

CHAPTER I

INTRODUCTION

The purpose of this study is to share with the readers the findings of a study conducted to investigate the skills level of ICT use among teachers. Also, this study seeks to investigate the attitudes of teachers towards the use of ICT for educational purposes. Technology is now at the threshold of its maturity within all the sectors. An overview of the research in the value of using ICTs in teaching and learning process proved that the utilization of ICT has had a major influence on the teaching and learning process. On other words, ICTs had proved to be an effective tools for educational purposes, although it has extended and transformed the students learn and teachers teach.

Growth of ICT brought in rapid changes in various fields. It had also made entry into school education because of its appropriateness, applicability and versatility in use for classroom teaching. It is well recognized that ICT has great potential for improving the teaching learning process. It facilitates individualized learning and develops problem solving skills. Its interactive nature motivates students to learn. Educationists and teachers believe that with the help of ICT, quality of education given to the students can be significantly improved. The National Policy on Education (NPE) 1986, as modified in 1992, stressed the need to employ educational technology to improve the quality of education. The policy statement led to two major centrally sponsored schemes, namely, Educational Technology (ET) and Computer Literacy and Studies in Schools (CLASS) paving the way for a more comprehensive centrally sponsored scheme – Information and Communication Technology at Schools in 2004 (<http://ijesc.org>).

Background of the Study

ICT in Secondary school education is generally understood that computer is used as a technology for learning and teaching in school, which narrows down of technology used for ICT on education. All forms of technology assisted programs, popularly known as RAI (Radio Assisted Instruction), TAI (Television Assisted Instruction), CAI (Computer Assisted Instruction), IAI (Internet Assisted Instruction), and Mobile Learning.

The term ICT refers to forms of technology that are used for communication and to transmit, store, create, share or exchange information. The broad definition of ICT includes technologies such as; radio, television, video, telephone (fixed and mobile), computer and network hardware and software as well as the equipment and services associated with these technologies. ICT in education is understood as technology-assisted instruction like Radio Assisted Instruction (RAI), Television Assisted Instruction (TAI), Computer Assisted Instruction (CAI) and Internet Assisted Instruction (IAI). This instruction refers to teaching methods or models of instruction delivery that employ ICT in supporting, enhancing and enabling course content delivery (UNESCO,2014) and it includes any, all or combination of aforementioned technology assistance. The use of ICT in education can be traced out as early as in 80s with implementation of Radio Teacher Training Project (RTTP, 1980-1985) for qualifying and upgrading for working primary teachers. However, use of emerging ICT in school education is recent endeavor that started from teaching as a computer science as subject to- use of computer for administrative works to- pedagogical interventions. Presently, MOE is promoting it in education sector by paying high focus to empower learners, teachers, educators, managers and leaders to use ICT

effectively for expanding learning opportunities and ensuring educational quality and relevance (DOE, 2015).

The ICTTest Bed evaluation Underwood (2006) provides evidence that many teachers use ICT to support innovative pedagogy. It states: “New technologies that provide a good fit with existing practices, such as interactive whiteboards are first to be embedded, but others like video conferencing, digital video and [virtual learning environments](#) are now being incorporated, providing evidence of ongoing learning by the workforce. Training needs to continue to support innovative pedagogy.” Both examples show that ICT is being integrated in a continuous process. Therefore, ICT can improve teaching by enhancing an already practiced knowledge and introducing new ways of teaching and learning. Transforming teaching is more difficult to achieve. Underwood(2006)this evaluation came from a teacher training seminar in IT during the ITMF project. It showed that teachers have not fully changed their use of ICT in education; however, most of them changed their way of thinking about the application of ICT in education. Teachers have increased their use of ICT in lessons where students look for information on the net and use it afterwards for subject specific areas, but hardly any use of ICT for class presentations. Nonetheless, teachers do not make use of ICT to engage students more actively to produce knowledge. Similarly, the e-learning Nordic study shows an increase in the use of ICT to teach but not to innovate teaching methods: “ICT generally has a positive impact on teaching and learning situations, but compared with the ideal expectations; the impact of ICT on teaching and learning must still be considered to be limited” (Ramboll, 2006).

OLE Nepal recognizes that teachers hold the key to the success of any program at the schools. Unless teachers are fully comfortable and confident with this

new approach to teaching, the initiative will have limited impact on the teaching-learning process. With that in mind, OLE Nepal has developed and delivered training programs to help teachers integrate laptops and digital learning materials in classroom teaching. One key goal of this program is to prepare teachers to move away from the traditional paradigm of teachers as fountain of knowledge to new one where they are facilitators in students' learning process (www.epustakalaya.com).

E-Pustakalaya is an education-focused electronic library which contains books, full-text documents, images, videos, audio clips, and educational software. It is designed specifically with school aged kids in mind, but holds materials that can be used by teachers, general readers, and researchers alike. The library is accessible through the OLE Nepal network to the schools and on the Internet to other users (www.epustakalaya.com).

ICT in School Education in Nepal

Policy and programs for ICT in School education came into existence before National ICT policy, with implementation of radio teacher training in 1980 and piloting radio tuition programs on English subject(for grade 5) and social studies subject(for grade 4) in between 1975 to 1980 . Because, National Communication Policy formulated in 1992 is considered to be in essence. This endeavor paved the way for the liberalization of the telecommunication sector, followed by National telecommunication policy 2004, which laid the crucial ground work further intensification of the process of liberalization of the sector through the introduction of technology neutrality and open licensing regime (MOE, 2015). Based on these former initiatives, first National Information Technology (NIT) policy was announced in

2000 aimed at positioning IT as a tool for development and growth, and it was revised in 2010(MOE,2015).

Ministry of Education (MOE) initiated numbers of ICT in school education through policy and programs interventions before national IT policy enactment in 2000. For example, training of teachers through radio continued up to 2009 from 1980, piloting radio tuition programs for primary students in 1971-73 in English and social studies, , curriculum Provision of learning computer science as a subject at secondary level in 1992, piloting Cassette technology for primary students in environment, science and creative arts subjects in 1994,and piloting Dual-Audience Inter active Radio Instruction (DAIRI) for primary teachers and students in English and mathematic subjects in 2000.

