Assessment of Digital Divide in Higher Education System: A Case of Far Western Province of Nepal

A Thesis Submitted to the Department of ICT Education
in the Partial Fulfillment for the Masters of Education in ICT

Submitted By
Narendra Singh Saud
Reg: 9-3-28-354-2019

Faculty of Education
Tribhuvan University
Central Department of Education
Kirtipur, Kathmandu, Nepal
2024

Assessment of Digital Divide in Higher Education System: A Case of Far Western Province of Nepal

A Thesis Submitted to the Department of ICT Education
in the Partial Fulfillment for the Masters of Education in ICT

Submitted By
Narendra Singh Saud

Faculty of Education
Tribhuvan University
Central Department of Education
Kirtipur, Kathmandu, Nepal
2024

Tu Registration No. 9-3-28-354-2019
Fourth Semester Examination
Roll No.7628250/076

Date of Approval of the Thesis Approval:…….....
Date of Submission:……..

त्रिभुवन विश्वविद्यालय विश्वविद्यालय क्याम्पस

शिक्षाशास्त्र संकाय कीर्तिपुर, काठमाडौ, नेपाल

शिक्षाशास्त्र केन्द्रीय विभाग

UNIVERSITY CAMPUS

TRIBHUVAN UNIVERSITY Kirtipur, Kathmandu, Nepal

CENTRAL DEPARTMENT OF EDUCATION

FACULTY ICT EDUCATION

पत्र संख्या :- मिति :-

RECCOMENDATION FOR ACCEPTANCE

This is to certify that Mr. Narendra Singh Saud has prepared this thesis entitled **Assessment of Digital Divide in Higher Education System: A Case of Far Western Province of Nepal** under my guidance and supervision. I recommend the thesis for acceptance.

Date……

……

Arjun Saud
Asst.Professor
Central Department of ICT Education
Tribhuvan University
Kirtipur, Kathmandu

त्रिभुवन विश्वविद्यालय विश्वविद्यालय क्याम्पस

शिक्षाशास्त्र संकाय कीर्तिपुर, काठमाडौ, नेपाल

शिक्षाशास्त्र केन्द्रीय विभाग

UNIVERSITY CAMPUS

TRIBHUVAN UNIVERSITY Kirtipur, Kathmandu, Nepal

CENTRAL DEPARTMENT OF EDUCATION

FACULTY ICT EDUCATION

पत्र संख्या :- मिति :-

RECCOMENDATION FOR THE EVALUATION

The following research guidance committee has evaluated and approved this thesis.

Signature

Mr. Romkant Pandey

Asst. Professor and Head
Department of ICT Education
Central Department of Education
Tribhuvan University
Kirtipur, Kathmandu

……
Chairperson

Mr. Arjun Saud

Asst.Professor
Department of ICT Education
Tribhuvan University
Kirtipur, Kathmandu

……
Member

Date: …….

त्रिभुवन विश्वविद्यालय विश्वविद्यालय क्याम्पस

शिक्षाशास्त्र संकाय कीर्तिपुर, काठमाडौ, नेपाल

शिक्षाशास्त्र केन्द्रीय विभाग

UNIVERSITY CAMPUS

TRIBHUVAN UNIVERSITY Kirtipur, Kathmandu, Nepal

CENTRAL DEPARTMENT OF EDUCATION

FACULTY ICT EDUCATION

पत्र संख्या :- मिति :-

EVALUATION AND APPROVAL

This thesis has been evaluated and approved by the following **Thesis Evaluation and Approval Committee:**

Signature

Mr. Romkant Pandey .....

Asst.Professor and Head (Chairperson)

Department of ICT Education

Central Department of Education

T.U., Kirtipur

Nawaraj Ghimire .....

Asst.Professor (External)

Sanothimi Campus

Bhaktapur

Mr. Arjun Saud .....

Asst.Professor (Supervisor)

Department of ICT Education

Tribhuvan University

Kirtipur, Kathmandu

DEDICATION

This thesis is dedicated to my loving family, respected gurus and colleagues for their unwavering support, encouragement, and sacrifices throughout this journey. To my parents, whose boundless love and guidance have been my pillars of strength, and to my siblings, whose belief in me never wavered. This work is a tribute to your enduring faith in my abilities and your constant presence in my life.

DECLARATION

I hereby declare that this thesis is my original work and has been completed under the supervision of Asst.Professor Mr. Arjun Saud at Tribhuvan University. I affirmed that all data, tables and findings presented in this thesis are accurate to the best of my knowledge and have not been manipulated and falsify.

……

Narendra Singh Saud

ACKNOWLEDGEMENTS

It is a matter of privilege and opportunity for me to express my deepest gratitude to all those who have contributed to the completion of the thesis. Without their support, guidance, encouragement and invaluable feedback, this endeavor would not have been possible.

First and foremost, I would like to thank to my respected supervisor **Mr**. **Arjun Saud** Assistant Professor, Central Department of ICT Education, T.U., for his close supervision, encouragement and mentorship throughout the entire research process. His constructive feedback and insightful suggestions have been instrumental to complete this study. Therefore, I am profoundly grateful for the opportunity to learn and grow as a scholar under his supervision.

I would like to express my heartfelt gratitude to **Mr**. **Romkant Pandey,** Assistant Professor and Head of the Department of ICT Education, T.U., and external expert of my thesis viva committee **Mr**. **Nawaraj Ghimire,** Assistant Professor of Sanothimi Campus Bhaktapur for their expertise, valuable guidance and constructive feedback during proposal which have significantly supported for the completion of the thesis writing**.** Their mentorship has expanded my understanding of the subject matter and enhanced the quality and depth of my study.

Furthermore, I would like to extend my appreciation to the librarians of Curriculum Resource Centre for their regular support for providing books, dissertations and required materials via physical and e-library. Those resources have broadened the scope of my study.

I am indebted to my family for their unconditional love, encouragement and belief in my abilities. The constant support and understanding have been my source of inspiration and strength throughout this journey. Similarly, my tremendous gratitude goes to my friends, relatives and teachers for giving valuable suggestions and motivation while preparing and editing the thesis despite their busy schedule.

I am deeply thankful to the colleges of different nine districts of Far Western Region for their cooperation and friendly nature. In the same way, I would like to thank all the respondents for their kind support and honest participation whose participation made my study possible. Thank you once again for your valuable support and guidance.

Narendra Singh Saud

ABSTRACT

This study investigates the status of the digital divide in higher education of Far Western Province of Nepal, examining contributing factors of digital divide. Data was collected using close-ended questionnaire and interview from 200 students of nine districts categorized into three Regions (Terai, Hilly, and Mountain). The study shows that accessibility to electricity varies among districts and Regions, with Terai districts exhibiting better access. ICT tools, particularly smartphones, are widely available, but access to other devices like laptops and desktops were limited, especially in Mountain Regions. Mobile data is the primary source of internet across districts, with Terai districts having better access to both mobile data and Wifi. However, internet speed satisfaction is generally low, particularly in Regions with geographical challenges. Additionally, the study reveals that economic barriers hinder students' affordability to purchase laptops or desktops. Access to online learning materials and digital course content varies significantly, with Terai Regions generally having more resources. However, disparities in infrastructure, digital literacy, guidance, and socioeconomic factors contribute to the persistence of the digital divide. Recommendations include expanding broadband internet services, investing in ICT literacy programs, and addressing socioeconomic constraints to mitigate disparities across all districts and Regions.

This research study consists of five different chapters along with references and appendices. The first chapter is related with the introductory part that inserts background of the study, statement of the problem, objectives of the study, research questions, significance of the study, limitations of the study and definition of key terms. The second chapter presents about the review of related literature, theoretical literature and conceptual framework. The third chapter deals with method and procedure of the study which includes design and method of the study, sources of data, population, sample and sampling of the study, tools for data collection, procedure for the data collection, data analysis and interpretation procedure and ethical consideration. The fourth chapter depicts analysis and interpretation of the results. The last chapter includes the findings, conclusion and recommendations prepared after analyzing and interpreting data.

Keyword: *Internet, Digital Divide, Learning Material, Digital Tool, Socio-economic Factors*

Table of Contents

Page Number

LIST OF TABLES

Table Number **Table** **Page Number**

LIST OF FIGURES

Figure Number **Figure** **Page Number**

LIST OF ABBREVIATION

ICT: Information and Communication Technology

OECD: Organization for Economic Cooperation and Development

TAM: Technology Acceptance Model

SSRP: School Sector Reform Plan

IT: Information Technology

GDP: Gross Domestic Product

NCF: National Curriculum Framework

CEHRD: Center for Education and Human Resource Development

IEMIS: Integrated Education Management Information System

SERP: School Education Sector Plan

UGC: University Grant Communication

MOE: Ministry of Education

PPT: Public Private Partnership

PPT: PowerPoint Presentation

WWW: World Wide Wen

MOOC: Massive Open Online Courses

DSL: Digital Subscriber Line

Chapter-1

Introduction

This chapter consists of background of the study, statement of the problems, objective of the study, research questions, significance of the study, delimitations of the study and definition of the key terms. This chapter tries to introduce the topic and its objectives of the research title, “Assessment of Digital Divide in Higher Education System: A Case of Far Western Province of Nepal.”

