

**Status of Use of Computer in Classroom Learning among Secondary School  
of Dang District**

**A**

**Thesis**

**By**

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### **Letter of Certification**

This is to certify that Mr. Bhishma Bhusal, students of Academic year 2072/73 with Campus Roll No. 156, Exam Roll No. 7228136, Thesis No. 16 and T.U. registration No. 9-2-263-84-2012, has completed his thesis under supervision of Dr. Dirgha Raj Joshi during the period prescribed by the rules and regulation of Tribhuvan University, Nepal. The thesis entitled “**Status of Use of Computer in Classroom Learning Among Secondary School of Dang District**” has been prepared based on the result of his investigation conducted during the period of 2021 under the Department of ICT Education, University campus, Kirtipur, Kathmandu. I hereby recommended and forward that his thesis be submitted for the evaluation to award the Degree of master of ICT Education.

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Date : 2021/12/03

## Evaluation and Approval

This thesis entitled “**Status of Use of Computer in Classroom Learning Among Secondary School of Dang District**” submitted by Mr. Bishma Bhusal in Partial Fulfillment of the Requirement for the Master's Degree in Education has been approved.

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### **Recommendation for Acceptance**

This is to certify that Mr. Bhisma Bhusal has prepared this thesis entitled **Status of Use of Computer in Classroom Learning Among Secondary School of Dang District** under my guidance and supervision.

I recommend this thesis for acceptance.

Date: 2021/12/28

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Dr. Dirgha Raj Joshi

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## Declaration

I hereby declare that to the best of my knowledge this thesis is original; no part of it was submitted for the candidature of research degree to any university.

Date:

.....

**Bhishma Bhusal**

## **Dedication**

This work is affectionately dedicated to my whole family members and relatives, who gave me a great span of their life for what I am here today.

## Acknowledgement

I would like to acknowledge with sincere gratitude to many individuals and organizations that have helped in making this study possible. I would like to acknowledge with sincere gratitude and deep appreciation to my supervisor Dr. Dirgha Raj Joshi Visiting Faculty of department of Mathematics and ICT education for the continuous support, guidance, motivation and encouragement throughout the process of this study. I could not have imagined having a better supervisor for my Masters study who has helped in making this study possible. I humbly pay my sincere respect to Assistant Prof. Krishna Prasad Adhikari Head of Department of ICT Education, T.U Campus and former HOD Prof. Dr Bed Prakash Dhakal, for their constructive valuable suggestion, support, and constant encouragement. I would like to express my profound gratitude to Mr. Chet Kant Bhusal, Lecturer Department of Community Medicine, Universal College of Medical Science and Teaching Hospital, Tribhuvan University, Bhairahawa, Rupandehi, Nepal for his continuous support, constructive guidance, motivation and continual encouragement and intellectual support.

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Bhishma Bhusal

## Abstract

The research entitled "Status of Use of Computer in Classroom Learning among Secondary School of Dang District" was done in Dang district Nepal among secondary school students. The aim of this research was to find out the status of use of computer in classroom learning among secondary school of Dang district Nepal.

Cross-sectional survey research design was employed in this research. Three hundred and ninety four (394) students from class 9 and 10 were participated in the research where multi-stage cluster sampling techniques was used in the research. Data were collected by using self-administered questionnaire. Collected data was entered using Microsoft Excel and analysis was done using Statistical Package for Social Science (IBM SPSS) version 17. Frequencies, percentage, mean, standard deviation and level were major statistical techniques used in the research. Finding of the research indicates that about half of schools have practice of teaching and learning through computer. Most of the teachers did not used computers in classroom teaching. Most of the schools (81.7%) in Dang district do not have projector facility for classroom teaching in secondary level schools. Only about half of the schools have availability of Internet facility. Barriers of using computer was high ;majority of the schools have insufficient computers based on number of students, majority of the schools lack good feature of computers in their laboratory, majority of the schools did not have computer software for the students. One-fourth of the students did not have sufficient budget for digital resources at home. More than half of the students were not using computer for educational software such as database, spreadsheets and charting/graphing however they used it for normal purpose. In overall percentage of strongly agree and agree are very high in student motivation and teaching and

learning related items and reverse in challenges related items which indicate that use of computer is very beneficial for several aspect of teaching and learning process at secondary level school. Hence researcher recommended that Ministry of Education and NCED should provide on-site training and coaching, workshop and conference to secondary level school teachers. Similarly education board of government of Nepal should apply e-learning training program and teaching learning activities for the application of computers in secondary schools.

As this study was conducted among only secondary level schools, this might not represent the status of overall computer use in classroom learning. Therefore, further studies are recommended without excluding those lower and higher level schools and colleges. Furthermore, the study suggests the need of further research in a large scale using both quantitative and qualitative methods.

## Table of Contents

<i>Letter of Certification</i> .....	<i>i</i>
<i>Evaluation and Approval</i> .....	<i>ii</i>
<i>Recommendation for Acceptance</i> .....	<i>iii</i>
<i>Copyright</i> .....	<i>iv</i>
<i>Declaration</i> .....	<i>v</i>
<i>Dedication</i> .....	<i>vi</i>
<i>Acknowledgement</i> .....	<i>vii</i>
<i>Abstract</i> .....	<i>ix</i>
<i>Table of Contents</i> .....	<i>xi</i>
<i>List of Tables</i> .....	<i>xiv</i>
<i>List of Figure</i> .....	<i>xiv</i>
<b>Chapter I</b> .....	<b>1</b>
<b>Introduction</b> .....	<b>1</b>
Background of the Study .....	1
Statement of the Problem .....	5
Rational of the Study.....	6
Objectives of the Study .....	8
Research Question .....	8
Significance of the Study .....	9
Delimitation of the Study .....	10
Operational Definitions .....	10
<b>Chapter II</b> .....	<b>12</b>
<b>Review of Related Literature</b> .....	<b>12</b>
Review of Theoretical Literature .....	12

Review of Empirical Literature .....	19
Literature related to Status of Use of Computer in Classroom learning .....	20
Literature related to Associated Factors of Use of Computer in learning .....	20
Implication of Review of this Study .....	21
Theoretical Framework .....	22
Conceptual Framework .....	24
<b>Chapter III.....</b>	<b>25</b>
<b>Research Methodology .....</b>	<b>25</b>
Research Design .....	25
Research Setting and Population .....	25
Sample Size .....	26
Sampling Technique .....	26
Inclusion Criteria .....	27
Exclusion Criteria .....	27
Data Collection Tools and Technique.....	28
Part I: Self-administered Questionnaire.....	28
Reliability and validity of Tool.....	29
Validity .....	29
Reliability.....	29
Data Collection Procedure.....	29
Data Analysis and Interpretation Procedure.....	30
<b>Chapter IV .....</b>	<b>31</b>
<b>Data Analysis and Interpretation.....</b>	<b>31</b>
Analysis of Data and Interpretation of Results.....	31
Socio-demographic variables of study population.....	32

Status of Using Computer by Secondary Level School Students.....	33
Purpose of Using Computer.....	35
Barriers of Using Computer .....	37
Perception of Students towards the use of Computer .....	41
<b>Chapter V.....</b>	<b>45</b>
<b>Summary, Findings, Conclusions and Recommendations .....</b>	<b>45</b>
Summary .....	45
Conclusions .....	47
Recommendations.....	49
Recommendation for Further Studies .....	49
<b>Reference .....</b>	<b>51</b>
<b>Appendixes.....</b>	<b>58</b>

### **List of Tables**

Table 1: Socio-demographic variables of study population .....	32
Table 2: Status of using computer by secondary level school students.....	34
Table 3: Purpose of Using Computer (n=394).....	37
Table 4: Barriers of Using Computer .....	40
Table 5: Perception of students towards the use of Computer.....	42

### **List of Figure**

Figure 1: Framework Analysis.....	24
Figure 2: Sampling frame .....	27

## Chapter I

### Introduction

#### Background of the Study

Computers are used for communication, management, research, drawing and design as well as entertainment (Mugivane, 2014). Twenty first century is being referred to as the digital age. A computer is an electronic device that accepts user input (data) and processes it under the influence of a set of instructions referred to as programs to produce the desired output (Mugivane, 2014).

Recent trends in educational program in this modern age demand for the use of modern teaching methods, which may be accomplished through the use of computers (Kerimbaeva, Niyazova, & Kaya, 2017). Computers' role in learning is simplification of reality, often with exaggerated cause-effect linkages which can be very effective in a teaching context (Garson, 1987). However, a lot depends on the availability and utilization of computers in the classroom. (Kiarie Mingi Bernadetle Kamene. (E55/CE/13461/2009)

Computers can be used to learn or recognize the understanding of all subjects, be it physics, exercises, swimming, biology, mathematics, agriculture, chemistry, business administration or commerce, just to name a few. In education, computers are used to project information to individuals in the classrooms or anywhere education is taking place, in churches, homes, schools, conference halls and so on. It is also used to convey the logic of a subject or behind a topic. Computers play an important role in educating our mind. With the usage of computers, we are able to learn, we are able to create new ways of doing things. The use of computers in education allows us to



convey instructions or ideas by all means. Globalizations of the entities comprising the learning processes are the computer configurations in actual facts (Kejawa, 2017).

ICT in 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. (Transcend Vision Nepal 2016). ICT has edit properties in terms of quality of student work and practical examples through visualization. Mathematical literacy is essential for every child's future (D. R. Joshi, 2017). The appropriate use of computers matching the ability of children leads to them more efficiently understanding the different mathematical notions (Howie & Blignaut, 2009; Trouche & Drijvers, 2010). Computer technology can help support learning, and that it is especially useful in developing the higher-order skills of critical thinking, analysis, and scientific inquiry (Roschelle, Pea, Hoadley, Gordin, & Means, 2000). It improves learners' poor handwriting and language skills, balanced individual differences with special needs and simplifies self-pacing (Youssef & Dahmani, 2008). It helps to enables and encourages for collaborative and independent learning (Youssef & Dahmani, 2008), ensures individual preferences, develops communication skills, access to resource based learning and real world information through the Internet (Youssef & Dahmani, 2008). It increases reliability of information, accuracy and student motivation, gives students more control, allows to produce high quality multimedia products, changes teacher practices, planning tools and assessment headers, increases learning occasions in the classroom (Youssef & Dahmani, 2008). ICT helps to increase the critical thinking skills, analyzing skills (Fitzallen, 2005) understanding and application skills of students (Al Balawi, 2000).

