civilization and hence, education section can't exist in isolation. The sophistication in Internet and web technology is entirely driving teaching and learning methodology in more productive, result oriented and flexible way. It has enriched distance learning and learning into one of the essential manifestation of education especially in developing countries like Nepal where states infrastructure such as road and transportation are not accessible to the hill and the Himalayas. Even in the today's developed countries using email and the world wide web for teaching and learning, without being restricted by time and space, e-learning program is also feasible

via CD-ROMs, digital DVDs, Intranet including audio and video tapes, satellite broadcast and interactive TV(television).

The establishment of the online learning is not certain although it is believed that the concept was originated during the 1980s, within the similar time frame of another delivery mode of e- learning, while some author explicitly defines e-learning ,others imply a specific definition or view of e-learning in their article. E-learning is the term for all kind of (ICT) technology -enhanced learning, where technology is use to support learning that is different from our traditional way of printed material form (Rusten, 2004). It includes computing and communication facilities and features that variously support teaching, learning and a range of activities in education which constitutes hardware (CPU, monitor, projectors) and software(text editor, database and browsers). ICT is presenting a new model of education with a view of preparing students for "long life learning".

World is changing towards the digital. Nepal is developing country; there are many remote areas in Nepal where the learning in school is not possible because of the problem in education material, content delivery system, student evaluation and teaching learning technology (Covey, 1989; Lau, 2002). To solve all of these problems the research is made how the concept of e-learning can be implemented and how all the students of those regions can get education by sitting at their own home.

The major objectives of this research are to develop effective tools and techniques for education, to enrich the students for better study and to provide better student evaluation system. Other objectives include assisting all the students in getting necessary learning material and outlining several critical aspects which hinder the successful implementation of e-learning in Nepal. The findings of this study have several fruitful outcomes which can be referenced by different academic institutions as well as government educational official to design a new framework of teaching and learning pedagogy in the context of Nepal.

2. LITERATURE REVIEW

Online Learning (OL) is one of the several approaches to e-learning. E-learning is a wider concept of learning that includes digital learning. Though, OL is specific to the Internet mediated learning method. Bejjar and Boujelbene (2014) define e-learning as the "use of ICT, online media and web technologies for learning" (p. 5). One of the best definitions of e-learning is a term covering a broad applications such as web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet, audio- and video tape, satellite broadcast, interactive TV, CD-ROM, and more as cited in Boezerooij (2006). Thus, OL refers to the mediated learning that developed from Web 2.0 integrated platforms and accessible through the Internet.

Web 2.0 defines the integrated web platforms that permits different kinds of online interaction and information sharing. "Web 2.0 is a technology with profound potential for inducing change in the higher education sector" (Franklin and van Harmelen, 2007). Applications in this platform are for creating, communicating, sharing, and collaborating make it convenient to create confidential documents and open interactions even if they are at a far distance. Students and teachers without skills of web designing or web publishing can create and share academic works to their learning community. So, use of Web 2.0 is becoming popular in academia. Besides this, Web 2.0 integrated learning platforms advance interactivity, collaboration, creation and sharing among learners for quality learning. "The mode of course delivery can be entirely electronic (with or without an instructor) or take a more blended approach integrating electronic and classroom delivery to varying extents" (Otemae Educational Corporation, 2004; Wagner et al., 2008). OL enhanced with Web 2.0 is articulated as "the evolution of more user-friendly applications and interactive content encapsulated in learning objects, one need not be a coding expert to take advantage of the learning opportunities that are becoming available on the Web" (Lau, 2002). He stated that the developing countries have a good future for accessing wealth of knowledge in the Internet.

Higher education institutions (HEIs) in Nepal started implementing OL as e-learning to provide the traditional on-campus teaching and learning activities. It is thus believed that e-learning facilitates new opportunities to students and HEIs by creating new opportunities. Researchers found that e-learning have brought remarkable changes in the higher education institutions by changing student support system and educational delivery. "The development and introduction of a variety of e-Learning tools (from using email to a digital portfolio and a virtual learning environment) has been causing numerous changes in higher education institutions" (Boezerooij, 2006). Here, technological teaching defines to an integrated teaching with technologies such as audio, video, graphic, simulation, animation, multimedia which are considered supporting tools of teaching online and offline.

2.1. Different Modes of Learning in Nepali Cultural Traditions

Nepal has cultural richness as "it is a multiethnic, multilingual, multi-religious and multicultural country. There are 123 languages being spoken in Nepal whereas 125 castes and ethnic groups are residing in a uniquely harmonized Nepalese society" (National, 2014). Such diversity needs multi-cultural education system and different methods of teaching and learning as per cultural practices.

College of Education introduced adult education through radio in 1958. It is the first initiative towards distance education in Nepal. Another aspect is the launching of radio education teacher training project in 2015 by the Ministry of Education (MOE) with the technical and financial support from USAID. The project initiated radio broadcasting since 1980 that focusing to enhance the professional capabilities of in-service primary teachers with qualification under School Leaving Certificate (SLC) (National, 2014). In the same manner, as provisioned in National Education Commission 2015, Distance Education Centre (DEC) was started under MOE in 2016. The centre initiated teacher training and education awareness programs via radio broadcasting. After unification of DEC with National Centre for Education Development (NCED) in 2005, professional development training courses for primary to secondary level teachers, SLC support, and radio program on education information have been conducting.

There are 84 centers of open school throughout the country covering all 75 districts of the nation. Open schools focus on secondary level students who are out of the mainstream formal education due to various reasons. In doing so, self-learning is a major strategy through different means: radio/TV programs, printed materials, and e-learning contents on the Internet. As stated in the policy documents and directives, open schools and distance education programs are also targeted to the busy job holders, residents of geographically remote places, household workers and seekers of learning and earning together.