Importance of ICT in Computer Education

Access to variety of learning resources in the era of technology, ICT aids plenty of resources to enhance the teaching skills and learning ability. With the help of ICT now it is easy to provide audio visual education. The learning resources are being widens and widen. Now with this vivid and vast technique as a part of the ICT curriculum, learners are encouraged to regard computers as tools to be used in all aspects of their studies. In particular, they need to make use of the new multimedia technologies to communicate ideas,describe project, and order information in their work.TheICT makes anytime learning, anywhere learning, educational data storage, distance education learning, access to open courseware, collaborative learning, access to online libraries, synchronous, asynchronous learning etc.

Now in the era of ICT, many developed countries have adopted the ICT in school computer education. Those countries education are far better than Nepali

education system because it is rarely used in Nepal for the educational purpose. To complete with national and international level, it is more important to include ICT in Nepali school computer curriculum.

Statement of Problem

An ICT is a teaching/learning tool that is used by subject teachers in 21 century period of time. Teaching with use of ICT is complex activity and teachers are the focal point of teaching/learning. Academic education, expertise, experiences are needed for effective teaching.

The advancement of technology and its effect have changed the world. The use of technology in education has played a vital role. The teaching pedagogy changed which depend on ICT. The way of conducting lesson, learning lesson and collecting resources are easily accessed by all through ICT. The use of ICT can be effective now days. So, it is essential to study on attitudes of teachers towards ICT.

There is no such study carried out on attitudes of teachers towards ICT in teaching computers in the context of Nepal. So, the purpose of this study is to find out attitudes of teachers towards ICT in Surkhet district. This study provides systematic and empirical data on attitudes of teachers towards ICT; even it was limited to the boundary of secondary level computer teachers.

Rationale of the Study

This study was entitled on “Teacher Attitudes towards Information and ICT”. In the environment teacher attitudes were measured through mathematics, science, and other curriculum course. That’s ways ICT was one of the major tools and curriculum that helps to measure the teacher attitudes. In the 21th century Nepal school rapidly used their ICT tools and curriculum to made learning strong and

powerful. ICT helps to engage a learner in learning and create a good environment of learning. Learners can make a self-learning environment through ICT. ICT was the need of the hour to examine and assess the attitude of teacher educators towards Information and Communication Technologies (ICT). As this was the case, the present study is proposed.

Significance of the Study

This study identifies teacher attitudes towards ICT in Surkhet district. There were so many ICT based tools and courses are presenting to make an effectiveness teaching in secondary school. Computer teaching was a skills based teaching/learning towards ICT. The Nepal Government launched their ICT policy to provide computer subject in Nepalese schools towards use of ICT. Computer teaching is an ICT based teaching in secondary's classroom. It considered that the research is potentially of considerable importance, for a number of reasons:

- It helps to support policy makers in the Ministry of Education and also teachers in developing ICT use within schools.
- It provides an opportunity to compare the views of teachers, students, and policy-makers on ICT use in schools.
- It support educational administrators and policy makers in choosing the appropriate methods of managing changes associated with ICT use in the educational system.
- It considers being the first study in Nepal which takes into consideration the different aspects of the application of ICT in the educational system.

Objectives of the Study

The objectives of this study were as follows:

- To find out the attitude of Secondary school teachers towards ICT.
- To explore views of teachers towards ICT educational tools.

Research Question

The research questions of this study were as follows:

- What are the attitudes of Secondary School teacher towards ICT?
- What are the views of teachers towards ICT education tools?

Delimitation of the Study

Delimitations are those features of that limit the scope and define the boundaries of study. This is the survey type research about secondary level teacher's attitude towards ICT in Surkhet district. This study intended to limit itself towards ICT. Due to the certain, time and other related factors the researcher cannot overcome the entire field. Some of the limitations of this study were as follows.

- This study limited only at Surkhet district.
- This study limited only in 50 computer teachers as a sample population from 100 secondary school teachers.
- This study limited only in secondary computer teachers.
- This study focused only to find attitudes of computer teachers towards ICT.
- This study focused to achieve their views on research objectives.

Definition of the key Terms

The key terms are those keywords which help to increase the better understanding about the research study have defined following.

- **Attitudes**

In [psychology](#), attitude is a psychological construct, a mental and emotional entity that inheres in, or characterizes a person.

- **ICT**

Information and Communication Technologies. It helps to sharing information one way to another way. Radio, television, mobile, newspapers are the example of ICT.

- **Online learning**

Online learning includes learning with the assistance of the Internet and a personal computer. The term e-learning, or electronic learning, often is used interchangeably with online learning.

- **Virtual learning**

A virtual learning environment (VLE) in [educational technology](#) is a [Web-based](#) platform for the digital aspects of courses of study, usually within educational institutions. Virtual learning” is also known as “digital learning” or “e-learning.”

- **Self-learning**

Learners learn own their own, but may not be able to use the correct learning methods.

- **Confidence**

Confidence can be described as a belief in one's self and one's ability to succeed.[Self-confidence](#) is having confidence in one's self.

CHAPTER II

REVIEW OF LITERATURES

A literature review is an account of what would be published on a topic by accredited scholars and researchers. It is a written summary and critique of the researchers related to particular issues and area. Literature related to the research area is reviewed to widen the body of knowledge. It makes the researcher familiar with the available literature in the area of the study. Literature review provides a theoretical background to the study. It reviews the means by which researcher establish the link between what we are proposing to examine and what has already been study.

Review of Theoretical Literatures

The world is changing. The last few decades have seen a dramatic rise of technologies within the field of education, and it was known by terms such as teaching or/and instructional aids. Teaching and instructional aids include the use of slide projector, television, radio, audio and video cassettesetc., in the teaching and learning situations. The integration of technology in the process of teaching and learning is thought by many researchers and to increase student and teacher productivity as well as to make vast amounts of information available. Bena& James (2001) claim that there are three reasons for investing in technology: (1) to increase students ability and interest in applying authentic settings, what districtand states have identified as learning and tasks that students should know and able to do; (2) to prepare students for success in a technology centered world of work, and; (3) to prepare students to manage and use information so they can be productive lifelong learners and responsible citizens. Furthermore, integrating technologies in learning

classrooms has been shown to promote teachers and students' performance and motivation.