Due to the increasing integration of the internet into the everyday lives of individuals, e-learning has become a fundamental tool within the education sector (Alenezi, 2020).

According to a study the role of computer in teaching and learning process " students who use computer for learning at home, achieved higher scores than other children, is because lessons at the computer completes teacher explanations with multimedia elements and virtual experiments. In this case students understand and retain easier difficult topics from books. The role of computer in teaching activities is becoming more important because world is in a continuous and rapid modernization process (Beldiga M.Gh., 2019).

The concept of learning styles has been accepted by the psychological and educational communities and has been incorporated into the machinery of mainstream classroom education (Andrew, 1992). In many of these fields the use of the computer is mandated by necessity, but in the classroom itself the degree of implementation of the computer is often left to the teacher. Some teachers are attracted to the potential of the computer and are stimulated not only to utilize it in the classroom but to learn more about the computer themselves (Andrew, 1992).

Information Technology in Education typically emphasizes the Technology rather than the Information. Widespread technology has meant that people encounter more information, in a greater variety of formats, than ever before. Technology is the portal through which we interact with information, but people's ability to handle information to solve problems and think critically about information tells us more about their future success than their knowledge of specific hardware or software. These skills known as Information and Communications Technology (ICT) Literacy

comprise a 21st century form of literacy, in which researching and communicating information via digital environments are as important as reading and writing were in earlier centuries (Irvin, 2007).

ICT can enhance knowledge sharing by lowering temporal and spatial barriers between knowledge workers, and improving access to information about knowledge. Looking at ICT for knowledge sharing in this light, however, has limited value, because it ignores when and how the quality of knowledge sharing will be enhanced. A more encompassing perspective will come about if ICT is studied with relation to the motivation for knowledge sharing (Hendriks, 1999).

Education comforts to develop technology and technology support to develop different pedagogical thoughts in education. Most of the education related experts agreed that proper use of ICT hold great promises to improve teaching and learning in addition to sapping workforce opportunities (Aduwa-Ogiegbaen & Iyamu, 2005).

Maximum schools have computer laboratory which were used for computer subject teaching (Moila, 2006). It helps to increase flexibility of learning activities (Noor-UI-Amin, 2013) and useful for graphic representation and numerical calculation (Goos, 2010). Using Technology to support effective teaching and learning (Goos, 2010). ICT has leading role for feedback, observing patterns, connection of problems and figure and effective discussion on subject matter (Becta, 2008). Age and gender influence the use of computer in classroom (Colley & Comber, 2003).

In practice level, some NGOs/INGOs and different level of government bodies have been contributing on this field such as; laptop and computer with printer distribution for schools, one student one laptop program and other financial support

for ICT instruments. Policymakers have to decide appropriate methods and technology to be integrated in curriculum and need based curriculum can be developed to address new technology (D. R. Joshi, 2016) which may more beneficial for the proper adjustments of learners in future. ICT has integrated several streams for secondary education in Nepal. Computer education is a separate additional subject in secondary level (class 6 to 10). Distance education and open learning division under NCED has been developing some mathematics, science and English curriculum related audio-visual documentaries since few years and broadcasting by Radio Nepal and Nepal Television for the support of school students. National curriculum framework has taken ICT as a tool for educational transformation. (CDC, 2005)

### **Statement of the Problem**

In Nepal, there is a lot of problem faced during use of computer technology in the classroom such as human resources, development of infrastructure, highly cost and improper of electricity (Pradhan, 2002). Several problems such as lack of resources that is qualified teachers, hardware, software, electricity and poor project implementation strategies are prevalent in school level education in Nepal (Dhital, 2018). Similarly several other issues coming from theories such as social and radical constructivism suggest that teachers are not trained to use such approach in teaching mathematics, and there is a lack of teaching aids and materials and technological tools. The issues related to social aspects are gender issues, language issues, social justice issues, and issues related to the achievement gap. The cultural issues are related to the diversity of language and ethnicity. The issues related to political aspects are equity and access, economic status, pedagogical choice, and professional organizations and unions. The issues related to technology include the technological

skills, use of technology, and affordance (Panthi & Belbase, 2017). ICT tools provides user friendly learning environment and teachers also use it for teaching and learning. Therefore, to reduce such types of problems of students and teachers computer may be one of the helpful tools. In order to address such problems, research should be conducted to identify the status of use of computer in classroom teaching.

What is the status of the use of computer and its associated factors in classroom instruction among secondary school students of Dang district Nepal?

This study is mainly concerned with the study of students and teachers attitudes towards the use of social media for the teaching and learning process. So this study helps to understand about the appropriateness, usefulness and sufficiency of teachers and students for the teaching and learning process. Thus, attitude of teachers and students towards the use of technology in teaching and learning is one subject matter of research.

### **Rational of the Study**

In this current modernized world, students who use computer for learning at home, achieved higher scores than other children, is because lessons at the computer completes teacher explanations with multimedia elements and virtual experiments. The role of computer in teaching activities is becoming more important because world is in a continuous and rapid modernization. The computer can be used in teaching-learning of play form, drawing the children. Computer use in school has and will have a great role in the presentations of lessons, and for communication and information.

Teaching through computer is the way in which the interaction of teaching and learning, between teacher and students, is the means of this computer. Using the

computer as a tool in teaching school subjects lead to the development of critical thinking, allowing students to demonstrate spontaneous (Beldiga M.Gh., 2019). Technology and education may change time to time due to the requirement and needs of the people. Teachers can learn new knowledge and idea through computers and internet if they can use this technology. ICT In practice level, some NGOs/INGOs and different level of government bodies have been contributing on this field such as; laptop and computer with printer distribution for schools, one student one laptop program and other financial support for ICT instruments. ICT has integrated several streams for secondary education in Nepal. Computer education is a separate additional subject in secondary school curriculum (class 6 to 10).

Higher Secondary Education Board (HSEB) also integrated ICT in different subjects in intermediate level. Different Universities have been included ICT related matters in their curriculum of B. Ed. and M. Ed. in mathematics education (TU, 2010). It has been included in the curriculum of teacher license course, Teacher Service Commission (TSC) course for the selection of mathematics teacher (NCED, 2014) and in-service mathematics teacher training course (TSC, 2015; TSC, 2016). Distance Education and Open Learning Division under National Center of Educational Development (NCED) has been developing some mathematics, science and English curriculum related audio-visual documentaries since few years and broadcasting by Radio Nepal and Nepal Television for the support of student and teacher of school level.

Several researches can be found in the field of education which provides the ideas for policy making, designing of curriculum, selection of appropriate pedagogical methods, and selection of teaching instruments, school management techniques and so

on. In the context of Nepal there is no such research in the field of use of ICT in classroom teaching. Nepal is under developed country by which it takes time to develop technologies in every sector like education. This study is essential for the fulfillment of actual gap situation of ICT using situation of teachers in schools in several tasks and their opinions towards the use of ICT. By knowing these things it will be beneficial for making strategies for proper use of ICT and address the future settlement of ICT related mechanism in their teaching practices, motivate them for use of ICT in their usual tasks. This study will also be helpful for policy makers, curriculum designers, school principals and managers, teachers, students, donors, researchers and other stakeholders of education, for designing policies, sharing different ideas and knowledge, developing training packages for teachers, financial support in their suitable requirements. Thus this study aim to study the status of use of computer in classroom learning among secondary school of Dang district Nepal.

### **Objectives of the Study**

The main objective of the study will be to assess the status of use of computer and its associated factors in classroom learning among secondary school students of Dang district. The study will have the following objectives.

- To study the status of using computer in secondary level students.
- To determine the purpose of students to use ICT tools.
- To study the barriers of students to use computer.

### **Research Question**

What is the status of use of computer in classroom learning among secondary school students of Dang district?

What are the existing barriers of students to use computer among secondary school students of Dang district?

What is the level of perception of students towards computer use in Dang district Nepal?

### **Significance of the Study**

The findings of study might be utilized as baseline research for further research in future. The status of use of computer in Classroom learning computed from this study among secondary schools' students might be useful to provide baseline data for monitoring the effectiveness of national programmer for the initiation and find out the associated factors of use of computer in classroom learning in local level. The study findings might be beneficial to the concerned authorities like policy maker and implementers at local, regional and central level for compute in classroom learning among secondary school students to establish effective measures regarding of use of computer in computer classroom learning.

Turkish teacher perceptions from both the technical and motivational perspectives showed that their perceptions from both perspectives were not positive, because the majority did not believe that they would receive adequate technical and motivational support from their school. However, as the school culture became more positive, the teachers' ICT usage level increased (Tezci, 2011). Ward and Parr (2010) stated that teachers need to feel confident in their ability to facilitate student learning with technology in order to integrate technology into their classrooms. To achieve this goal, more professional development is required with a focus on increasing teachers' skills so that they are able to overcome apprehensions associated with using technology. Further, new teaching approaches and technical support should be offered



by schools to allow them to retain control while facilitating learning with computers. Overall, implementing effective teaching with technology integration requires changes in teachers' knowledge, beliefs, and school culture (Ertmer and Otterbreit-Leftwich 2010).

### **Delimitation of the Study**

The study was conducted among secondary school students of Dang district Nepal hence it is hard to generalize the findings among whole secondary school students throughout the nation.

### **Operational Definitions**

**Barriers:** Barriers refer to a fence or obstacle that prevents movement or access.

**Computer:** Computer is an electronic device for storing and processing data, typically in binary form, according to instructions given to it in a variable program.

**ICT:** ICT stand for "information and communication technology". It is a broad term that covers all available gadgets such as television sets, cell phones, personal computers, tablets and others. The ICT includes both Internet-connected devices and mobile ones supported by wireless technology.

**Learning:** Learning refers to the acquisition of knowledge or skills through study, experience, or being taught. In this study learning is the process through which students can get knowledge through the help of ICT devices.