2.2. Flexible Learning Options for Nepali Students

Flexible learning provides valuable advantages to students in competitive higher education to meet the need of diverse range of students. The central focus of flexible learning is to offer choices about when, where and how they learn. While offering choices, place and mode of delivery are taken care of that empower learners in a number of ways. For example, students get autonomy to choose any suitable option for studies. In addition, students can handle work, study and social life together which enables them to adapt change with the complexities of the 21st century lifestyle. Moreover, "flexible learning is flexible in terms of start and end times, teaching modes, study materials, place, time, assessment" (Casey and Wilson, 2015).

Nepali students connected to the Internet can access worldwide educational opportunities joining Massive Open Online Courses (MOOCs), e-learning, online education and many more offered by various universities around the world. As of April first week 2016, country report of ALISON, one of MOOCs providers states that 29,841 learners have been educated from Nepal participating one or more courses. There are 296,031 sessions in Nepal and 750 courses are studied from Nepal. Thus, Nepal is ranked 31 out of 250 countries participating in courses offered by ALISON. The data highlights that Nepali learners are used to take the opportunities of flexible learning

provided by the Internet technology. It is the evidence of new learning system being developed among Nepali people. This is also known as the *Internet culture* of learning where students can establish online community for learning. However, low completion rate 6%-18% in MOOCs offered by University of London (Grainger, 2013) shows flexible learning in MOOCs may not be suitable in Nepal because of traditional culture of education which is lead by on-campus teaching and learning.

The use of MOOCs can draw attention to huge number of students in a single learning platform. For instance, the first free online MOOCs attracted 2,200 students at the University of Manitoba, Canada but the number of on-campus enrolment was only 27. Similarly, Grainger (2013) states that Coursera catered its service to 5 million students providing over 400 courses from 90 partner universities around the world by September 2016. Flexibility in learning has been the goal of the MOOCs where students obtain several benefits including choices of University and courses.

2.3. ODL as a Pedagogical Tool for Teacher Education

In order to understand ODL as a pedagogical tool for teacher education, this section begins with a convincing definition of Moore and Tait (2002):

"it is the fact that all or most of the teaching is conducted by someone removed in space and time from the learner, and that the mission aims to include greater dimensions of openness and flexibility, whether in terms of access, curriculum or other elements of structure." (p.8)

This definition clearly separates ODL from the traditional approach of attending institutions for knowledge in rigid and structured space, time, and curriculum. However, ODL requires more guided self-learning approach because teachers and students are physically separated.

Pedagogy is the function or work of teaching; the art or science of teaching, education instructional methods. In this sense, ODL would be an ideal and practical tool for teacher education in Nepal. Historically, ODL had been used as a tool for teacher training in Nepal. ODL was used as the best tool to bridge the need of training services and geographical barrier aiming to train 5000 teachers per year. Distance education provides way to interconnected knowledge and ODL serves a large number of target groups. By distance education educational opportunities can be increased to geographically challenged groups of learners; flexibility of time and place of study is guaranteed; teaching learning is individualized; students are free to choose learning environment; and learners are responsible for learning.

2.4. Implementation of ODL Programs in Nepal

ODL is time demanding and Internet technology has a strong support to expand the ODL programs in the form of MOOCs. For example "the University of London International Programs' initial offering of four MOOCs attracted over 210,000 initial registrations, over 90,000 active students in their first week, from over 160 countries and lead to 8,843 Statements of Accomplishment being attained" (Grainger, 2013). With the help of Internet and MOOCs several students from Nepal are participating in ODL offered by different universities around the world. The number of students participating in ALISON MOOCs and position of Nepal in ranking shows desirability of Nepali students towards MOOCs.

A partner institution of Indira Gandhi National Open University (IGNOU), International Centre for Academics (ICA), College of Distance Education and Online Studies is offering different academic programs through ODL in Nepal since 2002. Out of 3527 students involved in 21 different programs at ICA, 1401 students have graduated to the date. The standard completion rate is 37.72%. It has been handling 1200 students at present. This data represents the demand of ODL is highly beneficial.

Following the web-based educational technology for ODL, two of the leading universities in Nepal TU and KU have started online learning. At KU, KUSOED has recently revised the modality of the ODL program that was

provided since 2011. The revision differentiates online classes from on-campus classes primarily in the ways of students-teacher communication, interaction and instructional delivery. Expediency and flexibility are the common reasons for online classes. Similarly, TU has Open and Distance Education Centre (ODEC) providing resourceful e-library, conducting virtual classes, ensuring access and equity in higher education, providing professional and non-academic courses, training education professionals in e-learning, e-pedagogy, e-education and e-management, generating research based new knowledge, developing and using economically feasible open and distance LMS, and developing national and international relation with ODL providers to uphold higher education. Thus, both the universities have similar modality of ODL pedagogy.

Implementation of ODL would be the best way to expand access to higher education in Nepal considering country's geographical and cultural diversities. Lessons can be learnt from the practice of Open University of Sri Lanka which covers 30% of the tertiary enrolment in national universities providing education to students from diverse profile, distributed and representing all ethnic communities through its 28 learning centers across the country (Coomaraswamy, 2013). The University provides computer facilities, audio-visual aids, practical sessions, day school discussion classes, tutorials/workshops/tutor clinics for student support. Another example is Virtual University of Pakistan (VUP) which is providing quality education establishing 180 outreach campuses across the 95 cities in nine years of its establishment. VUP also adopts modern technology: the Internet, television and e-learning for both instructional delivery and system management.