Background of the Study

In the contemporary world, technology holds paramount significance across various sectors, and its role in education is particularly noteworthy. The integration of technology into education has the potential to catalyze a transformative shift in the way knowledge is imparted and acquired. The rapid advancements in technology, coupled with the growing dependence on digital tools and resources, have revolutionized the educational landscape. Educational institutions have embraced Information and Communication Technology as a pivotal medium for facilitating teaching and learning activities. Within higher education, digital platforms and tools have become integral components for not only instruction but also research and communication. Across the globe, universities and institutions of higher education have progressively integrated ICT and online platforms into their pedagogical practices and educational processes. This integration is believed to foster active and experiential learning through simulations, virtual lab, multimedia content, interactive online discussions and collaborative learning. ICTs encompass the gathering, organization, and utilization of information in various forms, such as sound, images, and text, utilizing computers and telecommunication derivatives (Hamidi et al., 2011). As a result, technology's significance within educational institutions has continued to grow, sparking both interest and concern.

Nepal, a nation characterized by diverse geographical topography and socio-economic disparities, has witnessed a gradual integration of digital technologies within its education system. The adoption of technology in education has been rapidly gaining momentum in Nepal as well. A variety of ICT tools have been employed to provide quality education and achieve national education objectives. This digital transformation has particularly taken root within Nepal's higher education system, where digital tools, online resources, and virtual platforms have become

commonplace. Although Nepal's history of ICT implementation in education is relatively short, the last two decades have seen ICT emerge as a pivotal factor in enhancing the quality of education. Since the early 1990s, educational institutions have embraced the evolution of ICT, responding to the demands of science, technology, and the concept of a global village. Consequently, various policies and strategies have been formulated in Nepal such as the ICT in Education Master Plan, School Sector Reform Plan, and School Education Sector Plan to foster ICT's development and management in education. Notably, the Corona Virus of 2019 pandemic accelerated ICT's growth and proliferation of ICTs in education, providing a viable alternative to face-to-face teaching learning. During the pandemic, ICTs emerged as a vital conduit for disseminating knowledge, skills, and information.

The Far Western Province of Nepal, encompassing remote and marginalized communities, offers a distinctive context for investigating the dynamics of the digital divide in education. Nevertheless, the journey of integrating technology into education is not devoid of challenges. Addressing the digital divide is crucial to ensure equitable education and opportunities as the world become increasingly digitally interconnected. In higher education, ICT aids effective learning by offering novel pedagogical approaches. Currently, ICTs are employed in higher education to enhance learning outcomes by empowering educators with an array of innovative pedagogical tools. ICTs have been seamlessly integrated into higher education to impart knowledge, skills, and effective educational management. However, disparities stemming from geographical, economic, social and cultural factors pose challenges to ICT's equitable implementation in education, leading to the emergence of the digital divide.

The term "digital divide in education" refers gap between students with adequate ICT and modern technology access in education and those with limited access or not at all. In essence, the digital divide in education signifies inequalities in accessing digital technologies like computers, iPad, Smart phone, electric supply, internet connectivity, and other digital devices among students and educational institutions. This gap yields inequalities in educational outcomes, particularly affecting disadvantaged and marginalized students with inadequate digital infrastructure and resources. The term digital divide illustrates the social inequalities among the individuals who have access to basic infrastructure necessary for digital

learning, such as computer devices and the internet and individuals who do not (Garcia& Lee, 2020). Digital divide encompasses differences in access to digital skills, opportunities, knowledge, resources in educational context. Digital divide is also defined as disparities and inequalities that people experience in accessing information, knowledge and education through new technologies (Hiller, 2018).

A disparity exists between individuals who have easy access to electronic information and technology and those who have limited or no access. This access gap results in what is known as the "Digital Divide." The OECD defined this divide as the discrepancy in opportunities to access information and communication technologies and use the Internet across various socio-economic levels, encompassing individuals, households, businesses, and geographic Regions. This digital divide is existing nationally and internationally as well as within nations on different levels such as rural vs. urban, educated vs. uneducated, socially excluded vs. included, and economically disadvantaged vs. affluent. The divide extends even to the individual and gender levels.

The unique context of the Far Western Province of Nepal, which encompasses remote and marginalized communities, the digital divide assumes dimensions linked to socio-economic status, geographical location, internet accessibility, and infrastructure, global development, race, gender, age, culture and ability to use information and other technologies. While ICT is acknowledged as an innovative and effective educational tool, urban students tend to possess greater access to ICT resources and digital learning platform compared to their rural counterparts. Likewise, students from affluent economic backgrounds enjoy enhanced opportunities and resources for ICT, whereas those from disadvantaged backgrounds face barriers, leading to a growing digital divide.

In summary, the digital divide is a manifestation of inequalities arising from a complex interplay of variables including infrastructure, geography, gender, age, ethnicity, educational-status, marital- status, socio-economic status, working place, culture background, and more. Digital devices, infrastructure, broadband internet connectivity, electric supply, digital literacy and technological skills are pivotal in higher education to meet global demands, and ICTs enhance education's quality and equity. When discussing the digital divide within higher education, the aim is to

assess discrepancies in terms of ICT infrastructure availability, access to scholarly information, and the skills and competencies of users among institutions of higher learning. Additionally, ICTs are instrumental in elevating the quality of education, making it accessible and meaningful for all students. Addressing the digital divide is essential to bridge gaps among students, rendering the teaching and learning process effective, affordable, accessible, and meaningful. The quest for educational excellence necessitates narrowing the digital divide, empowering every learner to harness the benefits of technology-based education.

Statement of the Problem

The digital divide has emerged as a critical concern in contemporary higher education system of Nepal. This has been creating inequalities and disparities of the equitable learning environments. The Far Western province of Nepal characterized by its remote and marginalized geographical context; face various challenges in providing equitable access to digital technology for students across higher education institutions. There is limited access to digital technologies and internet connectivity in Far Western province of Nepal which has been creating digital divide. This disparity hinders student ability to engage fully in the digital learning environments and create barrier for their academic progress. The digital divide encompasses multiple dimensions, including socio-economic disparities, geographical situation, and inadequate infrastructure and so on. These factors collectively contribute to create disparities and hider student ability in the digital learning environments. Due to unequal distribution and access of technology, students have been facing the problem of digital divide. Students who are from disadvantaged/marginalized groups are not getting opportunity to participate in digital learning environments. In another words, it can be found inequalities between the students who are economically strong and poor, adequate infrastructure facility, harder access and so on.

Universities and colleges face the challenge of catering to students with diverse levels of technological preparedness. Deficiencies in technical skills have been identified as obstacles to student success. Institutions of higher educations from Far Western province have been facing the difficulties regarding ICT and its implementation. Far Western province of Nepal has diversified geographical topography, socio-economic conditions which create problem in equal distribution of digital devices. The specific context of the Far Western province generates disparities

in education due to limited internet connectivity, inadequate technological infrastructure. The disparities of digital divide have brought conflict in teaching learning process. The lack of access to reliable internet connectivity, appropriate digital devices and digital literacy skills in this Region exacerbates existing inequalities and may perpetuate social and economic disparities.

Situation of Far Western province of Nepal in the context of digital divide in higher education should be analyzed, assessed and evaluated properly. The proper assessment of the disparities can bring new way to generate strategies to overcome the digital divide of Education. Therefore, the researcher got interest to study and access the situation of digital divide in higher education of Far Western Region of Nepal. The researcher wants to know the impact of digital divide in higher education of Far Western province. It seems crucial to assess the extent of the digital divide in the higher education to understand its impact and develop effective strategies to bridge the digital divide to provide accessible and equitable opportunities to the students. The researcher got interest to analyze the underlying factors contributing to the digital divide such as so socio-economic status, geographical diversities, infrastructure challenge and so on. Digital divide is multifaceted dimension with different variables. Such variables should be analyzed, understand and assess properly which help to provide strategies to mitigate digital divide in higher education. Realizing this fact, the researcher got interest to explore the condition of digital divide in higher education of Far Western province of Nepal.

Objectives of the Study

The objectives of the study were as follows:

- To explore the status of digital divide in higher education in Far Western province of Nepal.
- To analyze the status of digital divide by Region and Districts in Far Western province of Nepal
- To analyze the factors contributing to the digital divide in higher education system.

Research Questions

The following research question were used to find the information from the participants to address the objectives of my study;

i. What is the current status of the digital divide in the higher education institutions of the Far Western province of Nepal?
ii. What is the current level of digital access and infrastructure in the Far Western province of Nepal, and how does it vary across different Regions and districts?
iii. How do the existing ICT infrastructure, access to digital resources, internet connectivity and digital literacy levels affect the digital divide in higher education institutions?
iv. What are the key factors that contribute to the digital divide within the higher education system of the Far Western province of Nepal and how do these factors differ among various Regions and districts?

Significance of the Study

As the study aimed to explore and analyzed the condition of digital divide in higher educations of Far Western province of Nepal, the researcher will assess the impact of digital divide on student learning outcome, academic performance and overall educational experiences. Therefore, the study shed light on a critical issue that impacts the accessibility and quality of education in the field of ICT. The findings of the study will be significant to guide the formulation of the strategies and interventions to bridge digital gap, enhance access to modern technology and create equitable quality education of system of Nepal. The finding of this study will not only contribute to analyze the condition of digital divide in the context of higher education but also provide valuable insight and framework for policymaker, educational institutions and stakeholder of Nepal.