**Perception:** Perception refers to the ability to see, or hear, or become aware of something throughout the senses.

**Secondary School:** In this study Grades 9 and 10 are considered the secondary level schools.

**Socio demographic factors:** Socio demographic factors include age, sex, education, migration background and ethnicity religion, material status, household, employment and income

**Status:** Status refers to the situation at a particular time during a process. In this study status refers to the computer related equipment and knowledge done in school.

## **Chapter II**

### **Review of Related Literature**

Literature review is an important part of research. Literature was reviewed throughout the programmed during problem selection, proposal writing, data collection and interpretation and report writing. Literature review is a broad, comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials, audiovisual materials and personal communications. This chapter presents a review of related literature which provides a theoretical support to the conceptual framework of this study. The main aim of the literature review in this study is to find out the Status of Use of Computer in Classroom learning and its accessibility in secondary school level in different parts of the world. Literatures for the study have been collected by reviewing the printed materials such as books, thesis reports, journals, government document like policies, strategies etc. The electronic documents have been searched through different engine like Google scholar, Research Gate and Google search along with the home page of different Government and Non Government organizations. The reviewed literatures from different sources are described under different sub-headings.

### **Review of Theoretical Literature**

This section includes different theoretical perspectives exploring the students' learning experiences in the use, status of computer. Introduction of computer and its usage in teaching and learning, students experiences using computer for learning, and benefits for the use computer in education. Similarly, for setting the objectives of the study, appropriates methodology to conduct the study and accomplishing the study.

A study about the use of Information and Communication Technology in learning students' attitudes carried out in Botswana junior secondary schools by gender found that many students found learning using computers to be useful and enjoyable. Furthermore, in his study on ICT-supported teaching in secondary schools in Botswana, Boitshwarelo (2007) was of the view that ICT usage can broaden and deepen learning outcomes by fostering sharing, reflection and iterative knowledge construction among learners (Kaino, 2007).

The study about ICT in education conducted by Isaacs 2007; Lieu et al. 2008 in Botswana found that at least one fully equipped computer laboratory is needed to all junior and senior secondary schools. This is significant because ICT can be used to improve the delivery of education and can be used to improve the skills of learners and prepare them for the global economy and information society(Isaacs, 2007)

A Newfoundland study examining how information technologies affect teaching interviewed 13 teachers at a leading high school in the use of information technology. Teachers used information technology to interact on a global basis, expand resources, enhance local content, and customize material. Problems included need for training, information overload, and pace of technological change, student plagiarism, business involvement, and teachers' time. The study indicated that ICT offers students more time to explore beyond the mechanics of course content allowing them to better understand concepts. The use of ICT also changes the teaching and learning relationship. Based on the findings of Reid's study, teachers reported that the relationship between teacher and learner is sometimes reversed with regards to information technology. This relationship boosts students' confidence when they are able to help teachers with technical issues in the classroom. Therefore, ICT changes

the traditional teacher centered approach, and requires teachers to be more creative in customizing and adapting their own material (Reid, 2002).

A study about concerning the use of computers in the classroom, by Lehman (1985) investigated the degree to which secondary school science teachers integrate the use of computers into their instruction. The study was nationwide, with 193 schools responding. Of the schools responding, 41% did not have a single science faculty member who used computers in the classroom. Rural schools were the worst offenders in this area, having 52% of their schools without a science teacher who used computers. The survey included a questionnaire given to individual teachers, and of 1,470 teachers, 77% did not use computers at all and only 6% used them on a regular basis. The 84 individuals who were regular users came from a total of 44 schools (Lehman, 1985).

(Jackson & Yamanaka, 1985) studied on women's attitudes, goals, and literacy concerning computers. the objective of the study was 220 samples were selected by random sampling technique on that survey study from Malaysia The major finding of the study were or finding indicated that young student can learn easily than other groups. The study showed that women from ages 19-23 were more knowledgeable about computers than any other age group. The women of age 49 and higher showed the least knowledge about computers, but the statistics concerning knowledge were highly correlated with computer use. The greatest factor found determining the future use of computers by women was their level of enjoyment. Women also perceived men to be more technologically knowledgeable concerning computers.

A study about Calculas with Analytic Geometric by Gordon (1986) describes attitudinal factors as being the largest single hindrance to computer use in community

college classrooms. The negative manifestations of attitudinal factors are further categorized into apathy and lack of personal confidence (Gordon, 1986).

A study about the Attitudes of elementary school students and teachers toward computers in education by Vermette, Orr, and Hall (1986) focused on fifty percent of the teachers surveyed said that kindergarten is where computers should be introduced. Teachers and students were aware of the value of computer technology in education but were negative about the effects of computers on them personally. It was found that the teacher attitude and the student attitude matched in most cases. If the teacher felt positive about computer technology, the students also felt positive. A negative attitude on the part of the teacher was also matched by the students. The study failed to identify the direction of causation, but it may safely be assumed that the instructor's attitude purportedly affected the student's attitude (Vermette, Orr, & Hall, 1986).

In support of the importance of teachers' attitude towards computer use, Zhao, Tan and Mishra (2001) provided evidence to suggest that the attitudes of teachers are directly related to computer use in the classroom. For example, teachers often view the computer as a tool to accomplish housekeeping tasks, manage their students more efficiently, and to communicate with parents more easily (Zhao, Tan, & Mishra, 2000).

A study about Attitudes towards computer in post-secondary students in Singapore at the sample size of 183 post-secondary students was assessed for the computer attitudes learning environment was passively correlated with students attitudes towards computer use and The success of student learning with computer

technology will depend largely on the attitudes of teachers, and their willingness to embrace the technology (Teo, 2006).

The Journal of Assisted learning about Understanding Preserves teachers computer attitudes, applying and existing the technology acceptance mode finds that the success of any initiatives to implement technology in an educational program depends strongly upon the support and attitudes of teachers involved. It has been suggested that if teachers believed or perceived proposed computer programs as fulfilling neither their own or their students' needs, they are not likely to attempt to introduce technology into their teaching and learning. Among the factors that affect the successful use of computers in the classroom are teachers' attitudes towards computers (Teo, Lee, & Chai, 2008).

A survey of computer integration into college courses by Greene (1991) conducted a study to find the number and characteristics of teachers who integrated computers into their teaching. The study excluded instructors who were computer science or information systems instructors, thereby effectively removing a potential bias in the results. The study was done at three medium-sized colleges, and 100 faculty members responded to the survey. Approximately half (49.4%) reported that they integrated computer technology into one or more of the courses they teach. Since it was suspected that the sample was biased in this regard, administrative records of student computer accounts and computer facilities reservations at two of the institutions in the survey made possible a more objective estimation of the extent which all faculties involve computer technology in the courses they teach. Results from that assessment revealed that only 17.6% of all faculty used computers in their courses. This study also provided insight into the teaching areas in which computers

were most heavily used. Mathematics and physical sciences had faculty members who demonstrated the most involvement in the use of computers (32.1% of the faculty), with the humanities, as a group, much lower (3.5% of the faculty). It was found, however, that the impact of training was more evident in the humanities (Greene, 1991).

A study about concerning the use of computers in the classroom by Lehman (1985) investigated the degree to which secondary school science teachers integrate the use of computers into their instruction. The study was nationwide, with 193 schools responding. Of the schools responding, 41% did not have a single science faculty member who used computers in the classroom. Rural schools were the worst offenders in this area, having 52% of their schools without a science teacher who used computers. The survey included a questionnaire given to individual teachers, and of 1,470 teachers, 77% did not use computers at all and only 6% used them on a regular basis. The 84 individuals who were regular users came from a total of 44 schools. (M. A. Windschitl, 1992)

A study about Gender and computer experience as factors in the computer attitudes of middle school students by Gressard and Loyd (1985) studied about 561 students of grade seven and eight examines the effect of gender and amount of computer experiences on the attitudes found that age was not a contributing factor in the computer attitudes of teachers, in noteworthy contrast to research done in the business community (Gressard & Loyd, 1985).

The role of constructivist instruction and student epistemologist in the study of using computer simulation to enhance conceptual change by Windschirt 1992 found that Learners enter the classroom with informal ideas (alternative conceptions) about



scientific phenomena; these ideas affect how the corresponding scientific explanations are learned. In addition, student's epistemological beliefs concerning learning influence achievement. This study investigated the effects of a constructivist versus objectivist learning environment on college student's conceptual change, using a computer simulation of the human cardiovascular system as an instructional tool. This study also investigated the interaction between constructivist versus objectivist learning situations and the student's epistemological beliefs. The constructivist approach resulted in significantly greater conceptual change than the objectivist approach for 2 of 6 commonly held alternative conceptions; the other 4 of 6 areas showed no significant differences for treatment group. More important, however, the treatment interacted significantly with epistemological beliefs. Individuals with more advanced epistemological beliefs learned more with a constructivist treatment; individuals with less developmentally advanced beliefs learned more with an objectivist treatment. (M. Windschitl & Andre, 1998).

A study about factors influencing classroom used by teachers in the Area 11 Educational Agency of Iowa is located in central Iowa, and includes urban as well as rural school districts within its boundaries by (Mark Andrew Windschitl 1992) conducted a survey in 1991 to gather information about computer technology use in schools. The survey showed that of 213 schools responding to the survey, 78 had one computer lab, 24 had two labs, and an additional 13 had three or more labs. The average number of computers per lab was found to be 13. Approximately 54% of central Iowa 14 schools had at least one computer lab. There were 92 schools with no computer lab at all. (M. A. Windschitl, 1992).

## **Review of Empirical Literature**

This section consist the related articles, journals, reports, previous thesis and studies. I have reviewed some literatures, which some contents are related to this study. These literatures that are reviewed are as following.