Teachers' Attitudes towards the Use of ICT.

Achieving a meaningful use of computer technology in the field of education can be influenced by many factors. One of these factors is teachers' attitudes towards the use of technology in teaching and learning process. Research shows that the success of technology use in the educational settings largely depends on teachers attitudes toward technology use (Albirini, 2006). Teachers' attitudes are considered as a major predictor of the use of new technologies in the educational settings (Albirini, 2006). Thus, their attitudes toward computer can play an important role in the acceptance and actual use of computers. Thus, it can be concluded that the attitude further related to the usage frequency of technology and usage amount of the technology.

Thus, an attitude plays an important role in determining people reactions to situations. A review of the psychological literature reveals diverse definitions of attitudes. Allport(1935) defined it as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p.810). Other researchers define attitude as a positive or negative emotional reaction toward a specific situation. Moreover, Fishbein(1967) defined attitude as "a learned predisposition to respond to an object or class of objects in a consistently favorable or unfavorable way".

Zhou (2010) investigated Turkish science teachers' attitude towards ICT in education and found that Turkish science teachers showed positive attitudes toward

ICTs in education because ICTs help them to teach any content more easily and effectively. They also noticed teachers with previous training and prior experiences had more positive attitudes towards ICTs in classroom learning.

Brordbar (2010) investigated the Iranian English teachers' attitude towards computer assisted language learning in Iran. He found that majority of the Iranian English teachers have positive attitudes toward ICT in Iranian School. The ICT's ensure greater access to and participation in the means of communication for all cultures and social groups. Thirdly, the ICTs base on student-centre learning which helps to make students more critical, analytical, creative and productive.

Mehra & Newa(2009) conducted a study on "Schoolteachers" Attitude towards Information and Communication Technology (ICT)". The schoolteachers, on the whole, exhibited positive attitude towards ICT, so ICT must be given higher priority in teacher education curriculum, so that the future teachers can cope with various challenges in education system, more specifically the new roles of teachers in ICT based teaching-learning system.

This research is different from the research Zhou.et.al. (2010) "Chemistry teacher's attitudes towards ICT" he identified that most of the teacher agreed on the statement "computer will not simplify the teaching task in the classroom". But this research shows that most teachers reported computer will simplify the teaching task in the classroom.

Review of Empirical Literature

This chapter has been related to the literature a previous researcher about the teacher attitudes towards ICT. It helps researcher what is already known and what is unknown. Since, the research to know the past knowledge. Than it has been help to

significant investigation, various literature and guideline for the study. The researcher review some literature related on this topic is as following.

Njagi(2014) did a descriptive research on the topic “Teacher’s perspective towards differenced instruction Approach in Teaching and learning of mathematics in Kenya”. The researcher found out that teachers have a positive predisposition about differenced instruction and that there is need for extensive training and support so that differentiated instruction can succeed.

Gautam(2015) studies on “Teacher Attitudes towards ICT in Action Research” found there was a positive attitude of secondary level mathematics teachers towards action research in teaching learning activities in mathematics. Teacher experienced action research as important tools to solve classroom problem but they conduct action research only sometimes. Mainly teachers conduct action research when the administration makes it compulsory. The teacher training program and workshop should be organized effectiveness of action research.

After studying over all literatures, researcher finalized that there are not conducted same types of research so it will be new finding in the field of research. Next, they got many ideas for research process such as; creating research question, conceptual framework, and analysis ideas as well. Also researcher can compare and make valid for his analysis results also with previous research.

Conceptual Framework for the Study

According to Tula Raj Timelsina research state that Huang (2012) understanding student attitudes can help expand e-learning system functions and meet student’s needs, which should further increase the impact of learning and enhance satisfaction with the learning process. Aixia and wang (2011) found that the vast

majority of students who were satisfied with an e-learning environment held positive believes and attitudes towards it. From the above discussed point of views in related literature, teacher's attitude towards ICT may depend upon different variables. These variables were expectations of teachers as well as student's and satisfaction of teachers as well as student's which can be shown below:

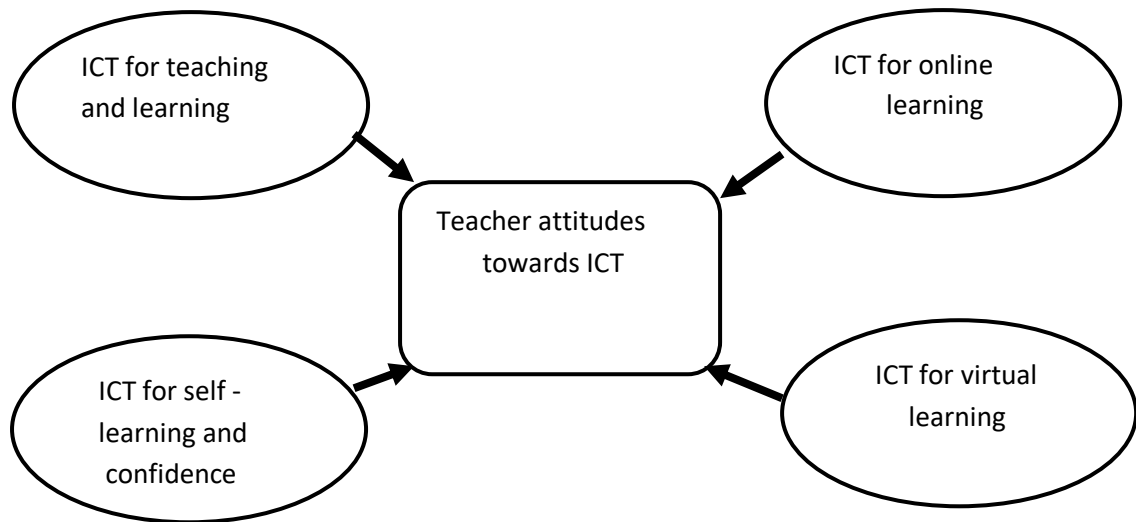


Fig 1. Relationship between the variables.