Educators and institutions can implement measure to provide equal educational opportunities for all students after understanding the factors contributing to the digital divide. This research can be effective masterpiece for the students, educators, teachers, to understand the variables of the digital divide and perform accordingly. Similarly, the study can raise awareness about the importance of ICT in education for successful and effective learning outcomes. Far Western province of Nepal is full of diversities due to its culture, ethnicity, geography, socio-economic

status and so on. Therefore, the study will be helpful to find out the ways of mitigating digital inequalities regardless of existing socio-cultural disparities. The study will be fruitful to provide effective ways to empower marginalized, disadvantage communities. The finding of the study will be beneficial for teachers, students, administration, government and all the concern area that are directly and indirectly connected with the ICT in higher education. In the same way, the study can serve as a formulation for further research and academic innovation on the digital divide.

Delimitations of the Study

My study had following delimitations;

- The area of my study was limited on Far Western Region of Nepal only.
- The students of bachelor level were selected using purposive random sampling procedure as the population of my study.
- Only bachelor level institutions were taken as the area of the study.
- This study was limited in nine districts of Far Western Region of Nepal.
- The number of populations were delimited in two hundred from different institutions.
- The study was delimited on survey research design with close-ended questionnaire and semi-structured interview under mixed method.

Operational Definitions of the Key Terms

The following key terms were used in my study. The meaning of the key terms is presented as below;

Information and Communication Technology (ICT): A diverse set of technological tools and resources used to transmission, storage, generation, and dissemination of information.

Internet Infrastructure: A range of distant hardware and software components collaborating to transmit and receive information across different systems.

Digital Divide: The gap between people who have access to modern information and communication technology and those who don’t.

Digital Literacy: Ability to use, manage, understand and assess technology.

Higher Education: Types of education given in postsecondary institutions of learning. Bachelor degree is taken as higher education for my study.

Far Western Province: One of Nepal's seven provinces located at the western end of the country.

Chapter-2

Review of the Related Literature

This chapter comprises a detailed description of various reviewed works and their implications for the study. Additionally, it incorporates the theoretical and conceptual framework.

Review of Theoretical Literature

Theoretical literature is the collections of established theories, models, concept and principles that are relevant to the research topics and that can be applied to understand, interpret and conclude the research. Theoretical literature helps the researcher to bound our research and provide framework for interpreting and analyzing research finding. Therefore, this section consists of the theories and modules, purpose of using them and importance of these theories and topics in my study. Different theories were used to provide a strong theoretical base to my study. This review is used to engage critically with the broader academic landscape for the study.

Theories and Modules for Assessing the Digital Divide

Diffusion of Innovation Theory: In 1962, E.M. Rogers introduced the Diffusion of Innovation Theory, regarded as one of the earliest social science theories. Initially rooted in communications, this theory elucidates the process through which an idea or medium gains significance and disseminates within a particular population. Diffusion Innovation theory seeks to explain how, why, and what rates new ideas and technology spread. This theory developed by Rogers, is being used widely in the area of technology diffusion and adoptions. Rogers's diffusion of the innovation theory is the most appropriate for investigating the adaption of the technology in higher education and educational environments (Meldin, 2001). For Rogers, "a technology is a design for instrumental action that reduces the uncertainty in the case-effect relationships involved to achieving a desired outcome."(Parisot, 1995). Rogers presented four main elements in the diffusions of innovation theory; innovation which means new idea, practice or technologies provided by individuals, communication channels which means a medium for transforming information. Another element is time of innovation and fourth element is social system where interrelated units can be found to accomplish a common goal. Diffusion innovation theory has great

significance to study about new technology, their ways of adaption and implementation in specific populations.

The theory examines how new technologies are adopted and used within the populations. Therefore, this theory was help me to analyze the factors influencing the adoption of digital tools, digital learning platforms and modern technology in higher education in Far Western province of Nepal. This theory would be applied to comprehend the digital divide and how the adoption of the digital devices occurs within higher education of Far Western province of Nepal. This theory was supporting my study providing guidelines to analyze the adopting behavior of digital device of student from higher education institutions. As the theory categorized the individual as five different groups (innovation, early adaption, early majority, late majority and laggards), this theory was suitable to examine the barrier that causes disparities in adopting digital technology. Overall, a deeper understanding of how technology is distributed across different part of society can be traced out with the help of this theory. So, this theory would be guideline to assess the situation of digital divide in Far Western province of Nepal. And also, it was help to analyze how students and institutions in Far Western Region make decision regarding the adaption and use of digital technologies.

Critical Theory: Critical Theory emerged from the Frankfurt Schools during the early 20th century, representing a philosophical tradition with significant implications. The main scholars who contributed for this theory are Max Horkheimer, Theodor Adorno and Herbert Marcuse (Boham, W. et al. 2018). The theory analyzes, critiques and comprehends the challenge of society which can be generated from social, geographical, economical factor (Sahin, I. 2006). It is taken as modern and advanced theory with multidisciplinary nature which explores various aspect of society including culture, ethnicity, economics, education, geography and so on. Critical theory emphasizes the examination of power dynamics and social inequalities (Brookfield, 2014). It focuses on the critical examination and analysis of different factors such as technology education and their impact on society. This can be taken as theoretical framework that analyzes the underlying system of oppression, inequality and injustice.

In the context of assessing the digital divide in higher education, this theory would be helpful to understand the social and structural factors that contribute to disparities in access to modern digital technologies and internet connectivity. Critical theory helps to find out the causes of digital divide based on social, economic and political factors. This theory would be used to examine power dynamics and inequalities with its impacts towards application of technology in higher education. Similarly, this theory examines how unequal access to technology effects student's ability to engage fully in digital learning environments. Overall, critical theory offers a powerful lens through which the researcher was analyze the digital divide in higher education with the aim of fostering greater equity, access and social justice.

Structuration Theory: Structuration Theory developed by Anthony Giddens which examines how social system are created, maintained and changed through the interplay of individual agency and societal structures (Kolasi, K. 2020). The theory focuses on duality of structure which means human agency are intertwined and mutually dependent. Similarly, this theory emphasizes on rules and resources where rules present normative guidelines, conventions and expectations that guide behavior and resources means a source through which individual perform actions. This theory has been applied to a wide range of fields such as sociology, education, and information and communication technology.

This theory would be helpful to understand the societal factors of digital divide. In other words, Structuration theory was help to explore how societal structures influence and are influenced by the unequal distribution of digital resources and technologies. This theory would be used to overview societal factors such as policies, infrastructure, economic conditions, cultural norm and so on that influence digital divide. This theory emphasizes the concept of resources so it helps to understand the situation of resources in higher educational institutions of Far Western province of Nepal. This theory analyzes structural factors and individual agencies interact to shape digital inequalities. This theory was helping my study to analyze the situation of digital divide from the societal perspectives. And also, it will help to understand student's capacity and the status of resources in higher educational institutional institutions especially focusing on Far Western province of Nepal.

Technological Acceptance Model: The technological Acceptance Model is a theory introduced by Fred Davles in late 1980s. The TAM is used to understand the situation of technology, its drawbacks and usefulness in education. The technology acceptance model observes the perception of users towards technology and its usefulness. Similarly, TAM focuses on user's intention towards technological devices and digital learning platforms which helps to analyze the perception of students about technology. The model implies that if an application is expected to be an easy to us, to more likely it is that this will simulate the acceptance of the technology (Davic, 1989). The developments of the model and measures for technology acceptance have made significant theoretical contributions and have a practical value.

Technological Acceptance Model can be applied to understand students' perceptions and behaviors related to the adoption of digital technologies in higher education. It helps to identify factors that influence students from diverse background to accept and use educational technologies. This was helping my study to understand the perception of students and teachers is about technology and its usefulness. This model was help to understand the situation of digital divide from the perspective of students. I would use this theory to investigate student's perceptions of how digital technologies enhance their learning. This theory was provide insight to my study to find out the factors contributing to the digital divide and identity strategies to bridge the gap.

Policy Review Related to ICT

School Sector Reform Plan (2009-2014), is a long-term strategic plan which was proposed by the government of Nepal, ministry of Education. The plan outlined objectives and aimed at restructuring educational systems, drawing from diverse experiences of previous models and programs, while also considering current national needs and the global context. Similarly, this project aimed at improving the quality of education restructuring the schooling system and making the education competitive with global context. The plan was implemented in different phases. The plan consisted on ten different chapters which focused on the themes to the SSRP Implementations. This chapter encompasses early childhood education and development (ECED), to foundational literacy in basic and secondary education, alongside lifelong learning initiatives. Additionally, technical education and vocational training are integral components. The plan is further enriched by provisions for teacher professional development and the implementation of Capacity Development Evaluation (CDE) measures.

ICT has been using for a new and cost-effective avenue for capacity building. The SSR plan worked coordinating with ICT master plan. The SSRP also coordinated with different programs for implementing ICT program and technical supports. The plan made different strategies for the proper access of technological education.

IT Policy (2010) was launched by the Information Technology High-level Commission Government of Nepal. This policy primarily aims to leverage Information Technology for the advancement of key sectors such as education, healthcare, agriculture, tourism, trade, and numerous others sectors. This policy emphasis on economic consolidation, development of democratic norms and value, enhancement of public awareness and contribute significantly to poverty alleviation. The vision of policy was to place Nepal on global map of IT and transform it into knowledge-based society. The IT policy intended to provide special opportunity to increase access of Women, Dalit, Disable and other communities in rural and remote access to IT. The IT policy emphasis on providing quality services by creating environment of healthy competition between the IT related services and Internet Service Provider (ISP). Free and open source in the IT will be encouraged. The policy also emphasis on localization of IT and its use in local language to promoting rural information centre as multipurpose tele-centre for the flow of information including resources. In addition, the use of VOIP (Voice Over Internet Protocol) technology will be made in rural areas that do not have access to the IT. The IT policy focused to establish, promoted and expanded IT park. In this park IT related product especially, software and services will be encouraged. Government Integrated Data Centre (GIDC) will be established and promoted to transfer the service of all ministries and government agencies. This policy encouraged to IT enabled services, development of digital content, animation and remote maintenance. The IT policy intended to internet access to be expanded in school and comfortable environment will be created in educational institution. Continuous, timely and quality enhancement of IT related to education and skilled manpower will be developed.