The study about attitudes towards use of computers among persevere teachers. By Teo (2008) with survey methodology at a sample of 139 pre-service teachers was assessed for their computer attitudes using a Likert type questionnaire with four factors: affect (liking), perceived usefulness, perceived control, and behavioral intention to use the computer. The results of this study show that this study found no significant relationship for age and gender, and computer attitudes. This finding does not support past research which suggested significant differences in computer attitudes by gender (e.g. Margolis & Fisher, 2002, Markauskaite, 2006). For example, Houtz and Gupta (2001) found that males and female had rated themselves on their ability to use the computer in significantly different ways. Other studies have suggested that the masculine image of the computer has deterred females from benefiting from the technology and this has made them less confident or more anxious (Culley, 1988), resulting in females holding more negative attitudes to computers than males (Campbell, 1990). Consequently, female students tended to use computers less even when given equal access (Muir, 1987). The research on gender and computing has often reported, though not conclusively, that males have more experience and make more use of computers (Teo, 2008)

A study about preparing persevere teachers to integrate technology with literacy program in U.S by Watts-Taffe et al. (2003) found that teachers can act as catalysts for the integration of technology through ICT. If the encouragement,

equipment, and necessary technological support are available from institutes for the teachers and students, developing an ICT class will be easier for them. The main responsibilities of these teachers will be changing their course format, creating and explaining the new assignments, and arranging for the computer lab through their technology learning specialists or assistants (Watts-Taffe, Gwinn, Johnson, & Horn, 2003)

A study about Technology training for teachers by Fulton (1989) found that younger teachers are more likely to have computer experiences as students and may transfer that experience to teaching. One estimate suggests that 60% of entering college freshmen have some computer experience (Fulton, 1989).

A study about ICT in five Arab States by Dennis, Martin, Wood, & Madison, 2010 found that ICT in education has a multiplier effect throughout the education system, by enhancing learning and providing students with a new set of skills; by reaching students with poor or no access (especially those in rural and remote regions); by facilitating and improving the training of teachers; and by minimizing costs associated with traditional instruction (Dennis, Martin, Wood, & Madison, 2010).

### **Literature related to Status of Use of Computer in Classroom learning**

ICT Policy in Kenya reviewed by Kandiri in 2006 revealed that computers may have been available in schools, only a few teachers use them and students do not get proper knowledge (Kandiri, 2006).

### **Literature related to Associated Factors of Use of Computer in learning**

A study by Jackson and Yamanaka (1985) of women's attitudes, goals, and literacy concerning computers showed that women from ages 19-23 were more

knowledgeable about computers than any other age group. The women of age 49 and higher showed the least knowledge about computers (Jackson & Yamanaka, 1985) .

A study involving the public schools in Denton, Texas, by Lumsden and Norris (1985) reveal that a vast majority (89%) of classroom teachers would like to attend in-services training on computer uses in education. This paralleled the 81% of instructors who agreed or strongly agreed that teachers should know how to use a computer in the classroom. There are, of course, many misconceptions on the part of computer novices as to what constitutes sufficient training. Some view training as a vehicle of relief from computer anxiety, while others, who are fewer in number, desire to investigate the more involved aspects of computer use (Lumsden & Norris, 1985).

### **Implication of Review of this Study**

One of the most important parts of any research was reviewing the related literature. It gives the researcher necessary theoretical back up related to his/her study lead him/her to go ahead in right in right path. While reviewing the literature I have gone through various theoretical, conceptual works and empirical research studies. Generally, I have studied various research articles, books, journals and reports different websites and home page of different organizations by that Dennis, Martin, Wood, & Madison (2010 )study about ICT in five found that ICT in education has multiplier effect throughout education system, by enhancing learning and providing students with new set of skills; by reaching students with poor or no access(especially those in rural and remote regions); by facilitating and improving the training of teachers; and by minimizing costs associated with traditional instruction . Zhao, Tan and Mishra (2001) provided evidence to suggest that the attitudes of teachers are

directly related to computer use in the classroom. Isaacs (2007) Lieu et al. (2008) in Botswana found that at least one fully equipped computer laboratory is needed to all junior and senior secondary schools. This is significant because ICT can be used to improve the delivery of education and can be used to improve the skills of learners and prepare them for the global economy and information society. Dennis, Martin, Wood, & Madison, (2010) Found that ICT in education has multiplier effect throughout education system, by enhancing learning and providing students with new set of skills; by reaching students with poor or no access(especially those in rural and remote regions); by facilitating and improving the training of teachers; and by minimizing costs associated with traditional instruction.(Gressard & Loyd, 1985).found that age was not a contributing factor in the computer attitudes of teachers Fulton (1989) found that younger teacher are more likely to have computer experiences as students and may transfer that experience to teaching.

### **Theoretical Framework**

This research paper was exploring learning experiences of students towards the use of computer. It is concern with the Lev S. Vygotsky Constructivism Theory because in this theory suggests that learners can construct their own knowledge and meaning from their experiences as same this research paper also based on constructivism theory, where students can construct and learn from their own experiences and learning by doing. So, that computer is one of the best learning platforms where students can easily learn and share their experiences. According to the perspective of this theory in this research try to find out the main role computer in the students learning activities. This has generated the main approach of computer in the field of education of learning process.

The study conducted in Kathmandu, Nepal showed that teachers' experience, teaching level and qualifications is a contributing element in the utilization of online resources. The study also concluded that mathematics teachers in Nepal are not well-familiar with 21st-century digital technology (D. Joshi & Rawal, 2021).

A meta-analysis conducted in Nepal found that there is challenges and unequal access and quality of internet conveniences; affordability of laptops/computers; limited interaction; and frequent disturbances in the online education through the use of computers (Basnet, Basnet, & Bhattarai, 2021).

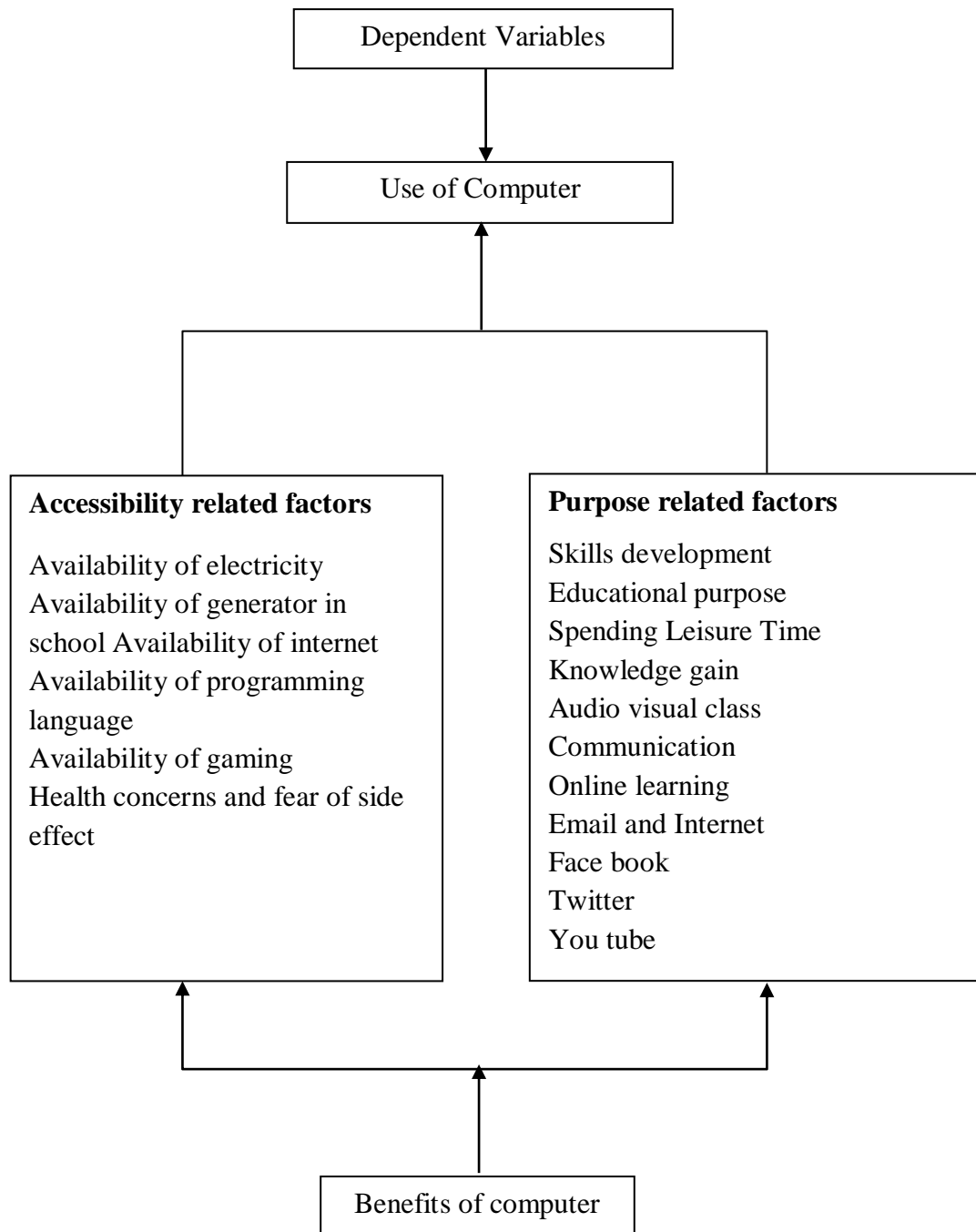
The study conducted in Kenya found that the state of computers in most secondary schools in the county was poor; internet was also poor therefore a hindrance in ICT teaching and learning (Bariu, 2020).

A descriptive cross-sectional survey conducted in Kenya found that most schools have low investment in ICT infrastructure due to high costs of computer hardware, software and related accessories. Hence there is need in the development of new skills and competencies among teachers, school heads and learners (Bariu, 2020).

The study conducted in Ethiopia showed that students have better access to mobile phones and other technologies at home and outside of schools. Major school-level factors for the gap observed were delay in implementation of a nationwide e-cloud based ICT infrastructure, lack of coordination for the pedagogical use of ICT, and insufficient capacity building training for teachers and school leaders (Bati & Workneh, 2021).

## Conceptual Framework

Conceptual framework reflects the interplay of various influencing factors of status of uses of computer in classroom learning among secondary school students of Dang, District, Nepal. The conceptual framework used in this study is based on



**Figure 1: Framework Analysis**

## **Chapter III**

### **Research Methodology**

Research methodology refers to the sequential arrangement of all the steps involve during the research work. Research design is important in research because it is blueprint of all research activities. This chapter includes research design, research setting and population, sample size, sampling technique, inclusion and exclusion criteria, research instrument, validity and reliability of the research instrument, data collection procedure and data analysis procedure.