3. RESEARCH METHODOLOGY

The study which took approximately 6 months was conducted through the following phases: concept formulation, proposal writing, proposal review and approval; data collection, analysis and interpretation and presentation of findings. The questionnaire was designed to cover all the construct of the e-learning theory. Prior to administering the questionnaire validity and reliability test has been conducted as seen in to ensure it was valid and reliable .The questions was self-administered by the researcher. Where the respondent did not understand the question, a clarification was made to them before they answered such questions. A sample of 150 respondents (students and administration) was selected from the sodsha devi school of Sanfe, Achham of determining sample sizes.

3.1. Rationale of the Site Selection/Area of Study

Some secondary school of remote area of far-western region has been selected such as school of Patan, Sodha devi school of Ascham, as a site of study considering the feasibility due to limited time and resources. This site is of even more significance for the selected research topic of e-learning because the students of those schools are not aware or implemented such type of pedagogy yet.

3.2. Population and Sampling

Though we had a target to visit and analyze data of more school but we could only take around only 150 respondent of two school considering the time and limitation. For this research, according to data collection plan, majority of the data collected are primary data. Various interviews, focus group method, observation including non participatory observation, email questionnaire, website polling, various formal and informal field visits were done to collect primary information. The researcher has put its best effort to collect the reliable data as possible. Therefore the data collected and analyzed are reliable, integrated and consistent.

3.3. Research Output

According to the questionnaires that were asked to the student, we get following output:

Table-3.3. Research output

Technological skill	Beginners (24%)	Competent (35%)	Proficient (29%)	Expert (12%)
Internet access at home	Yes (30%)	No (43%)	Near future (27%)	
Time spent on internet for educational purpose	Less than 20 minutes (20%)	20-40 minutes (31%)	Upto 120 minute (28%)	120 minutes or more (21%)
Preferences on blended courses over face to face courses	Strongly agree (25%)	Agree (28%)	Disagree (37%)	Strongly disagree (10%)
Preferences of student towards offline rather than online courses	Strongly agree (25%)	Agree (28%)	Disagree (37%)	Strongly disagree(10%)
Preference of student over e-learning pedagogy in future	Strongly agree (10%)	Agree (37%)	Disagree (28%)	Strongly disagree (25%)
Which study medium do you find most helpful in learning	Lectures (10%)	Practical class (37%)	e-learning (25%)	Blended learning (28%)
Factors students like most in e-learning	Multimedia enhanced content (25%)	Pictures and animations (28%)	Explanation (26%)	Do not like at all (21%)
Reasons for preferring e-learning over traditional one	Cognitive based learning (28%)	Self paced learning(26%)	Increase learner convenience (25%)	Flexible and clear (21%)

This study is carried out with the help of data and information collected and based on that collected data and information, conclusion is drawn. Here, no hypothesis in conducted prior to the research work and then tested. In other words this research is conducted from specific to general. With the help of many instances, the conclusion of research is induced.

4. QUESTIONNAIRE SURVEY DATA ANALYSIS

As per the research plan, two sets of questionnaire were prepared, one for the students and other for the school management of Sodsha devi school of Accham. There are 7 question for school management team and 10 questions for students who have some computer skills and are indirectly engaged in e-learning in some form in their respective school. The questionnaire was designed to cover all the construct of the e-learning theory. Prior to administering the questionnaire, validity and reliability test were conducted as seem to ensure it was reliable and valid .The questionnaire was self administered by the researcher. Where the respondent did not understand the question, a clarification was made to them before they answered such questions. Self administration of the questionnaire was done deliberately in order to attain a good response rate. A sample of 150 respondents (students and administration) was selected from different school of Achham.

4.1. Questionnaire for School Management

This part of questionnaire is mainly focused on some management prospects which are intended to reveal some interesting facts about current situation of e-learning pedagogy in different schools of Achham. The main purpose of this questionnaire is to find out the interest level of management of different schools towards emerging e-learning concept and also to explore their readiness to implement the e-learning in their respective institutions.

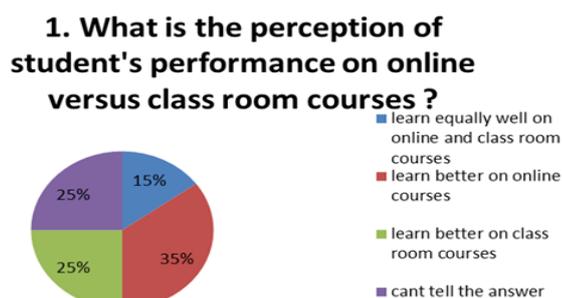### 4.1.1. The Perception of Student's Performance on Online Courses versus Class Room Courses

Figure-4.1.1. The perception of student's performance on online versus class room courses

Table-4.1.1. the perception of students' performance on online versus class room courses

learn equally well on online and class room courses	15%
learn better on online courses	35%
learn better on class room courses	25%
cant tell the answer	25%

According to the survey responses, most of the school authorities believe that the launching of online courses have good impact on their students as illustrated by overwhelmingly 35% of positive responses. Still 25% of the school management felt that their student prefers learning better on class room courses. Out of 150 responded 15% felt that their students learn equally well on online and class room courses and 25% of school management can't tell the answer of which method of learning is better for their student.

4.1.2. Proportion of E-Learning Material Used by Teacher

Fig-4.1.2. the proportion of e-learning materials used by teachers

Table-4.1.2. The proportion of e-learning materials used by teachers

Minimal	75
moderate	40
High	35

As per the primary data collected from 150 population sample, the school management responded that 50% of their teacher minimally used e-learning materials in class room to deliver their lessons , 27% moderately used while 23% used some form of e-learning materials and contents in their class room. It shows that very less proportion of have their technical skills and compatibility towards e-learning concept.