The IT policy 2010 was issued with the vision of establishing Nepal on the world map of IT and objectives of the policy are to bring IT to the common people and increase employment, to establish knowledge-based society. After the implementation of this policy, the area of IT has been developing at faster pace, which the current policy and strategic has not been able to adequately address for example,

the existing opportunities and challenge in the field of free and open-source software, Broad-band data Network, wireless technology and service outsourcing created by globalization.

ICT in Education Master Plan (2013-2017), initiated by the Government of Nepal (GON) under the Ministry of Education (MOE) in March 2013, underscores the integration of Information and Communication Technology (ICT) as a strategic avenue to fulfil overarching educational objectives. Intended to serve as a guiding framework for the next five years with long-term implications, this plan delineates a comprehensive strategy for ICT integration across educational sub-sectors. Its core objectives encompass expanding equitable access to education, enhancing educational quality, narrowing the digital divide, and refining delivery mechanisms. The overarching vision is to extensively leverage ICT to bolster education accessibility and quality for all.

The master plan presented four components as four pillars in ICT in education namely (1) development of ICT infrastructure (2) Development of HR (human resource) (3) development of digital learning material and (4) enhancement of education system. the master plan prioritizes public-private partnerships (PPP) to fortify infrastructure and allied domains. An integral aspect is the robust framework for monitoring and evaluation. Emphasis is placed on augmenting ICT infrastructure within schools and educational institutions, fostering ICT-enabled learning environments, and broadening internet access to facilitate resource sharing through educational platforms. Moreover, the plan accentuates human resource development in ICT, focusing on teacher training, policy formulation, and competency enhancement within the education sector. It underscores the creation of digital learning materials to enrich the teaching-learning experience through interactive digital resources. Additionally, it advocates for policy and regulatory enhancements to optimize ICT utilization in education, fosters research and development initiatives, and bolsters of MIS and AOS within the education sector.

National Information and Communication Technology Policy in 2015, was carried out by Government of Nepal, Ministry of Information and Communication. The policy has versioned of securing the goals of sustainable development to improving the condition of nations. The main purpose of formulating the policy was

to make possible the nation of Digital Nepal with poverty reduction and socio-economic development. The main objectives of the policy were empowering the participation of Nepal to Global knowledge society, efficient, transparent, inclusive delivery of government services by using ICT, promoting research and innovation in different areas, creating easily, accessible, affordable services of Internet and other ICT services such as E-Commerce, E-Governments etc, producing skilled human resources in the ICT sectors, addressing gender-based inequalities and bring the disadvantaged and marginalized group (woman, dalit etc) in national and community-based ICT initiatives and so on. The policy made different goals that aimed to be fulfil since 2020 such as digital literacy skills up to 75%, accessibility of broadband services about -90%, population increment of GDP for at least 75%, accessibility of internet for all the population and so on.

The policy emphasized ICT in education and research and made various strategies. Formulating the integration of ICT in Nepali education system, formulating e-school, to promote e-learning and e-education for improving quality of education and enhancing the access to education are the policies that was carried out by the plan. Similarly, the policy planned to develop public-private-partnership to increase digital literacy to develop integration of skills in teaching learning process in all the school, colleges, to develop teacher training for the capacity development of the teacher in the field of the ICT. The policy is important to develop quality, inclusive, accessible and equitable education by reducing digital divide and education divide and developing IT enabled education management information system in education. Special program aimed to be formulated and implemented to promote the adoptions of educational technologies and internet access within educational institutions targeting all level of students which include disadvantaged, marginalized, and discriminated students. The proper implementation of the plan seems to be significant to reduce digital divide, education divide in the field of educations. Overall, the policy is important for the improvement of education and developing digital literacy.

National Curriculum Framework (NCF 2019), was approved by the government of Nepal to bring the change in the school curriculum. The document has been taken as the main guiding framework for school level education system. NCF 2076 has provisioned many significant changes in the school curriculum. The living document has the aimed to embody rigor and high standards and create coherence in

what is tough in school. The framework has six sections and five appendences. Backward of the NCF theoretical and policy of curriculum development curriculum structure of the school education, Student education and certification and National curriculum Implementation are six sections of the NCF.

The framework has included strategies and polices regarding with Information Communication and Technologies (ICT). The NCF has made different strategies for the implementation of ICT at school education like ICT as a medium for information delivery of school administration, implementation of ICT facilitates learning process, ICT as tool for capacity building of teacher, curriculum designer, and specialist and ICT as a separate subject to develop students' practical education. Similarly, the framework emphasizes to prepare curriculum related with ICT for digital literary and technology curriculum. The curriculum development based on ICT is emphasized from the school level in order to develop manpower that can be early consumed in the technological labour market. Similarly, the framework focuses on acquiring procedural skills necessary for scientific discovery and research and appropriate for modern technologies in daily Life. The framework seems a great package to reduce digital divide in higher education.

Digital Nepal Framework (2019), was formulated by the Ministry of Communication and Information Technology under Government of Nepal in 2076 B.S. The frameworks are designed with eight sectors which aimed for digital literacy, eradication of digital divide and promotion of ICT and its tools, urban infrastructure, finance, truism, energy and education are the eight sectors of framework. The framework has focused and based on these eight sectors and made different strategies to improve the conditions of the nation in the fields of digital world. The framework lays out a strategic blueprint for equipping human capital to seize emerging economic prospects by fostering cutting-edge educational ecosystems. It underscores the necessity of integrating IT education into the curriculum of schools and colleges, thereby fortifying Nepal's educational framework. The framework has emphasized to expand training program for technical teachers, develop technical subjects, installing digital tools to make systemic education systems. It has also focused on setting up educational/technical facilities in rural area of Nepal to bring them into the main stream. Establishing rural telecommunication infrastructure to offer complimentary high-speed internet services to community schools is a focal point outlined in the

framework's priorities. The framework has presented the nation of smart and intergraded technological classes at college and public schools including projector, audio-visual equipment's, digital whiteboard, laptop, and tablet for students, Wifi-connectivity, online learning platform and websites.

To sum up, the framework is a roadmap of developing digital literacy in Nepal. It has presented problem-solution and strategies, their implementations and responsible sector for the development of ICT in the field of digital world. The proper follow up of this framework help to eradicate digital divide.

School Education Sector Plan 2022/23-2031/32, was developed by the Ministry of Education, Science and Technology. The development of the SESP has a crucial milestone working toward Nepal's long-terms goal of quality education for all. The main objectives of the plan are to ensure quality education to the entire citizen of the Nepal especially who are socially and economically disadvantaged group and children with disabilities, to ensure effectiveness of education services strengthening alternative pathway of education. The policy presents different policies and strategies for quality, equitable, accessible and affordable education. Incorporating ICT into education to enhances student learning, fosters relevance in the learning process, and ignites intrinsic motivation. The initiative strives to broaden the utilization of ICTs within teaching methodologies, thereby refining pedagogical approaches and enriching the calibre and applicability of education. Additionally, the endeavour seeks to streamline access to various educational services, rendering them more accessible, efficient, and cost-effective through ICT solutions, ultimately extending quality education to a wider spectrum of learners.

The plan has presented different strategies in the field of ICT education. Providing basic ICT facilities and equipment to school, establishing an integrated educational ICT center at federal level, developing capacity of all teachers with the development of interactive digital materials are some strategies which have presented by the plan. In the same way, managing the CEHRD learning portal, Enhancing the systematic management of IEMIS, broadening the utilization of diverse services, and optimizing information management and communication systems stand as additional strategies outlined by the SSEP. Overall, the plan has given more emphasis in the development of ICT in education presenting various strategies and principles.

Moreover, the plan incorporates anticipated outcomes concerning ICTs in education to attain its objectives effectively. Therefore, the plan can be taken as an effective and crucial framework for mitigating digital divide and development of ICT in education.

In conclusion, all the policies related to ICT such as SSRP, ICT Master Plan, ICT policy, IT policy, National Curriculum Framework, SESP, and Digital Nepal Framework all talk about the proper implementation of ICT in education. The primary emphasis of these policy revolved around seamlessly integrating ICT into the teaching and learning endeavors spanning all educational domains. The overarching goal was to broaden equitable access to education, elevate its quality, bridge the digital gap, and refine delivery systems. These policies were fundamentally designed to promote the widespread adoption of ICT within the education sector, thereby fostering accessibility and quality education for all. The policies and programmes intended to internet access to be expanded in school and comfortable environment will be created in educational institution. Continuous, timely and quality enhancement of IT related to education and skilled manpower will be developed. However, the policies have inserted all necessity strategies and principles of ICT education but the part of implementation seems less practical.