#### **Research Design**

A descriptive cross-sectional survey research design was executed to find out the status of use of computer and associated factors in Classroom learning among secondary school students in Dang District. The required data for this study was collected from primary sources which include the survey among schools students in the study area.

#### **Research Setting and Population**

The present study was conducted at secondary schools of Dang district, Nepal. Dang district is located in the inner Terai and mid hills of Rapti zone in the mid-western development region of Nepal. Salyan and Rolpa are adjacent in the North, India in the south, Kapilvastu, Argakhachi and Pyuthan in the east, Surkhet and Bankae in the west. The district consists 2 sub metropolitan city, 1 urban municipality, and 7 rural municipality consisting 5 electoral consistencies. According to Central Bureau of Statistics 2011 total population of Dang district was 552,583 among which 291,524 (52.76%) were female and 261,051 (47.24%) were male.



Annual population growth rate of Dang district was 1.78 (GoN, 2012). There were altogether 142 secondary schools including 86 private and 56 Government schools, similarly there are total 24,622 students in secondary level in Dang district which includes 12, 905 female and 11, 717 students (DEO, 2073/74).

The population for this study consists of secondary school students of Dang district, Nepal. The study unit was individual secondary school students of randomly selected secondary schools of Dang district, Nepal.

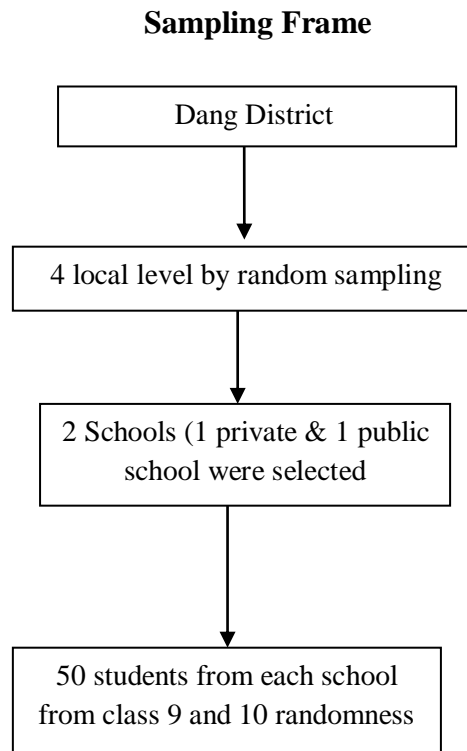
### **Sample Size**

The sample size of the study was calculated by using online sampling calculator as Select Statistical Service indicating that 379 is appropriate sample size for 24,622 population with 0.05% margin of error (Statisticalservices, 2021). However, this study consists 394 students indicating that the sample size is representative. Hence result of the research will be generalized the entire population i.e., secondary level of Dang district.

### **Sampling Technique**

Multistage probability random sampling among total 142 secondary schools consisting of both governments 56 and private 86 schools of Dang district was used. There are altogether 10 local unit generalize the district. Then from selected 4 units 8 schools consisting 4 governments and 4 private was selected by disproportionate stratified random sampling technique through non replacement lottery method. Further, 394 students was selected randomly from selected 8 secondary schools which consists 50 students from each government schools and 49 students from each private

school by using non replacement lottery method. However 2 private schools have only 48 students, hence all of them were taken.



**Figure 2: Sampling frame**

### **Inclusion Criteria**

The inclusion criteria for this study were:

- Secondary School students both from government and private schools studying in selected schools of Dang district Nepal.
- Both sexes: male as well as female.
- Students who were available during the day of data collection.

### **Exclusion Criteria**

The exclusion criteria of the study will be:

- Students who were not interested to participate voluntarily in the study.
- Students having serious mental illness and disability.

## **Data Collection Tools and Technique**

The development of data collection tools was based on objectives of the study and was done on the basis of extensive literature review of related literature and consultation with research supervisor, experts of Central Department of Mathematics and ICT education. Researcher himself with consultation to experts developed tools.

Self-administered pre-tested questionnaire with secondary school students was used as technique of data collection. Data was collected within two weeks period from 5<sup>th</sup> May 2019 to 18<sup>th</sup> May 2019 (22<sup>nd</sup> Baishak 2076 to 4<sup>th</sup> Jestha 2076).

### **Part I: Self-administered Questionnaire**

Self-administered semi structure questionnaire in English was used to find out the status of use of computer in classroom learning.

The status of computer use by the students was rated on the basis of likert scale on the basis of 2 options via yes or no. The purpose of computer use by the students was rated on the basis of likert scale on 3 options via do not use, sometimes use or regularly use. Similarly, barriers of using computer by the students and their perception towards the use of computer was rated on the basis of likert scale on 5 options via strongly disagree, disagree, neutral, agree and strongly agree.

The level of barriers of using computer was recorded using grand mean of overall barriers related item as per previous study (Tezci, 2010). The barriers of using computer was leveled as high when the individual mean is higher or equal to grand mean (2.86) and low in reverse condition. Similarly the perception of using computer was leveled as high when the individual mean is higher or equal to grand mean (3.39) and low in reverse condition.

## **Reliability and validity of Tool**

### **Validity**

The content validity of instruments was established by doing extensive literature review, seeking opinion with expertise of department of Mathematics and ICT Education. Self-administered English questionnaire were used to find misinterpretation.

### **Reliability**

The reliability of the instrument was maintained by pretesting among 10% of total sample size residing in nearby by schools. The overall value of Cronbach's alpha is 0.741 which indicates the reliability of the instruments. Cronach's alpha of different components are as follows: purpose of using computer (0.825), barriers of using computer (0.764), perception of students towards the use of computer (0.764), students motivation towards the use of computer (0.836), teaching and learning through computer (0.786), challenges of using computer (0.763).

### **Data Collection Procedure**

Before proceeding for data collection in secondary schools, the researcher made formal and informal visits with District Education Office, Dang and Schools Principal's for coordination and necessary support. Data was collected after getting ethical clearance letter from Central Department of Mathematics and ICT Education from Tribhuvan University. The researcher provided written request letter from Tribhuvan University to District Education Office of Dang District as well as to randomly selected secondary schools for data collection. Written permission was taken from District Education Office of Dang District before starting data collection.

After selection of the schools, researcher was involved in the data collection process. The researcher introduced himself to the respondents and ascertained their cooperation for the study. Written consent was obtained from the secondary school students for self-administered questionnaire. Data collection procedure took about 20-25 minutes for self-administered questionnaire.

### **Data Analysis and Interpretation Procedure**

After data collection, data was thoroughly screened, reviewed, compiled and checked for its completeness, consistency and accuracy by the researcher and data analysis was done as per the objectives of the study. Editing, Coding and entry of data was done using Microsoft Excel and analysis was done using Statistical Package for Social Science (IBM SPSS) version 17. Frequencies, percentage, mean, standard deviation and level was applied to analyze the data. The data tabularized by using Likert scale for statistical analysis.

## **Chapter IV**

### **Data Analysis and Interpretation**

This chapter was mainly concerned with the analysis and interpretation of the data collected from the primary sources. The data were analyzed, tabulated and interpreted for exploring the status of use of computer in learning among secondary school students. In this chapter researcher had analyzed, interpreted and presented the data obtained from primary sources. Researcher used multistage probability random sampling among total 142 secondary schools. From total of 10 local units 4 were selected. Then from selected 4 units 8 schools consisting 4 governments and 4 private was selected by disproportionate stratified random sampling technique through non replacement lottery method. Further, 394 students were selected randomly from selected 8 secondary schools as the respondents. The collected data were analyzed and interpreted.

#### **Analysis of Data and Interpretation of Results**

After collecting data, these were analyzed and interpreted in order to find out the status of use of computer in learning among secondary school students of Dang district Nepal. All together 48 questions for students were asked in the form of closed-ended questions. The questionnaire was the vital tools for the collection of data in this research. These parts indicate with statistical analysis and interpretation of the data. For analyzing the data frequency, percentage, means and standard deviation was calculated. In order to achieve the objectives, the scale of scoring each items of the questionnaire used the Likert scale.

### Socio-demographic variables of study population

Table 1 represents socio-demographic variables of the study. The mean age and standard deviation are 15.46 and 1.078 years respectively. Regarding the gender of secondary school student, around half (50.5%) of respondents were female whereas 49.5% were male. Around three-fifth (60.2%) of the students have their family size greater than 4 members and 39.8% of students were living with lesser than four members. Similarly, around three-fifth (60.9%) of the respondents were living in urban areas where two-fifth were in rural. Most of the respondents were Hindus (96.4%) and only 3.6% were Christian in the selected sample. More than half (51.8%) of the students were from government schools and remaining were from private.

**Table 1: Socio-demographic variables of study population**

Variable	Characteristics (n=394)	Frequency (%)
Gender	Male	195(49.5)
	Female	199(50.5)
Size of family	Lesser than 4	157(39.8)
	Greater than 4	237(60.2)
Living status	Urban	240(60.9)
	Rural	154(39.1)
Religion	Hindu	380(96.4)
	Christian	14(3.6)
School type	Public	204 (51.8)
	Private	19(48.2)

### **Status of Using Computer by Secondary Level School Students**

Table 2 represents status of using computer by secondary school students. The mean and standard deviation of status of computer use was 16.24 and 2.13 respectively. The status of computer use by the students was rated on the basis of like scot scale on the basis of 2 options via yes or no. Table 4.2 statement no 1 shows that around half (50.8%) of school system have teaching and learning through computer and rest 49.2% do not have system of teaching and learning through computer. More than half (57.1%) of students are using computers for learning at home or school and 42.9% students are never using computers for learning. Among 225 students who were using computer for learning 93.3% were using it in laboratory or in classroom where as 6.7% were even not using in laboratory or in classroom. This statement shows that schools need to have computer laboratory facility for students. In the study area less than one-fifth (18.3%) of teachers were using computer for teaching whereas more than four-fifth (81.7%) were using it for other activities. It indicated that most of the teachers were not habited to the use of computers in classroom teaching. Only (3.3%) of the schools have projector facilities in classroom indicating that connection of projector in the classroom is major issue of the schools. It indicates negative status towards the projector use in classroom. However most (98.2%) of the schools have projectors in laboratory or for office use and only 1.8% of the schools didn't have projectors in school. This statement indicates most of the schools used projectors for learning and for official use, however very few of them have projector in classroom. This statement provides positive opinion towards projector use in laboratory. Less than two-fifth (38.8%) of the teachers provide lecture by using power point slide in classroom however some of the teachers use power point slide in the laboratory as



well, hence 44.9% of the teachers use power point slide in classroom and laboratory. This statement indicates more than half of the teacher didn't use power point slide in the school. This indicates negatives status towards the use of power point slide in the school. Around half (50.5%) of the teachers provide one site support in integration of curriculum and rest of them didn't support in integration of curriculum. This statement indicates moderate status of teacher support in the integration of curriculum. Half (50.5%) of the schools have availability of Internet facility. This statement indicates moderate status of internet availability in secondary schools. Around one-fifth (21.8%) of the schools' lab had separate computer for individual student. This statement indicates most of the students do not have separate computer in school laboratory.