4.1.3. The Level of Student's Software and Computer Experiences

When asked to 150 population sample regarding their student's software and computer experience , nearly 22% replied that their student knew both word and spreadsheet package.

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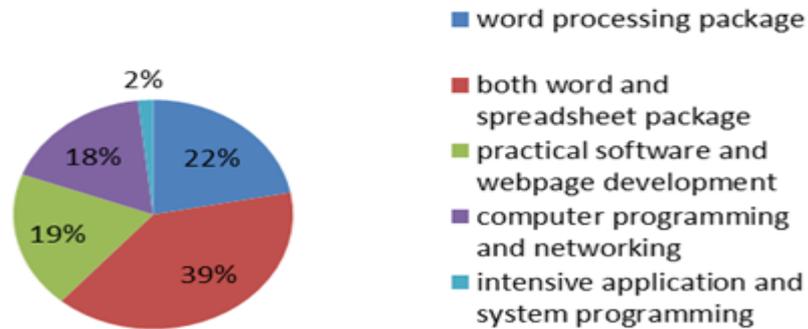## 3. What is the level of student's on software and computer skills?

Fig-4.1.3. The level of student's software and computer experience

Table-4.1.3. The level of student's software and computer experience

word processing package	25
both word and spreadsheet package	45
practical software and webpage development	22
computer programming and networking	20
intensive application and system programming	2

Interestingly, the school management responded that their student have nearly equal experiences on both practical software and webpage development and computer programming and networking. Finally less than 2% were very good in intensive application and system programming on account of their student.

4.1.4. Total Amount of Time Student use the Internet for Educational Purposes:

A survey was conducted to find out the amount of time student spend their time using internet for educational purpose. The result shows that 68 respondents accounting for 42% spoke that their student uses the internet 3-4 times in a week. 37 and 38 respondent accounting for 23% and 24% said that their student use internet 5-7 times in a week and 1-2 times in a week. Finally, 17 respondents said their student use internet more than 7 times in a week. The following result was obtained for the further analysis
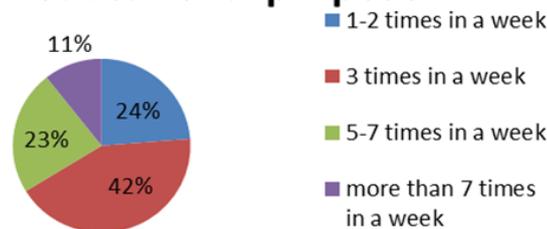

Fig-4.1.4. total amount of time student use interne for educational purpose

Table-4.1.4. total amount of time student use interne for educational purpose

1-2 times in a week	38
3 times in a week	68
5-7 times in a week	37
more than 7 times in a week	17

The result shows that 68 respondents accounting for 42% spoke that their student uses the internet 3-4 times in a week. 37 and 38 accounting for 23 % and 24% said that their student use the internet 5-7 times in a week and 1-2 times in a week. Finally, 17 respondents said that their student use internet more than 7 times in a week.

4.1.5. The Amount of Time Spent For Internet Uses for Educational Purpose among the Teachers

The survey concludes the fact that about 44% corresponding to 70 respondent said that they spent less than 60 minutes for internet for educational purpose. Nearly 23% correspond to 30 respondent replied that they use internet for up to 120 minutes. 30 respondent accounting for 19% said that they use 120 minutes or more for educational purpose and finally 14% accounting for 22 participants said they use 60-90 minutes for educational purpose in the internet.
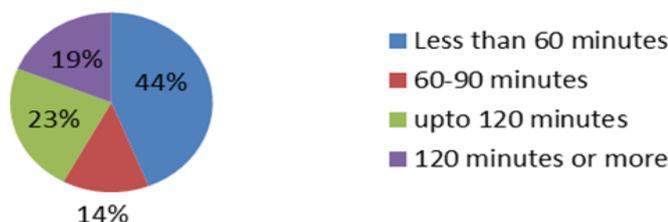
The following chart illustrates the conclusion

Figure-4.1.5. The total amount of time spent for internet usages for educational purpose among the teachers

Table-4.1.5. The total amount of time spent for internet usages for educational purpose among the teachers

Less than 60 minutes	70
60-90 minutes	22
upto 120 minutes	37
120 minutes or more	30

4.1.6. The Amount of E-Learning Materials Student have been Exposed to in their Programme

As per the survey result, the following facts were revealed:

Table-4.1.6. The amount of e-learning materials students have been exposed to in their Program

None	26
Minimal	52
Moderate	52
High	20

The amount of e-learning materials that have been exposed is not satisfactory as only 35% respondents each believe that minimal to moderate exposure of e-learning material is prevalent till date.

Only 13% that is 20 respondents have said that amount of e-learning materials exposed in their program is high. Significant portion of the respondent around 17% say that there is not any e-learning materials used in their academic program during their study.

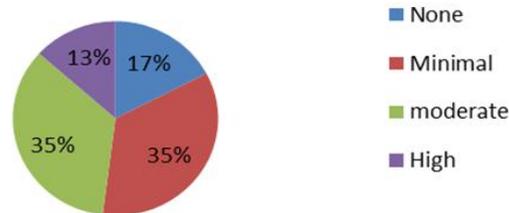# 6.What is the amount of e-learning material students have been exposed to in their programming?