Review of Related Empirical Literature

Intekhab Alam. (2011), written the article "Higher Education and Digital Divide in India" presented the situation of digital divide and its impact in higher education system of India. The primary aim of the research was to examine the endeavors undertaken by the Indian government to narrow the digital disparity within higher education. The author underscores a spectrum of initiatives, schemes, and projects introduced by entities like the UGC and other governmental bodies. These efforts are geared towards enhancing accessibility to information and communication technologies (ICTs) as well as scholarly resources across universities and colleges. The paper emphasizes the challenges and barriers faced in achieving this goal. The article categorizes the digital divide at international, national, and various levels within a nation, such as rural vs. urban, educated vs. uneducated, socially included vs. excluded, and more. Throughout India, there exists a notable scarcity of households owning computers, and both internet usage and broadband subscriptions remain relatively low. Recognizing this digital gap, the Government of India instituted the

National Assessment and Accreditation Council (NAAC), underscoring the significance of ICT infrastructure and its application within the teaching and learning paradigm. The study revealed that most of the higher education institution is using internet and digital tool to improve the administrative process of higher educations. The Indian government has initiated several projects and schemes aimed at mitigating the digital disparity. Among these initiatives are the UGC Scheme for Establishing UGC-Network Resource Center in Colleges, the UGC Scheme for Establishing/Upgrading Computer Center in Universities, the UGC-INFONET Connectivity Program, the National Knowledge Network (NKN), the National Mission on Education through Information and Communication Technology (NMEICT), INDEST-AICTE Consortium, and N-LIST (National Library and Information Services Infrastructure for Scholarly Content). These represent pivotal efforts by the Indian government to narrow the digital gap. The study presents the two level of digital divide. First were the digital divide between students and scholars who might have equally access to technology. Similarly, another level of digital divides was between have and do not have access to the hardware and software skills. Overall, the article also highlights challenges such as unequal access to technology, language barriers, power supply issues, and the need for improvement in technology adoption in certain Regions. Despite these challenges, the author concludes that the Indian government's efforts, along with public-private partnerships, show positive progress in bridging the digital divide in higher education.

Zhou et al. (2011), carried out a research-based article entitled "The digital divide in rural South Asia: Survey evidence from Bangladesh, Nepal and Sri Lanka". The primary aim of this study was to explore strategies for closing the digital gap through innovative organizational approaches, particularly focusing on affordable internet access in developing nations. Employing surveys, data was gathered from 500 participants spanning three South Asian countries: Bangladesh, Nepal, and Sri Lanka. The research delved into household-level factors influencing computer and internet usage, considering various demographics such as income, household size, education, and occupation, alongside infrastructure elements like electricity quality and access to telephones and televisions. These findings are increasingly shaping the global landscape, significantly impacting the lives of people worldwide. Therefore, the article tries to explore its impact on developing country with different variable such as

income, telephone density, regulatory quality, electricity access and consumption and so on. The main focuses of the research were to focus on individual regressions of the three countries with different themes. The researcher unveiled their discoveries concerning computer usage, revealing a correlation between higher educational attainment, proficiency in the English language, and increased computer usage. Additionally, the study underscored that individuals with a greater inclination towards other media and communication services tend to view the internet as a supplementary asset. Notably, the impact of income per capita varied across the three locations surveyed. While income exhibited a minor positive marginal effect in Sri Lanka, it demonstrated no significant effect in Nepal, and conversely, yielded a negative yet significant co-efficient in Bangladesh. The findings regarding internet usage found to be similar within three countries. The data showed that all of the countries use computer and internet used for educational purpose. The data revealed that computer and internet users were generally more educated and education was founded to be an important positive determinant to control digital divide. English language fluency was also focused for IT usages. The results supported the role of the subsides to internet and computer access to promoted increased education attainments. Overall, the study shows the three different countries with their condition and situation regarding use of compute, internet for different purposes. The researcher reached in the conclusion that education is the key determinant for minimizing digital gap and spreading digital literacy.

Hollywood et al. (2018), carried out the research entitled "Addressing Information Literacy and the Digital Divide in Higher Education" aimed to access and tackle the digital and information literacy proficiency of marginalized students. The research focus on the challenges posed by the digital gap and educational disparities, particularly impacting economically disadvantaged, first-generation, and minority student populations. The researcher used multi-methodological approach for the study involving surveys, pre and post testing, and analysis of placement test scores over five years. Dichotomous, Likert-scaled, and ranking questions were the tools used for data collection. The article tried to explore the challenge of information literacy with their possible solution to eradicate digital divide in higher education. The article presented different hypotheses on the basis of the findings were presented. The study under consideration emanates from a historically Black university's commitment to

enhancing digital and information literacy among its students. The article presented specific learning outcomes that student should able to perform. Students should be able to describe essential components of computer systems, database, and basic technological activities etc. And also, article presented that student should have ability to use email for communication, PPT for professional presentation, search engine to study broadly. The article contributes to the literature by shedding light on first-generation minority college students, a population increasingly enrolling in higher education but often underprepared for academic success. The article shed light on the observation that students enrolled in minority-serving institutions often lacked the requisite technological skills necessary for their academic pursuits. Similarly, the finding of study shows that importance of computer application courses to improve the technological skill of the students. The study's results indicate that minority-serving institutions struggle to bridge the technology gap, with students lacking essential technology skills upon college entry. Proper use of online simulated learning and assessment system with immediate feedback play the crucial role for the development of student skills on the technology. The article presented the challenge of students in higher education regarding digital literacy such as inadequate computer software application, insufficient technological skills and so on. The results of the study indicated that higher education institution should have sufficient program for the development of technological skills and reduction of the digital divide. Overall, the article showed the problems, solutions of the students who were studying in higher educations.

Pandey & Jha (2020), wrote a research-based article "Digital Divide: Exploring National and international Approaches to Bridge the Digital Divide in the Perception of developing countries especially in the context of Nepal" which was published in international Journal of Latest Trends in Engineering and Technology. The primary aim of the research was to investigate effective solutions for addressing the challenges of the digital divide in Nepal through an appropriate approach. Analyzing problem of IT literacy and internet transmission, examining the variables of digital divide such a as geographical differences, income and workplace etc. The researcher used ethnographic research with interview as a data collection tool. The finding of the study showed that Information Technology should be introduce after meeting the goal of basic human needs and fundamental human rights. Geography,

infrastructure, education, economic statuses are the determinants for technological literacy and digital divide. As defined in the finding of the articles, the most creative uses of ICTs in development to meet local needs may involve computer-based technologies, including embedded chips; satellite-based information rather than computer, email, internet access and so on. The researcher findings focused on local language and local contents in ICT tools to mitigate digital disparities. It's crucial that the perspectives and needs of marginalized, disadvantaged, and underserved communities are reflected in the bodies responsible for shaping ICT policies related to regulation and infrastructure. The research also underlined the significance of the 'Access Rainbow Model,' a conceptual framework comprising seven layers representing access to information and communication infrastructure. In essence, narrowing the digital gap poses a significant challenge, particularly between rural and urban areas, which remains one of Nepal's foremost obstacles. Geographical differences, culture, telecom infrastructure, education, language play significant role to influence diffusion of ICT to the people. The study presented digital gap based on the nature of job, competency skill, income, affordability, geography and so on bridging digital divide needs affordable computer, with cheaper hardware and multilingual operating system with different applications.

Bharti L. (2020), carried out the research-based article entitled "Digital Divide in Higher Education" which discusses the significant issue of the digital divide in education during the digital era. The article specifically focuses on the digital gap in higher education and emphasizes the function of libraries and library professionals in reducing this divide. This study presented the digital disparities in universities, colleges, students, scholars on the basis cities and rural areas, educated and uneducated individuals, economic classes, industrially developed nations, and ability to use information and other technologies. The article discusses five major types of digital divides in higher education. The first types of digital divide presented in the article are on the basis of literate vs. illiterate computer users. The study shows that the members from the university and colleges which is existed in village seem to have less infrastructure and facilities in the comparison of member from the urban area which creates inequalities between the users. Another, types of digital divide were based on skilled vs. unskilled internet users. This presents the use of internet for subjective knowledge. Similarly, awareness vs. unawareness about information

availability was another type of digital divide presented in the study. That indicated all the resources might be meaningless if users become unaware to search, retrieve and use which also create digital inequalities to the students. Technological rich vs. poor is another type which indicates inequalities of users between upper, middle and rich, poor classes. The fifth types of digital divide are Multilanguage as a barrier because most of the content in the internet are available in English. So, students can get difficulty in keyword selection of the subject matters. The author presented the role of academic libraries in reducing the digital divide. They should provide necessary information, improve information sharing methods, and offer training on using digital resources. The study was shows librarian has great significant role for information collection, conservation, digitization, retrieval and disseminations. The study presents some measures to mitigate the digital divide in higher education such as sufficient infrastructure, awareness to use all the technological tools, proper use of library and its resources, information literacy and computers. Overall, the article presented digital divide, its causes and remedies to reduce the disparities in higher education. The study focused on conducting skill development workshop and seminar on web content evaluation, information searching in database.