Sources: - Conceptualize from Rogers' Diffusion of Innovation Theory (2003)

Above figure shows that there are various kind of variable that was close to attitudes of teachers towards ICT. ICT is one of the variables in where different types of ICT were used by teacher while teaching computer content in classroom. Some of the ICT tools use by teacher in classroom was projector, laptop, internet, smart-phone, printer etc. those tools help teachers to motivate the learners and find out the information so fast. ICT helps to make a teaching learning easier and joyfulness.

ICT for online education is also next steps to keep the relation on teacher attitudes towards ICT. ICT is one of the learning tools used in online education. There

were so many ICT based tools used by teacher in online education. Skype, Google hangouts, face-book chatting etc. Online education makes a learning environment joyful and learner can make a learning area any at a time as they need. No need of teacher and no need of learning environment to get course content.

Another step online learning for self-study and self-confidence. Uses of ICT there were no need of teacher in a teaching/ learning environment. Learner can make an alone learning environment and get more content within use of ICT. While a learner can get content within itself his learning confidence also growth together with them.

Those four variables keep the relation in teaching/learning towards the teacher attitudes. Teacher attitudes available in different situation such as use of ICT in different activities. If the variables keep the good relation with center of teacher attitudes their goals is achieve.

Implication of the Review for the Research

A good literature review is comprehensive, critical and contextualized, good literature review provides the readers which a theory base, a survey of published/unpublished work and an analysis of these works. It is a critical, factual overview of what gone before. Good literature review shows that

- Aware of what is going in the field.
- It provides a detailed context for researcher work.
- Review of literature provides the direction for the researcher.

In this study literature review provided a lot of information about on research topic. Different problems arise in the process of data collection therefore literature review provided the awareness to the researcher. The literature suggested the success

of ICT integration in teaching/learning process depends partly on teacher's qualification. In perspective, the study aims to investigate the attitudes of computer teachers towards ICT. In this study review of literature helped in all stages provided all kinds of guideline.

In addition to computer attributes and cultural norms, previous researches suggest that teacher's attitudes towards computers technologies are also related to teacher's computer competence. From the above literature review indicates that many teachers believe computers are important teaching/learning tools in school education, there were lack of knowledge and experiences lead to a lack of confidence to attempt to introduce learner into their instruction.

CHAPTER III

METHODS AND PROCEDURES

This chapter present the logical ways of the study. The research design was qualitative as well as quantitative research (mixed) design. So this study was essentially an enumeration of the opinions, problems and suggestion of secondary school computer teacher attitudes towards ICT. The chapter describes in details about the total population, sample, tools, procedures of data collection, scoring procedures and the statistical techniques used in this research study.

Research Design

The present study was based on survey research method. Survey research is the most popular method of research in the field of education. It is mainly carried out to find out peoples' attitudes, opinions and the specified behaviors on certain issues, phenomena, events and situation. Research design constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 2004). Survey research is a technique for social and educational research.

Survey research method is used to gather information about population groups to "learn about their characteristics, opinions, attitudes or previous experiences" (Leedy&Ormord, 2005, p. 183). This is done by administering a questionnaire, either written or orally, to a group of respondents. This is most commonly used method of research in educational research which may ranges from small scale to large investigation. The main aim of survey research is gathering the factual information, data on attitudes, performance belief and experience. The data was collected from the large group of population in this survey design. I was select data using survey

research design because it provides me authentic and reliable data. It was provided me to explore the teacher's attitudes towards ICT in Surkhet District.

The survey research is one of the essential research method used in educational investigation. It is mainly carried out to find out people's attitude, opinion and specified behavior on certain issues, problems, events, phenomena or situations. The finding of survey is generalized and applicable to the whole group. The finding of survey is generalized and applicable to the whole group. There are some steps of survey research presented by Khanal (2016, p. 51), which are as follows:

- a) Planning
- b) Defining the population
- c) Sampling
- d) Constructing the instrument
- e) Conducting the survey
- f) Processing the data

Population of the Study

All the Secondary school Computer teachers of Surkhet District were population of the study.

Sampling Procedure

The sample of this study was taken from secondary level computer teachers in the Surkhet district. Private and community schools were selected in the sample of this study. In this research the researcher used random sampling concern with the target of research objectives and to measure the attitudes of teachers towards ICT. Random sampling is the probability based sampling a researcher can take a sample as he/she need to achieve the objectives. Research should run the research according to

the objectives of the study. Without objectives the research sampling cannot complete therefore this research need to take random sampling which had provided the particular way to improve the research. In this research researcher took 50 secondary level computer teachers from 100 secondary level computer teachers respectively of community and private schools.

Research Tools

The research instruments that were used to collect data included questionnaires for teachers based on close type and interview type. The instruments were used to collect both quantitative and qualitative data.

In this study there were two types of research tools were used to collect the research data. This research was based in two types of research quantitative and qualitative (mixed) research. Therefore, this study included with two types of research tools. Quantitative research was available with close ended questionnaire. In where 15 statements were include. And next quantity research was available with interview schedule. In where 4 number of interview question were included for secondary teachers. Interview questionnaire schedule helps to find out their attitudes of teachers which were not achieve from close ended questionnaire statements. A research tool helps to achieve their objectives which are included in this research study.

Reliability and Validity of Questionnaire

According to Gay, Mills & Airasian (2009), validity refers to the extent to which a research instrument measures what it is designed to measure. The type of validity considered was face validity and content validity.

Face validity refers to the researcher's subjective assessments of the presentation and relevance of the measuring instrument as to whether the items in the

instrument appear to be relevant, reasonable, and unambiguous and clear (Oluwatayo, 2012).

Content validity refers to the form of validity that ensures the elements of the main issue to be covered in a research are both a fair representation of the wider issue under investigation and that the elements chosen for the research sample are addressed in depth and breadth (Cohen, Manion & Morrison, 2008).

After the preparation of questionnaire and interview schedule, it was be judged with the help of the supervisor and subject experts and then discuss about it. After the receiving feedback it was improve then these tools was test in the 50 secondary computer teachers in Surkhet district. Then pilot test made tools more reliable and valid for collected data.