Figure-4.1.6. The amount of e-learning materials students have been exposed to in their program

4.1.7. The Major Issues That Hurdle in Successful Implementation of E-Learning Concept in School

A survey was conducted in order to find the major caused hurdling the implementation of the e-learning pedagogy in school. It generates the following outcome:

Table-4.1.7. The major issues that hurdle in successful implementation of e-learning concept in school

Lack of technical infrastructure	40
insufficient computer skill among teacher	30
High implementation cost	45
Lack of proper vision of e-learning	25
Load shedding problem	20

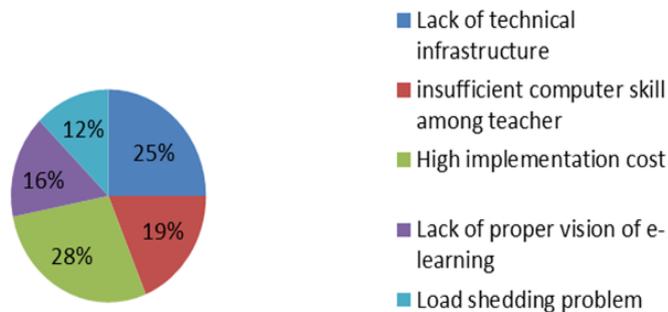# 7.What are the major issues that hurdle the successful implementation of e-learning?

Fig-4.1.7. The major issues that hurdle in successful implementation of e-learning concept in school

As per the conclusion, the major portion of the respondent, 25% think that we lack the proper technical infrastructure, tools and technologies to implement the e-learning concept in Neplease School. Around 19% of the respondent revealed the fact that insufficient technical skills among the teachers are a major hurdle of e-learning success.

A high majority of respondent around 28%, i.e 45 have pin pointed high implementation cost as a major region behind the problem.

16% said that there is a lack of proper vision on e-learning concept among different stake holders of education sectors .Very less responded nearly 12% claim that load shedding and electricity has been a major challenge for successful implementation of e-learning in Neplease schools.

4.2. Questionnaire for Students

This part of questionnaire is prepare for the students of different schools of Achham district who are directly or indirectly involved in e-learning pedagogy. The researcher aims to find the level of understanding towards e-learning concept among students and also attempts to highlight their interest towards e-learning area.

4.2.1. The Level of Computer Skill among the Students

A survey was conducted among the student to explore their computer skills from the beginner to the experts. The following result was observed:

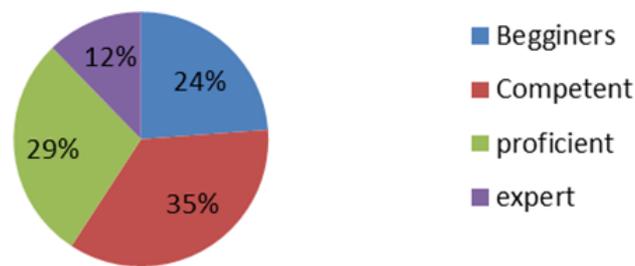## What is the level of computer skills amont the students?

Fig-4.2.1. The level of computer skill among students

Table-4.2.1. The level of computer skill among students

Beginners	35
Competent	52
proficient	42
expert	18

As per result out of 150 respondents, 35% (52) said that they were competent in their computer skills. 29% (42) said they were proficient in computer skills and 24% (35) said that they were beginners. Only 12% (18) said they were expert in computer skills.

4.2.2. An Internet Access of Student at Home

As research proceeds, researcher attempts in inquire if the students have internet access at home as internet is regarded one major aspect of e-learning implementation.
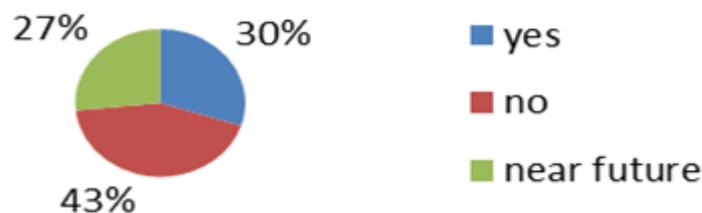
2.Do you have ineternet access at home?

Fig-4.2.2. An internet access of student at home

Table-4.2.2. An internet access of student at home

Yes	45
No	65
near future	40

According to the survey poll majority of the respondents, 65 students (43%) have no internet in their home. 30% students said that they have internet in their home, and 27% (40) students said that they will access internet in near future.

4.2.3. The Total Times Student Use Internet for Educational Purpose

The researcher has conducted a survey in order to find out the total amount of time that student use internet for educational purpose.
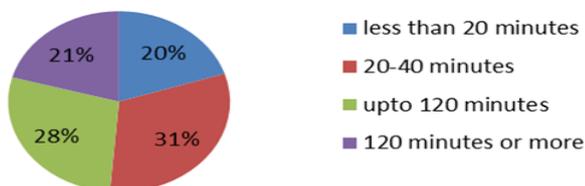

Fig-4.2.3. Students using Internet for education purpose

Table-4.4.3. Students using internet for education purpose

less than 20 minutes	30
20-40 minutes	47
upto 120 minutes	42
120 minutes or more	31

According to the survey poll 30 respondent(20%) use Internet less than 20 minutes for educational purpose , 47 respondent(31%) use internet 20-40 minutes ,28% use internet up to 120 minutes and 21% use internet 120 minutes or more for educational purpose.