Baral. (2022), wrote an article entitled, 'The Digital in Online learning: A Case study of University students in Nepal.' The main aim of this study was to analyze the online teaching learning experience of the university teachers and students during COVID-19 pandemic in Nepal. The study tries to explore the challenge of online teaching learning such as availability of ICT infrastructure, technological skills, and management of online classes by the higher education institutions. The use of ICT in teaching learning was a demand and become mandatory for the completion of the educational goals in adverse situation. To understand the conditions of university students about online learning the researcher used qualitative research utilizing semi-structured interviews with 15 participant students and five teachers for data collections. The study revealed the experience of teacher and students from Prithivi Narayan Campus. Most of the participant's students were in the side of collaborative learning. Perception of the students and teacher themselves for online classes was found different according to the geographical location where they belonged to. The students who are from urban area are facing less difficulties and challenges than students from rural and remote areas. Students of rural areas were

facing difficulty to attain a class due to improper electronic devices, expensive internet, and insufficient technological tools and so on. Similarly, the article revealed unpreparedness, incomplete and skilled teacher behaviour in the initial phase of COVID-19. The study explores challenges for virtual classes which were faced by the students and teachers such as less attendance of the students in a class, lack of inadequate infrastructure, inappropriate environments, lack of internet connectivity, lack of affordable data packages. On the same way, female and girls ware facing more problems because their family problems. Along with the challenge, the researcher presented some benefits of the virtual classes such as Creative, constructive, medium for academic work during the pandemic increase confidence of speaking, study from homely environments, a new alternative for the face-to-face learning and increase digital literacy etc. Overall, online classes carry both positive and negative sides. The study also revealed that online classes were best alternative of learning, create techno-friendly environment and so on. On the other side problem of electricity, lack of internet was the drawback of online classes. The finding of the study focused on its effectiveness and usefulness. According to the study, online classes divided the students into separate fragments such as have and have not, working and non-working, male and female students which should be minimized by concern place and people. Overall, the study becomes a pathway to reduce the division on online learning among students.

Implication of Reviewed Literature

Literature review is done to analyze and comprehend different documents which guide the research objectives and findings of a researcher. In the literature review, my primary focus was to scrutinize and assess prior research conducted on the topics. Literature review helped me to focus on my research objective, methodology and its interpretation and also it helped me to find out the gap between previous document and my study.

After reviewing different journals, articles and dissertations authored by different scholars such as Intekhab Alam (2011), Zhou et al. (2011), Hollywood et al. (2018), Pandey and Jha (2020) and so on. Those works helped me to understand national and international scenario regarding digital divide in educational sector. It guided to specify my study and its area of concern. Literature review helped me to make more specific and objective to my study. All the books and articles that I

reviewed, presented different situations regarding digital divide in education which made me interested to study about the situation of digital divide in higher education.

Similarly, theoretical review helped me to develop the study understanding different theories and its importance in the field of digital divide. Theories provided guidelines to run my study smoothly. It provided different information that helped me to generate research objectives, conceptual framework of the study. Policies helped me to understand the strategies that have been implementing in the field of ICT. Similarly, policy helped me to know the situation of digital divide and government's strategies to mitigate the gap which paves the way to my study. Theoretical review clarified the basic and broad concept about the condition of digital divide. In conclusion, both theoretical as well as empirical review supported me to find out research gap, to fix the design of research, to generate research objectives and question and also to determine tools, method of data collection.

Conceptual Framework

Conceptual frameworks refer to the roadmap for the research which shows the overall concepts of our study. The primary aim of the conceptual framework is to illustrate the relationship among different concepts and variables within the study, as outlined by Miles & Huberman (1994), a conceptual frameworks "Lays out the key factors, construct, or variables, and presumes relationship among them" (p.440). The suitable conceptual framework for my study is figured bellow:

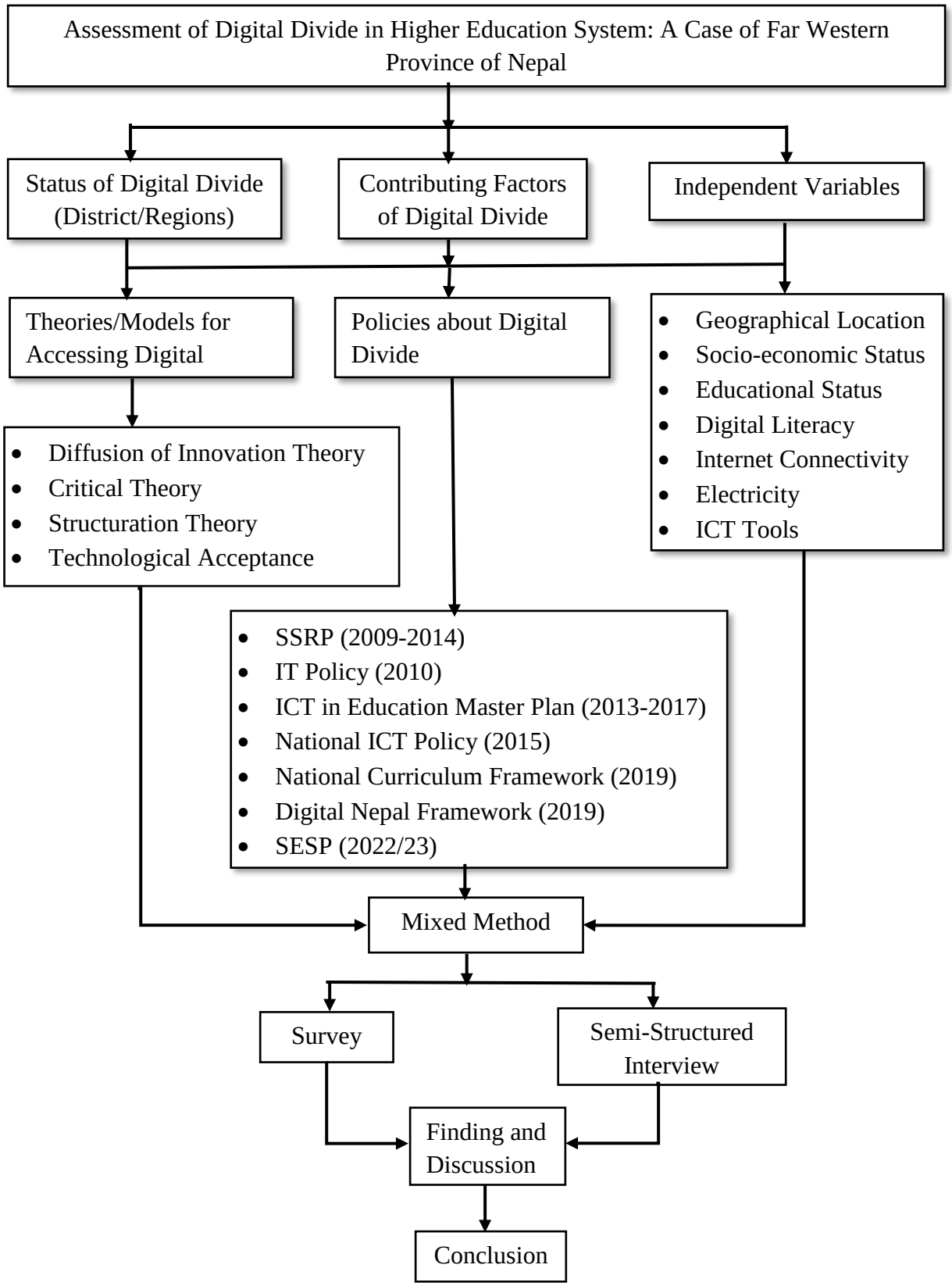


Figure 2.1
Conceptual Framework

Chapter-3

Methods and Procedures

Methodology refers to a particular procedure employed to identify, select, process, and analyze information pertaining to our research topic. Methods create boundaries and guided a researcher to study so methods of the study play vital roles for the effective and proper research. This chapter includes the methods and procedures that were applied to address the objectives and research question of the study.

Design and Methods of the Study

Both qualitative and quantitative research design can be used to study. Both have their own significance in research. We can select the research design based on research purpose. Therefore, I used mixed method including both quantitative and qualitative research design to find out the condition of digital divide in higher education based on Far Western Province of Nepal. I chose the embedded design under mixed method of research where quantitative research design was the main method to collect data and qualitative was auxiliary research design. A mixed-methods research design is a procedure for collecting, analysing, and mixing both quantitative and qualitative methods in a single study or a series of studies to understand a research problem (Creswell & Clark, P. 2011).

I used survey research design under quantitative research as the main technique of data collection. Survey is a technique of data collection in which information is gathered through oral or written questioning. Survey design is used to find out the fact by collecting the data directly from population and sample. Survey research is defined as “a method of collecting information about a human population in which direct or indirect contact is made with the units of the study (e.g. individuals, organizations, communities etc.) by using systematic methods of measurements like questionnaire and interview schedules.” (Warwick & Lininger, 1975). The primary objective of the survey is to gather data on the specific subject matter and present the collected data in different tables and figures to analyzing the data. Therefore, I selected survey as the main research design to collect information based on my study objective.

The steps that Robert et al. (2004) suggested for the conduction of survey which I followed during my study are as follow;

Step 1: Defining the research objectives.
Step 2: Choosing the survey mode.
Step 3: Selecting the sampling method.
Step 4: Designing the survey instrument.
Step 5: Pilot testing the survey.
Step 6: Selecting the sample.
Step 7: Data collection.
Step 8: Data entry and cleaning.
Step 9: Data analysis.
Step 10: Interpretation of results.

Similarly, I also used interview as a tool for data collection under qualitative research design. An interview is a qualitative research method used to collect primary data asking one or more people about their opinions regarding the topic. Semi-structured interview was used as an auxiliary tool to collect and support the data of survey research. A semi-structured interview is a data collection method that relies on asking question within a predetermined thematic framework (George, T.2022).

Sources of Data

In order to conduct the research, the investigators require access to both primary and secondary data sources. The data sources utilized in my study are outlined below;

Primary Source of Data

Primary sources of data refer to the original pieces of information or evidence that are collected directly from the sources, without any intermediaries. Primary sources are essential for research. Therefore, I selected 200 bachelor level students of different campuses of Far Western Province of Nepal and they were my source of primary data. I collected data using close ended questionnaire and semi-structured interview. Interview was used for twenty-seven students of the selected college.