Data Collection Procedure

The investigator personally visited various schools in Surkhet areas and administered the questionnaire to the selected Secondary School computer teachers of Surkhet District. At first, the researcher went to the school and talked to the principal and requests to get permission to carry out the research. After the permission of the head teacher, researcher consulted with computer teacher and talked to him/her about purpose of the research and requested him/her to take part in it. Then the researcher distributed the questionnaire and gave instruction about questionnaire. Researcher collected the questionnaire back.

After the collected the data it was tabulated by using five point of Likert Scale for statistical analysis. A Likert scale is the sum, of response of several Likert items, these items were usually displayed with a visual aid such as series of Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. Likert scale was shown in tabulation form.

Meaning of Scale	Favorable Statement	Unfavorable Statement
Strongly Agree	5	1
Agree	4	2
Neutral	3	3
Disagree	2	4
Strongly Disagree	1	5

Chi-square

There were statistical method evaluate the goodness of fit between a set of observed values and statements. Chi-square test is a non-parametric test not based on any guess or distribution of any variable. In chi-square test researcher use to measure the difference between what is observed and what is expected according to assumed of variable.

$$\chi^2 = \sum_{ij} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where,

Σ = Represents the summation

i=Number of iteration

j=Number of iteration

O =Observed value

E=Expected value

Mean

The sum of a set of numbers divided by the number of numbers in the set. The mean is found by adding up all of the given data dividing by the number of data entries.

\bar{x} = is the mean of set of x values.

$\sum x$ = Represents the sum of all the x values.

n = is the number of x values.

Ethical Considerations

Informed consent is central in social research and it is up to the participants to weigh the benefits and risks associated with participating in the research and deciding whether to take part or not (Howe & Moses, 1999). The researcher informed participants about what their participation in the research entailed, the requirements of the study and its importance so as to get their consent before proceeding with data collection. By explaining to the respondents the purpose of the study, the researcher did not force them to participate in any way but allowed individuals to decide whether or not to participate in the study.

The researcher also ensured that confidentiality of the respondents was maintained. Gay, Mills & Airasian (2009) argue that researchers protect confidentiality when they know the identity of the study participants but do not disclose that information. Anonymity was used to ensure confidentiality by asking respondents not to indicate their names on the questionnaires.

Finally, the researcher made sure that there was no plagiarism in his work by acknowledging other people's work. The findings have been reported as per the respondents' answers and not otherwise.

Data analysis and interpretation procedures

The systematically collected data were analyzed, interrelated and presented descriptively and analytical on the basis of questionnaire and interview as research tool. I have presented the facts data in tables. For the analysis, I descriptively and

statistically interpret the quantitative data by using frequency, percentage and mean. Mainly, the statistical device Chi-square test was applied to find out the attitudes of teachers towards ICT. Chi-square helps to measure fitness and goodness of given statements in tabulation form. By the help of Chi-square test the researcher found out the significance of each statement. The researcher analyzed collected data descriptively and analytical. Thus the data is analyzed and interpreted according to the target research finding. The main objectives of this study was to find the secondary level computer teacher attitudes towards ICT in community schools and private schools

Qualitative research emphasizes on the holistic perspective. This type of research aims at discovering the underlying motives and desires: by the method of in depth interview. The systematically collected qualitative data were representing through descriptively and explanation form in paragraphs.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter was mainly consisting with analysis and interpretation of the data which was collected from 50 secondary school computer teachers from the Surkhet District. The research data were collected from different environment sources were analyzed and interpreted from following objectives theme. “Teacher’s attitudes towards ICT”. Close ended and opened ended questionnaire were developed for research tools for collecting a real data. Secondary school computer teachers attitudes towards ICT provided in first section.

The close ended questionnaires were related to the teacher attitudes towards the ICT were to be answered with five alternatives point: strongly agree, agree, neutral, disagree and strongly disagree. To analyzing the data, mean, percentage and chi-square were used the 0.05 level of significance. The total number of responses of the teacher was counted and changed into percentage. The obtained score of teacher experiences is represented percentage and χ^2 - value. Similarly, if the responses were more than fifty percent, it was provided positive attitudes and less than 50 percent considered the negative attitudes. The open ended questionnaire response was expressed in words and phrases are analyzing descriptively.

The research study was based on 50 secondary school computer teachers were selected as a sample of the study. The name of the school and teacher were finitely defined as below. The table included with both public and private school as sequentially with following below.

Analysis& Interpretation of Teachers Attitudes towards ICT

The attitudes of teachers towards ICT in secondary school, a five point scale were used. Teachers provided with 15 statements and asked to choose the level of agreement by indicating that they: Strongly Agree=5, Agree=4, Neutral=3, Disagree=2 or Strongly Disagree=1. To analyzing the data, mean, percentage, chi-square test, were used the 0.05 level of significance in below Table.

Teacher Attitudes towards ICT in Teaching/Learning

To ascertain the attitudes of teachers towards ICT in teaching/learning in secondary school, a five point scale was used. Teachers were provided with 5 statements and asked to choose the level of agreement by indicating that they: Strongly Agree=5, Agree=4, Neutral=3, Disagree=2 or Strongly Disagree=1. The results of descriptive analysis (Percentages, Mean and Chi-Square (χ^2) were presented in Table 1.

Table No. 1
Teacher Attitudes towards ICT in Teaching/Learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	χ^2
1	Teachings with computer motivate the learner easily.	42	4	3	1	-	237	4.74	3.95
2	Learning with computer makes subject matter more interesting.	38	5	5	2	-	229	4.58	3.35
3	Learning with computer consumes time.	34	12	-	2	2	224	4.48	9.18
4	It helps to store large data of file.	22	10	-	3	-	220	3.33	8.76
5	Using computers is enjoyable.	33	13	4	-	-	229	4.58	5.34

Above Table no. 1 shows that, teachers responded to 5 items related to their **“Teacher Attitudes towards ICT in Teaching / Learning”**, In the response of first statement “Teaching with ICT save a time and effort"was significant with the χ^2 value 3.95 at 0.05 level of significance(46% of the participants answered that they “agree or strongly agree” 3% were "Neutral" only one were "disagree" and 0% were "Strongly disagree" with that statement), with Mean score (M=4.74).