4.2.4. The Preferences Level of Students on Blended Courses over Face to Face Courses

According to the survey conducted, following result were observed:
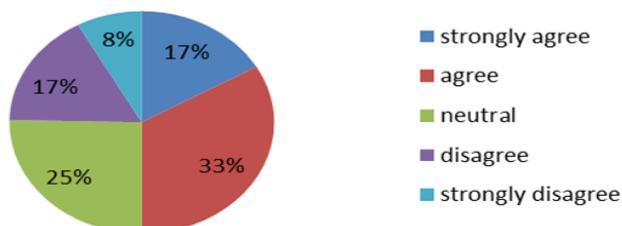

Fig-4.2.4. student preferences on blended courses over face to face courses

Table-4.2.4. student preferences on blended courses over face to face courses

strongly agree	25
agree	50
neutral	38
disagree	25
strongly disagree	12

According to the survey poll, 50 respondent (33%) agreed that blended course is better than class room courses, 25 respondent (17%) strongly agree on blended courses than classroom courses, 38(25%) respondent are neutral and 25 (17%) respondent are disagree with blended course than classroom course and finally, 12 (8%) are strongly disagree with the blended course, they think that class room course is better than blended course.

4.2.5. The Level of Preferences of Student towards Offline Rather Than Online Courses

According to the survey, the following results were obtained:

Fig-4.2.5. Preference of student towards offline rather than online courses

Table-4.2.5. Preference of student towards offline rather than online courses
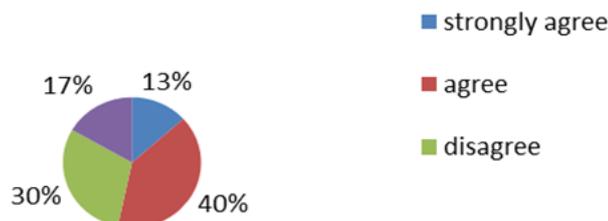
strongly agree	25
agree	45
disagree	65
strongly disagree	15

A significant number of respondent 65(43%) disagreed on offline courses, they prefer online course is better than offline courses, only 45 (30%) student agreed on offline course and 25 (17%) are strongly agreed on offline courses, they think that offline courses is better than online courses and finally, only 15 (10%) students are strongly disagreed on offline courses, they prefer online course than that of offline course.

4.2.6. The Level of Preferences of Student over E-Learning Pedagogy in Future

According to the survey conducted, the following results were obtained:

Fig-4.2.6. The preferences of student to prefer full online courses in future

Table-4.2.6. The preferences of student to prefer full online courses in future

strongly agree	20
agree	60
disagree	45
strongly disagree	25

A large number of students specifically 60 respondents are agree on online courses in future, 20 respondent(13%) are strongly agree on online courses and they want e-learning pedagogy in future , 45 respondent (30%) are disagreed on online course in future and finally , 25 respondent(17%) are strongly disagreed on online course in future .

4.2.7. The Medium of Study Students Find Most Helpful to their Leaning

During research, a survey was conducted in order to explore the best study medium used in learning that helps the students to learn in best and effective way. The survey concluded the following result:
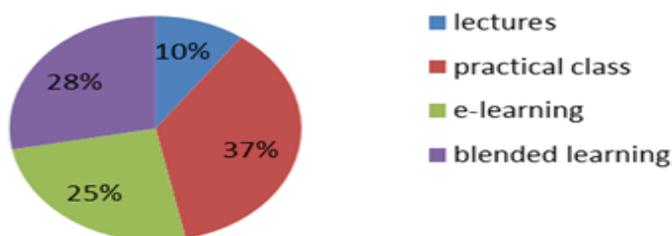
Fig-4.2.7. The study medium students find most helpful in their learning

Table-4.2.7. The study medium students find most helpful in their learning

lectures	15
practical class	55
e-learning	38
blended learning	42

According to the survey poll, 55 respondent (37%) prefer practical classes are more helpful in their learning, on 15 students (10%) thinks that lecture medium is more helpful in learning, and 38 student prefer e-learning method of study is more better in learning, and finally more 42 students(28%) thinks that blended learning method of study will more helpful in their learning than other types of learning methods.

4.2.8. Some Prime Factors Being Liked by Student in E-Learning Course

A survey has been conducted to find out some factors being liked by student in e- learning course, the result is as follows:
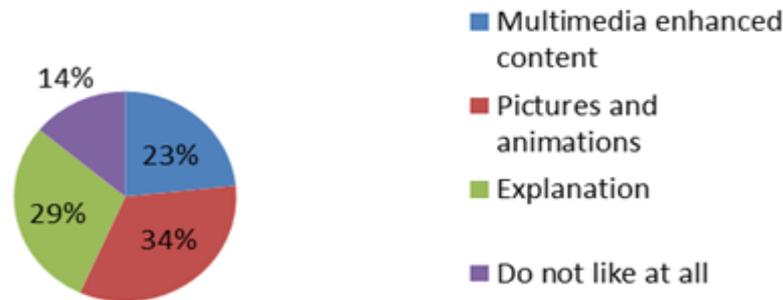
What do you must like in e-learning?

- Multimedia enhanced content
- Pictures and animations
- Explanation
- Do not like at all

Fig-4.2.8. The factors that student like most in e-learning

Table 4.2.8. The factors that student like most in e-learning

Multimedia enhanced content	35
Pictures and animations	50
Explanation	44
Do not like at all	21

According to the survey , 50 students(34%) like pictures and animations, 35 students(23%) like multimedia enhanced content, 44 students(29%) like explanation in e-learning and only 21 students(14%) do not like any one of these content.

4.2.9. The Reasons of Preferring E-Learning Methodology over the Traditional One

A survey was conducted to find out the reasons of preferring e-learning methodology over traditional one, and the result obtained is as follows:

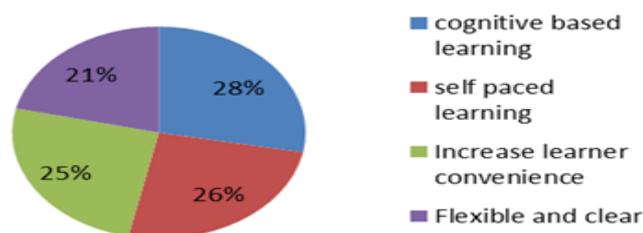# Why you prefer e-learning methodology over traditional one?