Secondary Source of Data

Secondary sources of data mean data collected by someone else earlier using primary sources. I read and reviewed various journals, articles, books, government documents, websites and dissertations as the secondary source of data collection. This source of data helped to complete my research effectively.

Papulations, Sample and Sampling Strategy of the Study

Papulations is the group of people that are taken as the sample for the study. Similarly, a sample is the specific group that I used to collect data. The size of the sample is always less and specific and that selected according to my purpose of the study.

The papulations of the study were the bachelor level students of different campuses of Far Western Region of Nepal. Two hundred bachelor level students of different nine districts from Far Western Region was selected as the sample of my study which was selected random sampling procedure.

Tools for Data Collection

Close-ended questionnaire under survey design was my main data collection tool to address my purpose of the study. Semi-structured interview was also conducted to support the data of close-ended questionnaire. Therefore, close-ended questionnaire and semi-structured interview were used to collect the perceptions of the students to gain reliable data to write the findings. Close-ended questionnaire was used for data collection applying Likert Method, Dichotomous Method and Checklist Question whereas semi-structured interview was used for the selected participants to gain deeper knowledge of the research topic.

Data Collection Procedure

Data was collected from primary as well as secondary sources. Close-ended questionnaires and semi-structured interview were the research tool for the data collection. These were the most important tools for data collection and secondary data were supportive data that was gathered from articles, journals related with the topic.

Survey design and semi-structured interview were used to collect primary sources of data. Before applying the tools, I developed the format for the questionnaire and interview. Then, I got approval to conduct research at those selected

campuses. I took formal research letter from Tribhuvan University to get permission for entering to those campuses. Then, I talked those campuses and consulted with principals stating the purpose and objectives of my study. I took permission of campus to take the students as sample of my study. Then, I built a rapport with them and enter into my research purpose. I obtained permission from them to administer a questionnaire, using close-ended questions through google forms. And also, I asked approval to operate interview with the students via phone call. I asked permission to record the interview and start as scheduled on my study. I collected their responses following all the ethical considerations. After collecting data, I expressed my gratitude to the college and students for their support.

Data Analysis and Interpretation Procedures

The gathered data were analyzed and interpreted quantitatively and descriptively to understand the conditions of digital divide in Far Western province of campuses. After analyzing the data, I inserted that information as the findings of my study. I checked the provided data and edit them. After editing them, I coded them and again recording was done with the collected data. After that data was entry and I tabulated them with description as the findings of the study.

Ethical Considerations

Ethical consideration is an important as well as essential part of the study which binds our study with different norms and values. Every researcher should be aware about the ethical considerations while conducting any studies. Therefore, I followed all the ethical considerations during my study. I was conscious regarding my respondents in terms of their personalities, weakness and professional ethics. For this at first, I took approval from the department of ICT education, T.U and research guidance committee along with the objective, the methodology and expected outcomes.

I made sure that the privacy and identities of the respondents would be confidential. I made the participants sure about their privacy that the information they provided me would be strictly confidential. I used pseudo names for participants and campuses identified with specific codes or number to keep private and confidential. Overall, I considered and maintained the privacy, confidentiality, integrity, trustworthiness, availability, and credibility in my research.

Chapter-4

Analysis and Interpretation of Data

In this chapter, a comprehensive examination of the results is provided along with a discussion on the gathered data. The primary objectives of this study were to investigate and assess the status of the digital divide in higher education within the Far Western Province of Nepal, along with identifying contributing factors. The collected data were analyzed and interpreted properly and presented them into different themes as outlined below;

Status of Digital Divide and its Contributing Factors

This theme mainly covers about the collected data and its analysis. Mainly this theme deals with the analysis and interpretation of close ended questionnaire which were used to explore the status and contributing factors of digital divide in Far Western Region. All the responses were analyzed and interpreted in details using different tables and charts under sub-themes which are presented below;

Accessibility of Students on Electricity

Electricity is one of the key factors to determine digital divide. Without electricity, it is almost impossible to run technological tools such as laptop, computer, projector, smart phone and so on. Therefore, the researcher had asked questions to find out the status of electricity in Far Western Region. The two questions were asked to the students to know the accessibility of students on electricity at home and college. For this, the following table and charts are shown;

Table 4.1

Accessibility of Students on Electricity

District Name	Respondents		Home				College			
			Yes		No		Yes		No	
	N	%	N	%	N	%	N	%	N	%
Kanchanpur	30	100	30	100	-	-	30	100	-	-
Kailali	30	100	30	100	-	-	30	100	-	-
Achham	20	100	14	70	6	30	20	100	-	-
Baitadi	20	100	17	85	3	15	20	100	-	-
Dadeldhura	20	100	20	100	-	-	20	100	-	-
Doti	20	100	20	100	-	-	20	100	-	-
Bajura	20	100	16	80	4	20	20	100	-	-
Bajhang	20	100	13	65	7	35	20	100	-	-
Darchula	20	100	12	60	8	40	20	100	-	-

Figure 4.1

Accessibility of Students on Electricity (District-wise)

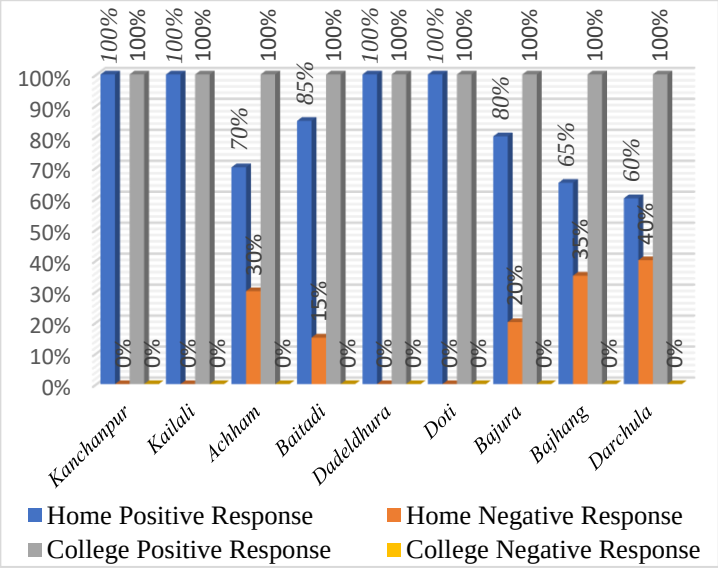
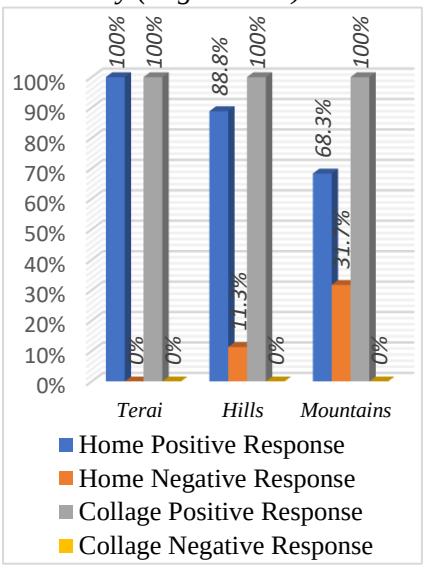


Figure 4.2

Accessibility of Students on Electricity (Region-wise)



The table no. 4.1 shows the status of electricity at nine districts of Sudurpaschim province of Nepal. The table presents accessibility of students on electricity at home and college respectively. As presented in the table, it is found that all students of Kanchanpur and Kailali districts have the accessibility on electricity at home as well as college. Similarly, 70% students of Achham are seen accessible and 30% students are found to be deprived from the access of electricity at home. Furthermore, when analysing the data of Baitadi, the result shows 85% students are using electricity at home. The data shows that all the students from Dadeldhura and Doti have the facility of electricity at home as well as college. Eighty percent of students of students of Bajura have access of electricity at home where 20% don't have the facility. In the same way, only 65% and 60% students of Bajhang and Darchula districts respectively have access of electricity at home. But all the students from different nine districts have access of electricity at their college. To provide clear glance, the chart no.4.1 has been presented above.

The presented table carries different nine districts which are categorized as Terai, Hilly and Mountainous districts. The first two districts Kanchanpur and Kailali are categorized as Terai Region. Similarly, Achham, Baitadi, Dadeldhura and Doti are listed in Hilly Region. And the last three districts Bajura, Bajhang Darchula are considered as mountainous districts. The researcher had tried to analyze status electricity being based on Region too. Regarding this, the collected data are presented

in chart in the above figure no. 4.2. The chart no.4.2 shows that Terai Region has almost full access on electricity at home. The data shows that 88.8% students from Hilly Region have the facility of electricity at home. In the same way, only 68.3% students of mountain Region are found who have electricity access at home. It seems that the access of electricity has reached all the colleges of Far Western Region.

In conclusion, the study shows that very few districts students have the proper facility of electricity at home. Only four districts, Kanchanpur, Kailali, Dadeldhura and Doti have the easy access of electricity. Other remaining districts students are somehow depriving from the access of electricity. But all the colleges of those respective districts have the access of electricity. After analyzing districts wise data, it is shown that Terai Region has more easy access on electricity than Hilly and Mountain Regions. The students from Terai belt have been getting benefits from electricity than others Region. Due to this unequal distribution of electricity power supply, digital divide is increasing because electricity is a major component to reduce digital disparities. Moreover, unequal access on electricity has been flourishing digital divide in Far Western Region.