Around two-fifth (39.9%) of computers in school lab are in working condition during the survey period. This statement indicates three-fifth of the computer in school lab were not in working condition.

**Table 2: Status of using computer by secondary level school students**

S.N	Statements	Frequency n=394	
		Yes (%)	No (%)
1	School system have teaching and learning through computers.	200(50.8)	194(49.2)
2	Use Computers for Learning	225(57.1)	169(42.9)
3	Use of Computer in Laboratory or classroom	210(93.3)	15(6.7)
4	Use computers by teachers in classroom teaching	72(18.3)	322(81.7)
5	Projectors available in classroom	13(3.3)	381(96.7)

6	Projectors available in laboratory or for office use	387(98.2)	7(1.8)
7	Teachers give lecture by using PowerPoint slide in classroom	153(38.8)	241(61.2)
8	Teacher use PowerPoint slide in Classroom and laboratory	177(44.9)	217(55.1)
9	Teachers provide one site support in the integration of curriculum	199(50.5)	195(49.5)
10	Availability of Internet facility in Schools	199(50.5)	195(49.5)
11	Schools labs have a separate computer for each student	86(21.8)	308(78.2)
12	Computers in school lab have working condition	154(39.1)	240(60.9)

### **Purpose of Using Computer**

D=Do not use, S= sometime and R= regular

Table 3 represents the purpose of using computer by secondary level school students. The mean and standard deviation of purpose of computer use was 11.54 and 4.15 respectively. The purpose of computer use by the students was rated on the basis of like scot scales on 3 options via do not use, sometimes use or regularly use. The finding reveals that about half (49.7%) of the students do not use computers for tutorials, 39.1% student's sometime use and 11.2% students regularly use computers for tutorials. Hence this statement indicates that the use of computer for tutorials learning is only satisfactory. About one-third (34.5%) of students do not use computers for problem solving, half (50.5%) of them use sometimes and only 15.0%

of them were using regularly for the purpose of problem solving. This shows that use of computer for the purpose of problem solving is satisfactory. Nearly half (48.5%) of the school students did not use computer for writing tools, 34.5% of them sometimes use and 17.0% students regularly use computer for writing tools. This finding revealed that more than half of the student use computer for the purpose of writing tools. Around half (49.2%) of the students do not use computer for checking spelling, 30.7% of them sometimes use and 17.0% use regularly for the purpose of spell-checker. Above data demonstrated that more than half of the students use computer, however less than one-fifth (17%) of them use regularly for the purpose of spell-checker. More than half of the students (54.8%) did not use database for learning, nearly one-third (32.0%) use sometimes and 13.2% use computer regularly for the purpose of database. Thus, this study revealed that less than half of the school going students use computer for the purpose of database. More than half (52.3%) of the students did not use computer for the purpose of spreadsheets while one third (33.0%) use sometimes and 14.7% use regularly for the purpose of spreadsheet. Hence this finding showed that less than half of the students use computer for the purpose of spreadsheet. More than half (57.4%) of the student did not use, 29.7% use sometimes and remaining 12.9% use computer regularly for the purpose of charting graphing. This finding illustrated less than half of the school going students use computer for the purpose of charting/graphing. Among the seven components of purpose of using computer the standard deviation for spelling checking is more (0.78) this indicates that for spell –checking, the mean is highly above or below the mean in comparison to other variables and for the use of tutorials it is low this indicates that for tutorials the mean is nearly above or below the mean.

**Table 3: Purpose of Using Computer (n=394)**

S.N	Items	Mean	SD	Number (Percentage)		
				D	S	R
1	Tutorials	1.61	0.68	196(49.7)	154(39.1)	44(11.2)
2	Problem Solving	1.77	0.73	161(40.9)	162(41.1)	71(18.0)
3	Writing	1.69	0.75	191(48.5)	136(34.5)	67(17.0)
4	Spell-checking	1.71	0.78	194(49.2)	121(30.7)	79(20.1)
5	Database	1.58	0.71	216(54.8)	126(32.0)	52(13.2)
6	Spreadsheets	1.62	0.73	206(52.3)	130(33.0)	58(14.7)
7	Charting/graphing	1.56	0.71	226(57.4)	117(29.7)	51(12.9)
Total		1.65	0.73			

### **Barriers of Using Computer**

Table 4 represents the Barriers of Using Computer by secondary level school students. The overall mean and standard deviation for barriers of computer use was 2.86 and 1.19 respectively. In terms of items the barriers of using computer by the students was rated on the basis of likert scales on 5 options via strongly disagree, disagree, neutral, agree and strongly agree. The finding revealed that few of the students (13.7%) were strongly disagree, 5.3% were disagree, 9.4% were neutral, 37.6% were agree and 34.0% were strongly agree on unavailability of sufficient computers based on number of students in their school. This statement indicates majority of the schools have insufficient computers based on number of students. This study showed that few (11.9%) of the students were strongly disagree, 18.8% were disagree, 46.4% were neutral, 14.2% were agree and 8.6% were strongly agree about the shortage of good feature of computers in school laboratory. This statement indicates majority of the schools lack good feature of computers in their laboratory.

This study explained that few (10.7%) of the students were strongly disagree, 11.4% were disagree, 51.5% were neutral, 20.1% were agree and 6.3% were strongly agree about the scarcity of computer software for the students in the school. This statement indicates majority of the schools did not have computer software for the students. Few (9.4%) of school students were strongly disagree, 13.7% of them were disagree, 43.7% were neutral, 21.1% were agree and 12.2% were strongly agreed with this statement "Lack of software integration in the classroom practices". This finding indicates that more students were in favor with this statement therefore it showed that school did not have proper amount of software for the students. This table represents that few (11.7%) of school students were strongly disagree, 21.6% of them were disagree, 24.6% were neutral, 25.9% were agree and 16.2% of the students were strongly agreed with the statement "lack of time to use computer related technologies". This finding indicates that more than two-fifth (42.1%) of the students were favor with this statement therefore it showed that school students did not have sufficient time to use computer related technologies.

More than one-fourth (26.9%) of school students were strongly disagree, 26.4% were disagree, 14.0% were neutral, 17.5% students were agreeing and 15.2% of the students were strongly agreed with the statement "lack of choice to use computer related technologies". This represents that more than half (53.3%) of the students were against with this statement therefore it indicated that choice to use computer related technologies was satisfactory.

Half (50.3%) of school students were strongly disagree, about two-fifth (39.8%) were disagree, 4.1% were neutral, 1.3% students were agree and 4.6% of them were strongly agreed with the statement " lack of interest of teacher in using

computer in classroom ". This represents that most (90.1%) of the students were against the statement therefore it indicated that school teachers' have interest to use computer in the classroom.

The finding revealed that more than one-fourth (26.6) of the students were strongly disagree, one-fifth (20.8%) were disagree, more than one-fourth (26.9%) were neutral, 12.7% were agree and 12.9% of them were strongly agreed that students lack financial support for digital resources at home. This represents that around one-fourth of the students were agree with the statement therefore it indicated that one-fourth of the students did not have sufficient budget for digital resources at home.

The level of barriers of Using Computer was recorded using grand mean of overall barriers related item as per previous study (Tezci, 2010). The barriers of using computer was leveled as high when the individual mean is higher or equal to grand mean (2.86) and low in reverse condition.

The mean scores of the responses in relation to 8 items are close to having high barrier (M= 2.86, SD= 1.19). The results indicate that students faced high level of barriers in using computer about five of components in use of computer while they faced low level of barriers on three of the components. Among the eight components for barriers of using computer the standard deviation for lack of choice to use computer related technologies is more (1.42) this indicates that for this variable, the mean is highly above or below the mean in comparison to other variables and for the variable "lack of interest of teacher in using computer in classroom practices" it is low this indicates that for this variable the mean is nearly above or below the mean.

**Table 4: Barriers of Using Computer**

S.N	Items	Mean	SD	Number (Percentage)					Level
				SD1	D	N	A	SA	
1	Lack of sufficient computers based on number of students	3.73	1.35	13.7	5.3	9.4	37.6	34.0	High
2	Lack of good feature of computers in lab	2.89	1.07	11.9	18.8	46.4	14.2	8.6	High
3	Lack of computer software for the students	3.00	1.00	10.7	11.4	51.5	20.1	6.3	High
4	Lack of software integration in the classroom practices	3.13	1.09	9.4	13.7	43.7	21.1	12.2	High
5	Lack of time to use computer related technologies	3.13	1.26	11.7	21.6	24.6	25.9	16.2	High
6	Lack of choice to use computer related technologies	2.68	1.42	26.9	26.4	14.0	17.5	15.2	Low
7	Lack of interest of teacher in using computer in classroom practices	1.70	0.96	50.3	39.8	4.1	1.3	4.6	Low
8	Lack of financial support for digital resources at home	2.64	1.34	26.6	20.8	26.9	12.7	12.9	Low
Total of Barriers of Using Computer		2.86	1.19						

SD= Standard deviation, SD1= Strongly Disagree, D= Disagree, N=Neutral, A=

Agree, SA=strongly agree

### **Perception of Students towards the use of Computer**

The level of perception of students towards the use of Computer was recorded using grand mean of overall perception related item as per previous study (Tezci, 2010). The perception of using computer was leveled as high when the individual mean is higher or equal to grand mean (3.39) and low in reverse condition.