- cognitive based learning
- self paced learning
- Increase learner convenience
- Flexible and clear

Fig-4.2.9. Reasons for preferring e-learning methodology over traditional one

Table 4.2.9. Reasons for preferring e-learning methodology over traditional one

cognitive based learning	42
self paced learning	38
Increase learner convenience	38
Flexible and clear	32

According to the survey , student prefer e-learning over traditional methodology , because 28%(42) believe in cognitive based learning, 26%(38) believe in both self paced learning and increase learner convenience methods and only 21% (32) students believe in flexible and clear learning in e-learning methodology.

5. ANALYSIS AND DESIGN BLENDED MODEL

Nepal is a land locked country which is situated in geographically hilly region where transportation infrastructure is very expensive. In the Himalaya and mountain region it is very difficult to go school; it takes 2-3 hours to go to school. Generally speaking around 89% of population of Nepal lives in villages as one of the poorest economics in Asia, there is a large difference in the standard of living between the urban areas and the rest of the country. Undoubtedly there is a major contributor to the fact that only 2% of the total population receives higher education.

In this study, the researcher has analyzed the present teaching- learning pedagogy that exists in Nepalese education system. It has been observed that Nepal government and other private institution have been investing a huge amount of money in education sector but the outcome doesn't seem to be satisfactory in terms of quality, productivity and academic standards. The main reason behind these unsatisfactory academic outcomes has been found due to the traditional and teacher centric teaching pedagogy which restrict the students to explore them in a productive way.

5.1. Situation Analysis of Education in Secondary Schools of Nepal

The world is not as static as it used to be ten years ago. Things and concept are coming up and going down at rapid rate. The syllabus that was made ten years ago is now almost outdated. Therefore, our course needs to embrace the change environment and the better ways of learning methodology develop every day.

Class learning will focus on learning concept that will not change in near future and e-learning on concept that is dynamic in nature say for example computer and mobile technology.

During the research, it has been observed that "Chalk and Talk" based traditional and teacher centric methodologies are still dominating the Nepalese education which is still highly recommended by most of the stakeholders of Nepalese schools. In this teaching approach , learning objectives are often undermined and the teachers way of understanding the learning material is presented the way the teacher has understood . Often the key concept that the teacher has felt important and his derivation and understanding are more highlighted. The traditional and even present rigid education system in Nepal still believes that a teacher after attaining certain academic levels has understood how student should be prepared for their future by reading the objectives of the lessons found in the prologue of each chapter in a textbook.

5.2. Blended Learning, a Positive Jumpstart in Nepalese Education

To overcome the aforesaid problems in learning system of Nepalese context, researcher proposes ICT based learning approach which offers powerful and effective tool to deliver the education to the students.

It is the model that combines the traditional approach of pedagogy with the modern learning. Basically, manifests the classroom as well as anywhere learning scheme. Certain credits of learning are acquainted by the help of teachers face to face physically present in a room. The learning materials such as blackboard\whiteboard, chalk and listening and note making are done on the spot. Teachers do ask questions and take exams and verify the objectives of learning in the classroom. Group of the students can interact with each other and know that they all have come to learn in the classroom for their better future. Such traditional pedagogical methodology is combined with e-learning where there is no teacher and only the student desire to learn aids himself/herself for understanding the concept. Besides, the multimedia rich contents also help the pupils to grasp the concept clearly. Student can learn anytime, anywhere and any place. Even the old lectures can be retrieved and assignment submitted to the teachers online. This saves time, money and other resources.

Due to traditional learning methods still popular, total e-learning cannot be put directly though there are some distance learning university/ college that admit student online. However, such ambitious scheme of total e-learning

will not be productive in context to Nepal because the use of ICT in education is still in infant stage. Hence, blended model of learning can be positive jumpstart in Nepalese context.

The result of conducted research over different school of Achham has also shown very positive responses of students and school administration towards ICT based blended learning. Such solution to better learning for new generation children will definitely be productive and will prepare them for the new generation to face the new challenges.

5.3. Cost Benefit Analysis
5.3.1. Initial Cost is High

Developing any new system without cost is like a dream. Therefore, e-learning portal development and its implementation in hardware and software cost a lot in addition to repair and maintenance in the country like Nepal where fundamental necessity factors such as power and energy is punctuated. Besides, there need to be high skill manpower to develop and train e-learning courses.

5.3.2. Lower Delivery Cost

Putting aside the initial cost of installation and setup, blended learning system will definitely have advantage and cut cost nearly the half in most of the case owning to the fact that digital delivery is easier, cheaper and faster to update. It's long been proven that e-learning leads to lower delivery costs. Online delivery result in lower printing and distribution costs. Besides, the lower cost is also due to a reduction in training time; e-learning can deliver significant benefits by reducing the time it takes to train people.

5.3.3. Economic Benefits of E-Learning

The potential economic benefits of proposed e-learning system can be classified into two categories:
1) E-learning improving general education, which in turn has economic benefits, and
2) E-learning creating a technology –immersed population with 21st century job skills, which in turn create economic returns for a country investing in e-learning.