In the response of second statement “Learning with computer would make subject matter more interesting"was significant with the χ^2 value 3.52 at 0.05 level of significance(43% of the participants answered that they “agree or strongly agree” 5% were "Neutral" only 2 were "disagree" with that statement), with Mean score (M=4.74) and Chi-Square (3.52).

In the response of third statement “Teaching with Use of ICT joyful"was significant with the χ^2 value 9.18 at 0.05 level of significance(46% of the participants answered that they “agree or strongly agree” 2% were "Disagree" 2 were "strongly disagree" with that statement), with Mean score (M=4.74).

In the response of fourth statement “Using computers is enjoyable"was significant with the χ^2 value 5.34 at 0.05 level of significance(46% of the participants answered that they “agree or strongly agree” 4% were "neutral" with that statement), with Mean score (M=4.74).

Teacher Attitudes towards ICT in Online learning

To ascertain teacher attitudes towards ICT for online learning in secondary school, a five point scale was used. Teachers were provided with 4 statements and asked to choose the level of agreement by indicating that they: Strongly Agree=5,

Agree=4, Neutral=3, Disagree=2 or Strongly Disagree=1. The results of descriptive analysis (Percentages, Mean and Chi-Square (χ^2) were presented in Table 2.

Table No. 2

Teacher Attitudes towards ICT for online learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	χ^2
1	Online learning is real time learning.	44	4	1	-	1	240	4.8	4.410
2	Online learning make a relation between student and teacher	36	4	6	3	-	220	4.4	9.113
3	Its exchange course content as fast.	34	12	-	2	2	224	4.48	8.031
4	It consumes a time.	32	3	-	1	2	22	3.32	7.12

Above table no. 2 shows that, teachers responded to 4 items related to their “**Teacher Attitudes towards ICT in Online Learning**” There various statements were measured with 5 to 1 Likert scales which were assigned with different number of frequency and percentage. Those statements were carried with different number of percentage and frequency which were detailed analysis.

In the response of first statement “Online learning is real time learning.” was significant with the χ^2 value 4.10 at 0.05 level of significance (48% participants were "strongly agreed" or "agreed" with this statement, 1% participants were neutral, 1% participants were strongly disagreed with Mean score (M=4.8)).

In the response of second statement “online learning make a relation between student and teacher” was significant with the χ^2 value 9.11 at 0.05 level of

significance (14% participants were disagreed with this statement, 40% participants were agreed and 40% participants were strongly agreed or agreed with this statement, with Mean score (M=4.4)).

In the response of third statement “It's make a learning more interesting ”was significant with the χ^2 value 8.03 at 0.05 level of significance(46% participants were strongly agreed or agreed with this statement, 2% participants were disagreed with this statement, 2% participants were strongly agreed with this statement, with Mean score (M=4.48).

Teacher Attitudes towards ICT in self learning

To ascertain teacher attitudes towards ICT in self learning in secondary school, a five point scale was used. Teachers were provided with 3 statements and asked to choose the level of agreement by indicating that they: Strongly Agree=5, Agree=4, Neutral=3, Disagree=2 or Strongly Disagree=1. The results of descriptive analysis (Percentages, Mean and Chi-Square (χ^2)) were presented in Table 3.

Table No. 3

Teacher Attitudes towards ICT in self learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	χ^2
1	Learner can study at once using computer.	44	4	1	-	1	229	4.8	2.89
2	No need of teacher while teaching/learning	36	4	6	3	-	230	4.4	5.97
3	Computer can store more course content which learner can look itself at any time.	34	12	-	2	2	224	4.48	5.49

Above table no. 3 shows that, teachers responded to 3 items related to their, "Teacher Attitudes towards ICT in self learning" In the response of first statement "Learner can study at once" was significant with the χ^2 value 2.89 at 0.05 level of significance (48% participants were "strongly agreed" or "agreed" with this statement, 1% participants were neutral, 1% participants were strongly disagreed with Mean score (M=4.8)).

In the response of second statement "online learning make a relation between student and teacher" was significant with the χ^2 value 5.9 at 0.05 level of significance (14% participants were disagreed with this statement, 40% participants were agreed and 40% participants were strongly agreed or agreed with this statement, with Mean score (M=4.4)).

In the response of third statement "Computer can store more course content which learner can look itself at any time" was significant with the χ^2 value 5.49 at 0.05 level of significance (46% participants were strongly agreed or agreed with this statement, 2% participants were disagreed with this statement, 2% participants were strongly agreed with this statement, with Mean score (M=4.48)).

Teacher Attitudes towards ICT in Virtual learning

To ascertain teacher attitudes towards ICT in Virtual learning in secondary school, a five point scale was used. Teachers were provided with 3 statements and asked to choose the level of agreement by indicating that they: Strongly Agree=5, Agree=4, Neutral=3, Disagree=2 or Strongly Disagree=1. The results of descriptive analysis (Percentages, Mean and Chi-Square (χ^2)) were presented in Table 4.

Table No. 4

Teacher Attitudes towards ICT inVirtual learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	x^2
1	No need to classroom while teaching and learning.	33	11	3	-	3	221	4.42	6.764
2	No need of teacher while teaching/learning	38	5	4	3	-	228	4.56	4.151
3	Learner can learn offline based	41	3	-	4	2	223	4.46	4.671

Above table no. 4 shows that, teachers responded to 3 items related to their **“Teacher Attitudes towards ICT inVirtual Learning”**In the response of first statement **“No need to classroom while teaching and learning”**was significant with the x^2 value 6.76 at 0.05 level of significance (44% participants were strongly agreed or agreed with this statement, 0% participants were disagreed with this statement, 3% participants were strongly agreed with this statement, with Mean score (M=4.42).

In the response of second statement **“No need of teacher while teaching/learning”**was significant with the x^2 value 4.15 at 0.05 level of significance (43% participants were strongly agreed or agreed with this statement, 3% participants were disagreed with this statement, 0% participants were strongly agreed with this statement, with Mean score (M=4.46).

In the response of third statement **“Learner can learn offline based”**was significant with the x^2 value 5.49 at 0.05 level of significance (44% participants were strongly agreed or agreed with this statement, 2% participants were disagreed with

this statement, 2% participants were strongly agreed with this statement, with Mean score (M=4.48).