The mean scores of the responses in relation to 16 items are close to having high barrier (M= 3.39, SD= 1.01). The results indicate that students faced high level of perception in using computer about five of components in use of computer while they faced low level of barriers on three of the components.

Table 5, shows that mean score of student motivation (mean= 4.02 and SD= 1.0) and teaching and learning (mean= 4.24 and SD= 0.82) were comparatively higher than challenge (mean= 2.43 and SD= 1.14). In terms of items high level of agreed was found in thinking about computer makes work more enjoyable (mean= 4.09 and SD= 0.91), computer is useful for accessing and organizing information (mean= 4.28 and SD= 0.81), computer is valuable tool that can be used for self-learning (mean= 4.49 and SD= 0.69), computer is useful for problem solving in learning (mean= 4.37 and SD= 0.72), computer related technologies improve quality of education (mean= 4.43 and SD= 0.89), Computer is very important tool for learning in classroom (mean= 4.36 and SD= 0.80) and level of agreed is low in computers make my work more difficult (mean= 1.65 and SD= 0.79), students do not need to know how to use computers (mean= 1.96 and SD= 1.23), computer related technologies are little value in education because they are difficult to use (mean= 2.24 and SD= 1.05), lack of confidence in using a computer to complete my work (mean= 2.42 and SD= 1.11). In overall percentage of strongly agree and agree are very high in student motivation and



teaching and learning related items and reverse in challenges related items which indicate that use of computer is very beneficial for several aspect of teaching and learning process in secondary level school students. . Among the sixteen statement for perception of students towards the use of computer the standard deviation for “I do not feel easy when using computer related technologies” is more (1.29) this indicates that for this statement, the mean is highly above or below the mean in comparison to other statements and for the statement “Computer is valuable tool that can be used for self-learning” it is low this indicates that for this statement the mean is nearly above or below the mean.

**Table 5: Perception of students towards the use of Computer**

S.N	Items	Mean	SD	Frequency in percentage					Level
				SD1	D	N	A	SA	
<b>a. Student Motivation</b>									
1	Comfortable of using computers for their work	3.85	1.17	6.3	10.4	7.6	43.1	32.5	High
2	thinking about computer makes work more enjoyable	4.09	0.91	2.5	3.8	10.7	48.0	35.0	High
3	I want to improve my skills in the area of computer related technologies	3.87	1.09	3.8	10.9	10.4	44.2	30.7	High
4	Computer is useful for accessing and organizing information	4.28	0.81	1.8	3.3	2.0	50.8	42.1	High
<b>Total (Student Motivation)</b>		4.02	1.0						

<b>b. Teaching and Learning</b>									
5	Computer is valuable tool that can be used for self-learning	4.49	0.69	1.3	0.8	1.0	41.1	55.8	High
6	Computer is useful for problem solving in learning	4.37	0.72	1.3	1.3	2.8	49.0	45.7	High
7	My study is more easy while using computer related technologies	3.54	0.99	3.3	10.2	32.2	37.6	16.8	High
8	Computer related technologies improve quality of education	4.43	0.89	3.0	2.5	1.3	35.0	58.1	High
9	Computer is very important tool for learning in classroom	4.36	0.80	1.0	3.0	4.8	40.9	50.3	High
<b>Total (Teaching and Learning)</b>		4.24	0.82						
<b>c. Challenges</b>									
10	Computers make my work more difficult	1.65	0.79	47.7	45.2	3.0	2.5	1.5	Low
11	Computers are of little value because all students are unable to purchase it	2.53	1.24	21.8	38.8	12.2	19.3	7.9	Low
12	Students do not need to know how to use computers	1.96	1.23	48.0	32.0	2.8	10.9	6.3	Low
13	Struggle for me to learn how to use computers	3.48	1.26	10.2	16.0	10.4	42.6	20.8	High
14	Computer related technologies are little value in education	2.24	1.05	21.6	52.5	10.7	10.7	4.6	Low

	because they are difficult to use								
15	I do not feel easy when using computer related technologies	2.70	1.29	20.6	30.7	17.5	20.8	10.4	Low
16	Lack of confidence in using a computer to complete my work	2.42	1.11	19.0	45.4	14.5	16.8	4.3	Low
Total (Challenges)		2.43	1.14						
Total of Perception of students		3.39	1.01						

## **Chapter V**

### **Summary, Findings, Conclusions and Recommendations**

This is the final chapter of the study. This chapter deals with the findings of the study, conclusion and recommendation. In this chapter, researcher have presented the major findings, conclusion on the basis of findings regarding the objectives of the study and provided recommendations to the policy makers, practitioners and researches.

#### **Summary**

A descriptive cross-sectional study was done to find out the status of use of computer and its associated factors in classroom learning among secondary school students of Dang district Nepal. The objectives of the study were to study the status of use of computer in secondary level students, to determine the purpose of students to using ICT devices and to assess the barriers of students to use computer. The required data for this study was collected from primary sources which include the survey among schools students in the study area. Data for this study was collected among secondary school students of Dang district, Nepal by using self-administered pre-tested questionnaire. Collected data was entered using Microsoft Excel and analysis was done using Statistical Package for Social Science (IBM SPSS) version 17. Frequencies, percentage, mean, standard deviation and level was applied to analyze the data.

The data tabularized by using Likert scale for statistical analysis. Regarding the purpose of using computer related variables 3 Likert scale measures i.e. do not use, sometime and regular use were used. Similarly, 5 Likert scale such as strongly

disagree, disagree, neutral, agree, strongly agree were used for barriers and perception of students towards the use of computer respectively.

### **Major Finding of the Study**

On the basis of analysis of data, the following were the major findings of this study:

- About half of school system have teaching and learning through computer
- Most of the teachers did not used computers in classroom teachers hence they have negative attitude towards the use of computer in classroom teaching.
- Most of the schools in Dang district do not have projector facility for teaching in classroom in secondary level schools.
- Around half of the teachers provide one site support in integration of curriculum
- About half of the schools have availability of Internet facility
- Barriers of using computer was high; majority of the schools have insufficient computers based on number of students, majority of the schools lack good feature of computers in their laboratory, majority of the schools did not have computer software for the students
- One-fourth of the students did not have sufficient budget for digital resources at home.
- Around two-fifth of computers in school lab are in working condition during the survey period.
- More than half of the students were not using computer for educational software such as database, spreadsheets and charting/graphing however they used it for normal purpose.

- In overall percentage of strongly agree and agree are very high in student motivation and teaching and learning related items and reverse in challenges related items which indicate that use of computer is very beneficial for several aspect of teaching and learning process in secondary level school students.

## **Conclusions**

This research study was mainly concerned to find out the status of use of computer and its associated factors in classroom learning among secondary school students of Dang district Nepal. The data has been collected through the interview using questionnaire from the 394 students of 8 secondary schools including 4 governments and 4 private. From the finding of this study, it concluded that about half of school system have teaching and learning through computer. Barriers of using computer was high; majority of the schools have insufficient computers based on number of students, majority of the schools lack good feature of computers in their laboratory, majority of the schools did not have computer software for the students. One-fourth of the students did not have sufficient budget for digital resources at home. The study also suggested that the use of computer is very beneficial for several aspect of teaching and learning process in secondary level school students. So, the researcher come to the conclusion that computer, internet and other technology had great potential to affect presenting the contents for teaching and learning.

## **Discussion**

The current study revealed that most of the schools in Dang district do not have projector facility for teaching in classroom in secondary level schools which is in line with the another study conducted in Iran, which found that current status of

resources, facilities and conditions for implementing ICT in schools is insufficient (Fathi Vajargah & Saadattlab, 2014).

The present study revealed that about half of the schools have availability of Internet facility, however another study conducted in Tanzania found that there is little application of the internet facility in the schools to develop classroom pedagogy (Kira & Mahumbwe, 2015). This divergence might be due to difference study settings, methodologies adopted and advancement in educational sector due to time.

The present study revealed that, majority of the schools have insufficient computers based on number of students, majority of the schools lack good feature of computers in their laboratory, majority of the schools did not have computer software for the students. This finding is to the similar to the findings of another study conducted in Spain where infrastructure is insufficient for ICT integration into the classroom (Gil-Flores et al., 2017).

In the current study, most of the teachers did not used computers in classroom teaching. This might be due to the unavailability of computers in the schools and another important reason might be due to teacher's knowledge about the use of ICT facilities. This finding was supported by the several other studies such as study conducted in Kathmandu, Nepal which concluded that mathematics teachers in Nepal are not well-familiar with 21st-century digital technology (D. Joshi & Rawal, 2021). Similarly another study conducted in Malaysia indicated that unlike developed countries, teachers in developing countries were less knowledgeable about the use of ICT facilities (Kandasamy & Shah, 2013). Likewise, another study conducted in East Africa indicated that one of the challenges facing the whole process of teaching and learning is the teachers' lack of knowledge about the use of ICT facilities (Tedla,

2012). Similarly another study conducted in Nigerian secondary schools found that teachers lack of expertise in using ICT was indicated as being the prominent factors hindering teachers readiness and confidence of using ICT during lesson (Tella et al., 2007).

### **Recommendations**

From the finding of the present study the researcher suggests the following recommendations.

- The teachers and students should be encouraged to use computer for teaching and learning.
- School should develop the system of teaching and learning through the use of computer to their students.
- Most of the teachers have negative attitude towards the use of computer in classroom teaching hence Ministry of Education (MoE) and NCED should provide on-site training and coaching, workshop and conference to secondary level school teachers.
- Every teacher should be capable to run the class through the use of projector.
- Education board of government of Nepal should apply e-learning training program and teaching learning activities through the use of computers.
- Education board of government of Nepal should develop the system of teaching and learning through the use of computer.

### **Recommendation for Further Studies**

Research on large scale is needed to see if the findings of this investigation can be generated to other such type of schools and colleges so that following area



should be focused. Qualitative study should also be recommended so that students and teachers perception towards the use of computer should be generated.

- Effectiveness of use of computer in teaching and learning in secondary level schools
- Attitudes of teachers and students towards the use of computer.
- Whether the recommendation made in this will be feasible to all other such type of project.