It must be noted that although e-learning can enhance economic outcomes through multiple mechanics, it is difficult to measure the benefits. First, there is significant time lag between the learning process and its effects on the on the student's employment or the society at large. Panel data following individual student over a long time frame is nearly impossible to find. The second difficulty is measuring the impact of the diversity of learning goals and outcomes. Workforce development is a one such goal, but other initiatives may focus on health, good citizenship, or the arts. Third , e-learning in only one component where technology and learning meet; e-learning as such is a relatively recent phenomenon yet a technology savvy workforce has been a foundation of many developed economies for several years. It is difficult to disentangle informal learning about and through technology from traditional and formal e-learning processes.

5.4. Designing a Network Frame for E-Learning Model

In order to get high bandwidth and thus quick access to e-learning materials in the school end, Intranet lease line subscribed from the NTC (Nepal Telecommunication Corporation) can be approached as the medium. The NTC has its ADSL (Asynchronous Dial Up Subscriber Link) services accessible to75 district as shown in the diagram below (core router level) .As the e-learning is hosted in Achham, therefore all the schools are connected to the server Dhangadhi via lease intranet line.
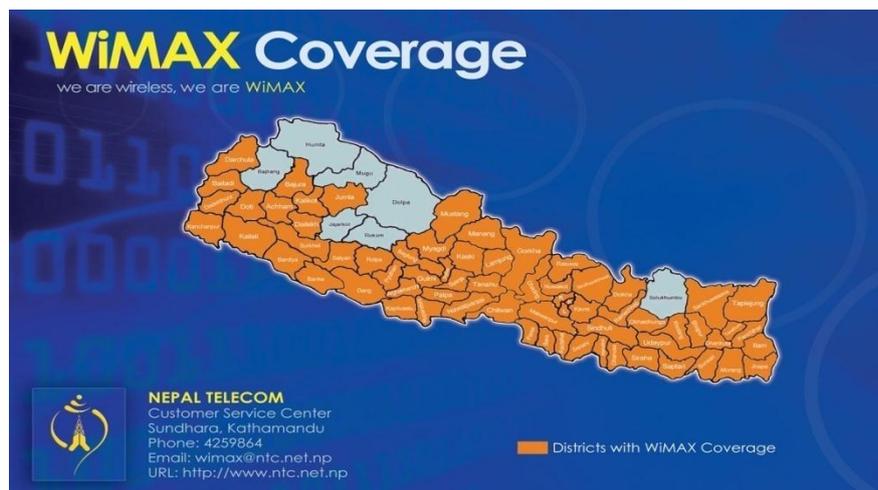
Fig-5.5. Wimax coverage area of NTC all over Nepal
Source: Nepal Telecome (www.ntc.net.np)

5.5. Limitation of Research/Study

Although this research was carefully prepared, it still has limitation and shortcomings.

1. The study was conducted only to limited areas such as school and student of only Sodsha devi School of Ascham.
2. The sample population on which the survey was carried out was only 150 respondents.
3. The larger number of respondents and area could not be considered due to financial constraints.

6. CONCLUSION AND RECOMMENDATION

6.1. Conclusion

E-learning is the need of the present and future especially in developing countries like Nepal. It is efficient, time saving and cost effective in the long run. Implementing e-learning in the blended model is the necessary measures in places where transportation is poor. While exploring the secondary schools of remote area of far western region, it was found that few schools had computer class starting from grade five mainly in theory class. The computers were mainly donated and very few. The computers were not smoothly used due to different technical barriers. Majority of schools had no computer science subject and were quite oblivion to computer and the technology. It is also concluded from the research that the most limiting factor in implementing e-learning includes cost of infrastructure setup, connection, training people etc besides load shedding and internet availability and bandwidth problem.

In response to the second objective of analyzing the responses of the student and the secondary schools on various mode of learning, it was found that education manifested with ICT was the most popular mode of e-learning to the students. During the research, the school of Achham such as Sodsha devi higher secondary school have used interactive white board or have introduced DVD based offline training or have started computer science subject with practical.

The researcher has observed it as a small step towards the path of blended e-learning approach. The researcher also is firmly of the opinion of first honing the IT skills in the educational pedagogy so that the ICT becomes a boon when it is understood and is leverage in narrowing the digital divide that is growing too fast inside and outside the country. The government is also aware of the revolution of e-learning in Nepal but it is unable to play any substantial role in leveraging the use of ICT in education all over the country. However, Ministry of Education (MOE) along with the open learning Exchange Nepal (OLEN) – a nonprofit US organization based in Kathmandu have so far distributed more than two thousand children in 26 school across 6 district affordable educational tools called XO laptops with internet access in its first pilot phase in the year 2008. On the other hand, it is high time

that the government should stop banking on international Non government organization (INGO) for the distribution of educational tools such as laptop.

Finally, a proposed e-learning model is presented that will be hosted in the Nepal using ADSL Internet/intranet infrastructure laid by NTC.

6.2. Recommendation

The following recommendation is made in the interest of adopting e-learning in the secondary schools of rural areas of far-western region as well as throughout the nation.

- Nepal government should take necessary steps to develop proper ICT infrastructure required for e-learning.
- Nepal government should formulate new policies and amend the policies that are curbing the growth of ICT.
- There should be provision of free access of internet and computer in rural areas so that they can benefit from e-learning thus bridging the digital divide in rural and urban areas. Hotspots and other wireless facilities to access internet should be implemented by the government.
- Investment in the underground fiber optical cables to tap the global internet super highway to deploy nationwide backbone of ICT infrastructure built on high speed fiber cables must be initiated by the stakeholders of innovative technology.
- Educational e-learning workshops and awareness program and campaigns should be organized from the government, public and private sectors.
- The government should provide subsidized funds to those schools who implement e-learning in their schools.
- Additionally, the management/ school committee develop a motivational reward system to those teachers who blend e-learning with face to face teaching in their course. It is also possible to acquaint IT skill to the parents/guardians of the students.

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