Interview of teachers

The interview method of collecting data involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses. Cannell and Kahn (1968) have defined the interview as a conversation between two people, which begin with the interviewer with the purpose of collecting data relevant to their research, and focuses on content which is determined an ordinary conversation since it has a specific purpose, it is based on questions asked by the interviewer and the responses have to be as explicit as possible.

Firstly, I have informed them to be noticed about the nature and the purpose of the interview and then tried to establish an appropriate atmosphere so that they could feel secure to talk freely. I also informed them that the interview was going to be recorded. There were 50 secondary school computer teachers among them I have taken personal interview with few teachers. In the interviews my aim was to find out the teacher views on ICT for teaching/learning, virtual learning, online learning, self-study and confidence.

Views of Teachers towards ICT for Teaching/Learning

Teacher's views on **"ICT for Teaching/Learning"** *"ICT refer Information Communication and Technology. In the modern days it is widely used in teaching/learning fields. Among their courses it is widely used in computer course content. Computer courses are based in practical based therefore a computer teacher used ICT while teaching course computer. With the help of computer, radio, mobile-phone student can learn easily and understand content easily. Computer can store*

large number of data at in time for future use. ICT is a process of transferring course content easily from one direction to next. Therefore all of the learners can get information about on course easily with the help of ICT. ICT helps to make an offline and online education. Therefore teacher can easily help their students on their occurring difficulties.”

Above teachers views include that there were large number of computer, radio, mobile phone etc, are used in schools areas and outside of school. And teachers also used their computer and radios while making a teaching/learning. Therefore we can say that maximum teachers have positive attitudes towards ICT.

(Teacher views)

Views of Teachers towards ICT for Online Learning

Teacher’s views on “**ICT for Online/Learning**” *“Online learning is web based learning. It needs internet service to exchange course content. Online refers a synchronize system. Both side of learner can attend at a same time to make online learning. Skype, Emo, face-book chatting and face-book video chatting etc are the example of online learning tools. Online learning helps to create a learning environment anywhere at in time.*

(Teacher views)

Above teachers views include that teachers have knowledge in skype, emo, and face-book chatting and video call and other ICT services. Teacher uses most of the ICT tools out of school and school areas. Therefore we can said that maximum teacher have positive attitudes towards ICT.

Views of Teachers towards ICT for Virtual Learning

Teacher's views on **"ICT for Virtual Learning"** *"Virtual learning is also another type of learning method through use of ICT. There were no need of teacher and students in teaching/learning environment. A learner can make a learning environment using of you tube class. The teacher makes a virtual class in related topic and making a teaching/learning classroom environment at in time."*

(Teacher views)

Above teachers views include that most of the teachers used ICT tools in schools while teaching/learning. A student can make a study from different environment. Teachers have positive attitudes towards ICT.

Views of Teachers towards ICT for Self Learning and Confidence

Teacher's views on **"ICT for Self Learning and Confidence"** *"Self learning refers learning with alone. Self-learning is another method to make learning in an environment. In our school maximum number of students can make a self-learning through using of computer, internets, uses of mobile phone etc. With the help of ICT there no need of teacher or guide. ICT plays the main role of guideline, a learner can make a study with self-confidence. There are various course contents are available in internet and a learner can search needful course content with the help of ICT tools."*

(Teacher views)

Above views include that maximum number of teachers used ICT tools and services in school. Most of students were self-learning in their classroom using of computer, internet and mobile phone etc. Absent of teachers in classroom learners can make a learning environment at with once. Therefore most of the teachers had positive attitudes towards ICT.

CHAPTER V

SUMMARY, FINDING, CONCLUSION & RECOMMENDATION

This chapter presents a summary of the findings and conclusions drawn from the study. The chapter also gives recommendations and suggestions for further research.

Summary

The study was undertaken to identify the secondary level teacher's attitudes towards ICT & views of teachers on ICT. Especially, the objectives of study were as follows.

- To identify the secondary level teachers attitudes towards ICT.
- To explore the views of secondary level computer teachers.

The methodological design of the study was descriptive survey type. The population of study was consisted of all secondary level computer teachers of Surkhet district. The total (50) number of teachers were selected for the sample from random sampling to achieve the objectives of the study, data and information were collected through questionnaire and interview schedule. All the information was collected from primary and secondary sources by using Likert method and interview. There are five rating scale (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree). The analyzed percentage score and test of each statement was determined and interpret by using the conceptual understanding the study developed in literature review with selected theory.

Major Finding of the Study

On the basis of analysis of the data the major finding of the study were summarized as below.

- Secondary level of Surkhet District teachers holds positive attitude towards ICT.
- From the Chi-Square test, all statement is significant and maximum teachers hold positive attitudes towards use of ICT in classroom teaching.
- In the response of first statement “Learner can study at once” was significant with the χ^2 value 2.89 at 0.05 level of significance (48% participants were "strongly agreed" or "agreed" with this statement, 1% participants were neutral, 1% participants were strongly disagreed with Mean score (M=4.8)).
- From the open ended questionnaire (interview), it was identified that most of the teachers use ICT tools while teaching at school. Such as computer, radio, mobile, internet, textbooks etc. maximum teachers were engaged with internet services to get large volume of information. Student also learning with itself in the classroom. To the use of computer learners have got confidence to get well as themselves.
- Most of the secondary teachers of private school uses their ICT tools than secondary public teachers.
- Maximum teachers were interested using ICT in teaching/learning.
- Use of ICT increases their self-confidence of teachers in environment.
- In secondary level of public and private schools used computer course as an optional subject.

Conclusion

The study was based on teacher attitudes towards ICT in Surkhet district. Most of the secondary teacher of private school uses their ICT tools than secondary public teachers. A private secondary teachers use more ICT tools in classroom teaching and out of course content. Computer teachers were from the long experience in teaching field. There were lack of problem occurred in computer course teaching. Information and Communication Technology is relevant in all walks of life. Having right attitude towards ICT and its usage can not only yield benefit for teachers but also to the students. The successful implementation on of educational technologies depends largely on the attitudes of teachers, who eventually determine how they are used in the classroom. Teacher's attitudes are a major enabling/disabling factor in the adoption of technology. It was also found that teachers who have positive attitudes toward technology, feel more comfortable with using ICT, and usually incorporate it into their teaching. Any successful transformation in educational practice requires the development of positive user attitudes toward the new technology. The development of positive teacher's attitudes toward ICT is a key factor, not only for enhancing ICT integration, but also for avoiding teacher's resistance to computer use.