### **Limitations**

This study was conducted among only secondary level schools, missing lower and higher level students this might not represent the status of overall computer use in classroom learning. Similarly only quantitative method was applied in the study. Only descriptive statistics was used to analyze the data, so calculating inferential statistics was the limitation of the study.

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Appendixes

Appendix I


Consent Form in Nepali

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d]/f] gfd leid e',fn xf] . d clxn] lqe'jg o'lge{!;16 sl]Gb|o ljefusf] æ;'rgf tyf ;++rf/ k|ljlwÆ ljifosf] :gftsft/ (MICT Education) txdf cWoog ub}{ 5' . xfdL oxF cg';Gwfg ug}{ qmddf tYofí ;+sngsf] nflu cfPsf xf] .cfh xfdL tkfO{nfO{ olx ;Gbe{df s]lx k|Zgx? ;f]Wg rfxG5f} . d]/f] cg';Gwfgsf] ljifo “**Status of Use of Computer in Classroom Learning among Secondary School of Dang District**Æ /x]sf] 5 . tkfO{ of] ;j}{lf0fdf efu lng] glng] lgOf{o ug{ :jtGq x'G'fx'G5 Û ;fy} efu lng'ePkl5 klg tkfO{ s'g} klg j]nf of] cGtjftf 5f]8g ;Sg'x'G5 , o:t} tkfO{nfO{ s]lx JolStut k|Zgx? Kflg ;f]lw]5 t/ o:tf s'g} klg k|Zgsf] pQ/ lbg tkfO{ jfWo x'G'fx'g]5}g . of] cGtjftf6 tkfO{nfO{ cfly{s ?kdf tTsfnnfO{ s'g} kmfObf x'g] 5}g t/ tkfOaf6 k|fKt ;'rgfx? d]/f] cWoogsf] k|of]hgsf] nflu k|of]u x'g]5g ;fy;fy} ;DalGwt :yfg, lhNnf Pj+ s]Gb|Lo :t/sf ;/f]sf/jfnfx?sf] nflu eljiodf sfo{qmd / gLlt th{df ug{sf nfuL klg pko'St x'g ;S5g\ . tkfO{sf] s'g} klg hjfkm 7Ls jf a]7Ls eGg] x'b}g . tkfO{;FFu xfldn] @% ldg]6 leqdf ;Dk'Of{ k|Zgf]ln ;f]w]/ ;Sg]5f}FF .

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## Appendix II

### Survey Questionnaire in English

**Status of Use of Computer in Classroom Learning among Secondary School of Dang**

**District, Nepal**

**"Computer Using Scale"**

**Objectives of the study:**

This tool has been developed for the purpose of measuring computer knowledge, using status of computer, purpose of using computer, barriers of computer use, perception of students towards the use of computers of secondary school students of Nepal.

Information measured by this tool will kept secret and it will be used for research purpose only.

Prepared by

Bhishma Bhusal



**Identity number (ID Number):**

**Group: A**

**Personal Background:**

**Name:** \_\_\_\_\_ **Sex:** ( ) male ( ) female **Age in year:** .....

**Religion:** \_\_\_\_\_ **Types of school:** ( ) private ( ) public

**Address:** \_\_\_\_\_

**Name of School:** \_\_\_\_\_

**Please circle ( ) in one and only one in each row:**

QN	Questions	Answered to be circled or filled		Remarks
<b>Group A</b>				
<b>Socio- demographic Information</b>				
3.	Residential Status	a. City (Sub metropolitan city/Municipality)	1	
		b. Village (Rural Municipality)	2	
6.	Size of family	.....		
7.	Types of family	a. Nuclear	1	
		b. Joint	2	
		c. Extended	3	
8.	Mother's Education	.....		
9.	Father's Education	.....		
10.	Mother's Occupation	Agriculture	1	
		Business	2	
		Service	3	
		Labour	4	
		Housewife	5	
		Other specify.....	77	
11.	Father's Occupation	Agriculture	1	
		Business	2	
		Service	3	
		Labour	4	

		Foreign Employee	5	
		Other specify.....	77	
13.	To whom he/she live in house	a. Both father and mother b. Only with Mother c. Relatives d. Others (Specify).....		
14.	Family monthly income	a. Less than 10000 b. 10000-20000 c. 20000-30000 d. Above 30000	1 2 3 4	
<b>Group B</b>				
<b>Information regarding to Knowledge about Computer</b>				
15.	Have you heard about computer?	Yes No	1 2	If no don't fill below question
16.	From which media did you heard about computer?	Radio / Television Newspaper Schools subject Friends/Family	1 2 3 4	
17.	Which type of computers do you have heard? (Multiple Response)	Desktop computers Laptop Computers Tablet Smart Phones	1 2 3 4	
18.	Do you heard following types of computer?	Mini computers Micro Computers Mani frame computers Super Computers	1 2 3 4	
19.	What are the different types of computers do you have known about?	Micro Computers Mani frame Computers Mini Computers Super Computers	1 2 3 4	
20.	What do you think about the benefit of using computer?	Reading writing Educational purpose	1 2	

	(Multiple Response)	Business	3	
		Medicinal Purpose	4	
		For Internet Purpose	5	
<b>Group C</b>				
<b>Computer Using Status</b>				
21.	Does your school have a system of teaching and learning through computers?	Yes	1	
		No	2	
22.	Do you use computers for learning?	Yes	1	
		No	2	
23.	Are you using computers only in laboratory or you are using in classroom also?	Laboratory Only	1	
		Classroom also	2	
24.	If you are using computers, for which subject learning are you using it?	.....		
25.	How frequently are you using computers?	Sometimes	1	
		Regularly	2	
		Daily	3	
26.	Your teacher are using computers in teaching learning regularly or irregularly	Regularly	1	
		Irregularly	2	
27.	Are projectors available in your classroom currently?	Yes	1	
		No	2	
28.	Are your teachers' gives lectures by using Power Point slide?	Yes	1	
		No	2	
29.	Are your teacher's using Power Point projectors while showing other materials than lecture?	Yes	1	
		No	2	
30.	Did your teachers provide on-site support and advice for the use and integration of computers into the curriculum?	Yes	1	
		No	2	
31.	For what purpose do you use	For internet purpose	1	

	computers in your schools?	For skill development	2	
		For playing games	3	
		To learn computers programming as per curriculum	4	
32.	Which website do you use during your internet search in computers	Goole	1	
		Youtube	2	
		Email	3	
		Facebook	4	
31.	Do you use other computers except micro computers?	Yes	1	
		No	2	
32.	Availability of internet facility in school	Yes	1	
		No	2	
33.	No of students in classroom	.....		
34.	No of computers in computer lab	.....		
35.	Do all the computers in your schools computer lab have internet connection?	Yes	1	
		No	2	
36.	For what purpose do you use computers in your schools?	For internet purpose	1	
		For skill development	2	
		For playing games	3	
		To learn computers programming as per curriculum	4	
37.	Which website do you use during your internet search in computers	Goole	1	
		Youtube	2	
		Email	3	
		Facebook	4	

**Group D****Purpose of Using Computer**

Circle the proper response:

1 = Do not use at all/No desire to use    2 =would like to use    3 =currently use

<b>SN</b>	<b>Items</b>	<b>SD</b>	<b>D</b>	<b>N</b>
1.	Tutorials	1	2	3
2.	Educational games	1	2	3
3.	Problem solving	1	2	3
4.	Simulations	1	2	3
5.	Writing tools	1	2	3
6.	spell-checker, thesaurus)	1	2	3
7.	Desktop publishing	1	2	3
8.	Databases.	1	2	3
9.	Spreadsheets	1	2	3
10.	Charting/graphing	1	2	3



**Group E****Barriers to Computer Use****Circle the proper response:**

1 = Strongly Disagree   2 Disagree   3 = Neutral   4 = Agree   5 = Strongly Agree

<b>SN</b>	<b>Items</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
11.	There are too few computers for the number of students needing access to them.	5	4	3	2	1
12.	The computers in my computer lab have limited capabilities (out of date, not enough memory, incompatible with software, etc.)	5	4	3	2	1
13.	The computers in my computer lab have limited capabilities (out of date, not enough memory, incompatible with software, etc.)	5	4	3	2	1
14.	There are not enough computer software programs available for me to use.	5	4	3	2	1
15.	Most computer software programs are not adaptable for my particular classes	5	4	3	2	1
16.	I have lack of time to use computer related technologies	5	4	3	2	1
17.	There is not enough freedom for me to use computer related technologies the way I want	5	4	3	2	1
18.	I am not interested in using computer-related technologies	5	4	3	2	1
19.	There is poor economic support to purchase computers from my family	5	4	3	2	1

**Group F****Perception of students towards the use of computer****Circle the proper response:****1 = Strongly Disagree 2 Disagree 3 = Undecided 4 = Agree 5 = Strongly Agree**

<b>SN</b>	<b>Items</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
20.	I think that computers make my study work more difficult	5	4	3	2	1
21.	I am comfortable in using computer-related technologies for my own work	1	2	3	4	5
22.	I think computers make work more enjoyable	1	2	3	4	5
23.	It is difficult to me to learn about the use a computer successfully	5	4	3	2	1
24.	Students do not need to know how to use a computer	5	4	3	2	1
25.	Computer-related technologies are an important for improving the quality of education	1	2	3	4	5
26.	I have lack of confidence in using a computer to complete my work...	5	4	3	2	1
27.	I would like to improve my skills in the area of computer-related technologies	1	2	3	4	5
28.	The computer is useful for accessing and organizing information	1	2	3	4	5

29.	Computers are valuable tools that can be used to improve the quality of education	1	2	3	4	5
30.	Computers are useful for teaching and learning	1	2	3	4	5
31.	My study is positively affected when using computer related technologies	1	2	3	4	5
32.	I do not feel comfortable using computer-related technologies in my	5	4	3	2	1
33.	Computers are of little value in education because they can only be used to teach one or two subjects	5	4	3	2	1
34.	I think the computer is a very important tool for learning in my classroom	1	2	3	4	5
35.	Computer-related technologies are of little value in the classroom because they are too difficult to use	5	4	3	2	1

**Thank You very much for your valuable time and information**