Recommendation

On the basis of the findings of the present study the researcher suggests the following recommendations:

Recommendations for the Educational Implication

- Computer teachers should use Lecture cum demonstrate method rather than discussion method while teaching computer in classroom.

- Computer teachers should follow the practical knowledge rather than theoretical knowledge.
- Computers are insufficient in all public as well as private school. So, the government and intuition should manage the computer lab.
- MOE should be able to introduce the new pedagogies which are based on educational technology. So that such pedagogy could be a milestone to bring the deprived children to the main stream of education.
- Every teacher should be capable to introduce the technology as a method and media in their teaching activities. For this the teacher's personal effort as well as the effort by the NCED is required. Besides, there needs a change in teacher education curriculum to incorporate ICT tools based pedagogies programmes.
- Ministry of education and NCED should encourage the teacher through training to improve the existing mug and jug method by use of ICT. For these NCED and MOE should organize the various training programmes, workshops, conferences etc.
- For effective implementation of ICT in computer science subject it should be considered while designing the computer curriculum.

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APPENDIX

Questionnaire for the Teachers

Dear Sir/Madam,

I am students of ICT education in central Department of Education in Kirtipur, Kathmandu. I am doing research on” Teacher Attitudes towards ICT inSurkhet District”. To fulfill the objectives of the study I like to take your view and idea about ICT. Your view and ideas are only used to complete this study not for other purpose. I hope you do not feel any difficulty to help me to complete my study.

Researcher

BalBahadur Bhandari

Department of Mathematics and ICT Education

T.U., Kirtipur, Kathmandu, Nepal

General information

School Name:-.....

Name of the Respondent:-.....

Qualification:-.....

Appendix - I

Closes Ended Questionnaire of Teachers

Section A: - Teacher Attitudes towards ICT in Teaching/Learning

Indicate the level of agreement with the following statements on the “Teacher Attitudes Towards ICT” (Strongly Agree (SA)= 5; Agree (A)= 4; Neutral (NS)=3; Disagree (D)=2; Strongly Disagree (SD)=1).

Instructions: - Please indicate the appropriate response with a tick (✓) in the spaces.

Teacher Attitudes towards ICT in Teaching and Learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	χ^2
1	Teachings with computer motivate the learner.								
2	Learning with computer makes subject matter more interesting								
3	Learning with computer save time.								
4	Using computers is enjoyable								

Section B: - Teacher Attitudes towards ICT for online learning

Indicate the level of agreement with the following statements on the “Teacher Attitudes Towards ICT” (Strongly Agree (SA)= 5; Agree (A)= 4; Neutral (NS)=3; Disagree (D)=2; Strongly Disagree (SD)=1).

Instructions: - Please indicate the appropriate response with a tick (✓) in the spaces.

Teacher Attitudes towards ICT for online learning

S.N.	Statements	S.A.	A	N	D	S.D	Total value	Mean value	χ^2
1	Online learning is real time learning.								
2	online learning make a relation between student and teacher								
3	Its exchange course content as fast.								

Section C: - Teacher Attitudes towards ICT in self learning

Indicate the level of agreement with the following statements on the “Teacher Attitudes Towards ICT” (Strongly Agree (SA)= 5; Agree (A)= 4; Neutral (NS)=3; Disagree (D)=2; Strongly Disagree (SD)=1).

Instructions: - Please indicate the appropriate response with a tick (✓) in the spaces.

Teacher Attitudes towards ICT in self learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	χ^2
1	Learner can study at once using computer.								
2	No need of teacher while teaching/learning								
3	Computer can store more course content which learner can look itself at any time.								

Appendix II
Interview Questionnaire for Teachers

1. What is your view on Teaching/learning towards ICT?
.....

2. What is your view on Online learning towards ICT?
.....

3. What is your view on virtual learning towards ICT?
.....

4. What is your view on self-learning& confidence towards ICT?
.....

Thank you for Your Co-operation

APPENDIX – III

Exploring the Teacher Attitudes towards ICT in teaching/learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	χ^2
1	Teachings with computer motivate the learner easily.	42	4	3	1	-	237	4.74	3.95
2	Learning with computer makes subject matter more interesting.	38	5	5	2	-	229	4.58	3.35
3	Learning with computer consumes time.	34	12	-	2	2	224	4.48	9.18
4	It helps to store large data of file.	22	10	-	3	-	220	3.33	8.76
5	Using computers is enjoyable.	33	13	4	-	-	229	4.58	5.34

APPENDIX – IV

Exploring the Teacher Attitudes towards ICT in Online learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	χ^2
1	Online learning is real time learning.	44	4	1	-	1	240	4.8	4.410
2	Online learning make a relation between student and teacher	36	4	6	3	-	220	4.4	9.113
3	Its exchange course content as fast.	34	12	-	2	2	224	4.48	8.031
4	It consumes a time.	32	3	-	1	2	22	3.32	7.12

APPENDIX – V

Exploring the Teacher Attitudes towards ICT in Self learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	x^2
1	Learner can study at once using computer.	44	4	1	-	1	229	4.8	2.89
2	No need of teacher while teaching/learning	36	4	6	3	-	230	4.4	5.97
3	Computer can store more course content which learner can look itself at any time.	34	12	-	2	2	224	4.48	5.49

APPENDIX – VI

Exploring the Teacher Attitudes towards ICT in Virtual learning

S.N.	Statements	S.A.	A	N	D	S.D.	Total value	Mean value	x^2
1	No need to classroom while teaching and learning.	33	11	3	-	3	221	4.42	6.764
2	No need of teacher while teaching/learning	38	5	4	3	-	228	4.56	4.151
3	Learner can learn offline based	41	3	-	4	2	223	4.46	4.671

Appendix - VII

$$\chi^2 = \sum_{ij} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where,

Σ = Represents the summation

i=Number of iteration

j=Number of iteration

O =Observed value

E=Expected value