Availability of ICT Tools

ICT tools indicate the technologies that facilitate the gathering, processing, storing of the information. Computers, smartphones, tablets, software applications, internet services are some examples of ICT tools which are used for educational, business, communicational purposes. It has the major role to make access of everyone towards digitalization. Therefore, I asked the questions to know what kind of ICT tools the students had with them and their parents. After collecting data, the following tables and charts have been prepared.

The given table no.4.2 reveals the status of ICT tools at Far Western Region. Among the respondents of Kanchanpur and Kailali districts only 16.7% and 20% students had Desktop respectively. Similarly, the data shows that very few students of Baitadi and Dadeldhura, Doti and Bajura districts had Desktop with them. Likewise, Achham Bajhang and Darchula districts students didn't possess Desktop. When generalizing data related with Laptop availability, it was found that more than half of the students Kailali and Doti districts had Laptops only. Which is percentalized as 80% and 50% respectively. Most of the students of remaining seven districts had a

smaller number of laptops. Only 5% students from Bajhang had Laptops among the respondents.

Table 4.2

ICT Tools to Students

District Name	Respondents		Desktop		Laptop		Tablet		Smartphone		E-Reader	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Kanchanpur	30	100	5	16.7	11	36.7	1	3.3	30	100	1	3.3
Kailali	30	100	6	20	24	80	4	13.3	30	100	3	10
Achham	20	100	-	-	4	20	-	-	20	100	1	5
Baitadi	20	100	1	5	4	20	-	-	20	100	-	-
Dadeldhura	20	100	3	15	8	40	-	-	20	100	1	5
Doti	20	100	4	20	10	50	1	5	20	100		-
Bajura	20	100	2	10	4	20		-	20	100	-	-
Bajhang	20	100	-	-	1	5	-	-	20	100		-
Darchula	20	100	-	-	3	15	-	-	20	100	-	-

Figure 4.3

ICT Tools to Students (District-wise)

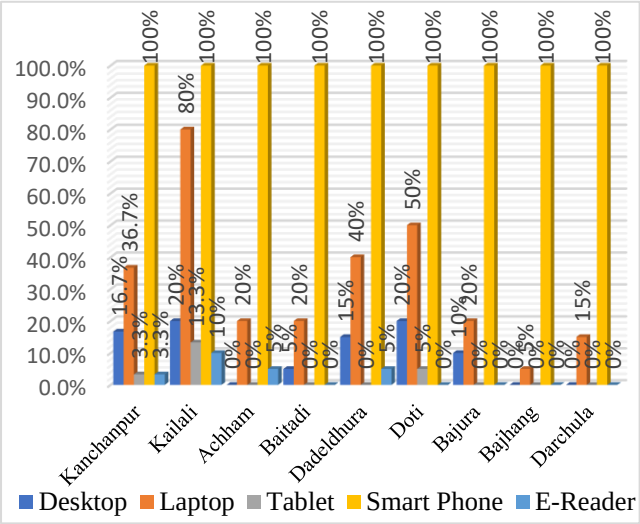
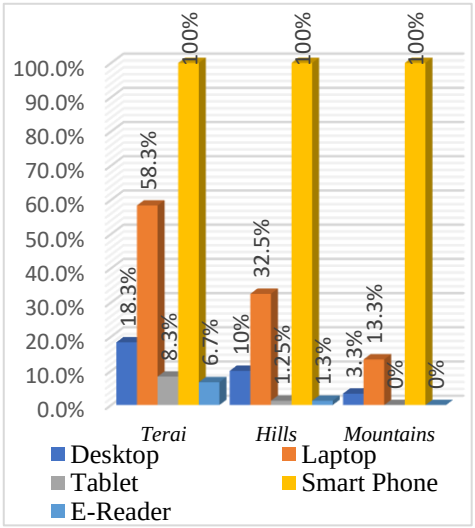


Figure 4.4

ICT Tools to Students (Region-wise)



Similarly, only 3.3% students from Kanchanpur, 13.3% students from Kailali and 5% students from Doti had Tablet with them where rest of the district's student did not found with the access of Tablet. In the case of SmartPhones, the table clearly shows that all of the students had SmartPhones. Which means the accessibility of SmartPhones had wide in areas. Regarding another ICT tool, E-Reader, very limited number of students from Kanchanpur, Kailali, Achham and Dadeldhura had access on E-reader.

The above presented chart no.4.3 also shows the status of students who had ICT tools and those who hadn't. The presented chart no.4.4 shows the data of three different Regions of Sudurpaschim province regarding accessibility of ICT devices by students. The chart shows that the students who belonged from Terai Region had easy and more access on ICT devices than Hilly and Mountain. For example, 58.3% of students from Terai Region had access on Laptop whereas only 32.5%, students from Hill and 13.3% from Mountain Region found in the access of Laptop. Not only in the case of Laptop almost all devices had unequal access based on Region which is dearly depicted in the chart above.

In conclusion, the students who belonged to the districts from Terai Region had more access on ICT devices than other. A smaller number of students from Mountain Region had access on the ICT tools while comparing Terai and Hill Region. From this, it can be found that the geography play's vital role while distributing ICT devices. Due to the geographical hazards the access of electricity, transportation, internet access can be very limited which causes digital disparities on resources.

After knowing the situation of student's personal access on digital devices, the researcher wanted to find out how many family members possessed ICT devices. Therefore, the perception and responses of students regarding the accessibility of ICT devices from their family has been presented below in table and charts.

Table 4.3

ICT Tools to Family Member

District Name	Respondents		Desktop		Laptop		Tablet		Smartphone		E-Reader	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Kanchanpur	30	100	2	6.7	5	16.7	-	-	27	90	1	3.3
Kailali	30	100	3	10	6	20	1	3.3	30	100	2	6.7
Achham	20	100	-	-	1	5	-	-	20	100	-	-
Baitadi	20	100	1	5	4	20	-	-	17	85	-	-
Dadeldhura	20	100	1	5	2	10	-	-	20	100	-	-
Doti	20	100	2	10	3	15	1	5	20	100	-	-
Bajura	20	100	-	-	2	10	-	-	17	85	1	5
Bajhang	20	100	-	-	1	5	-	-	19	95	-	-
Darchula	20	100	-	-	1	5	-	-	15	75	-	-

Figure 4.5

ICT Tools to Family Member (District-wise)

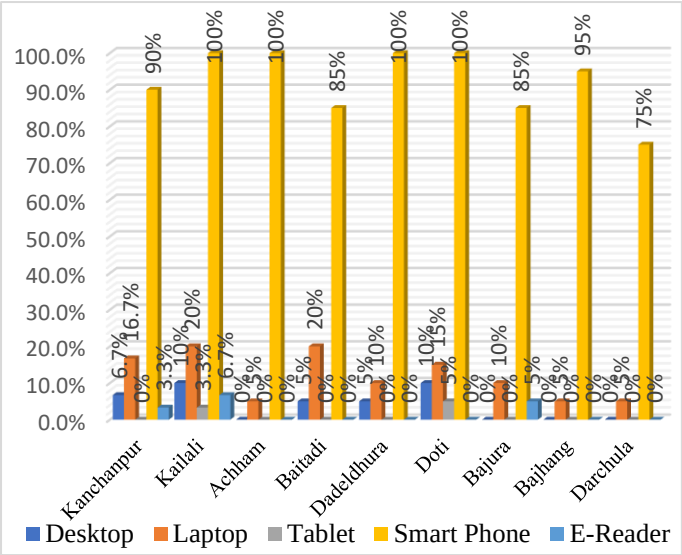
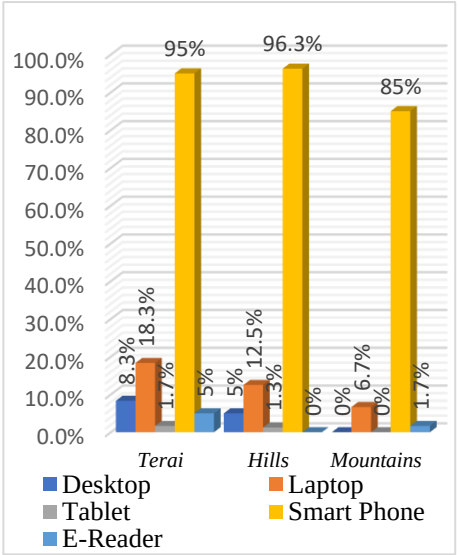


Figure 4.6

ICT Tools to Family Member (Region-wise)



The above presented table no.4.3 shows that very few numbers of family members of students had Desktop from Baitadi, Dadeldhura and Kanchanpur districts which were portrayed as 5%, 5% and 6% respectively. Likewise, 10% family member from Kailali and 10% family member from Doti had access on desktop but others remaining districts family member student had no access on desktop. Another ICT devices accessibility of Laptop had found in all the districts but in a very less number. Only the family member of Kailali and Baitadi had 20% accessibility on Laptop and other districts had less than 20%.

While talking about Tablet accessibility, the table as well as chart shows that only 3.3% family member from Kailali and 5% of Doti had access on Tablet. The data depicts that most of the family member possessed SmartPhones from all districts. likewise, very few numbers of family member had E-Reader. The family members were from Kanchanpur (3.3%), Kailali (6.7%) and Bajura (5%) districts had access on E-Reader. The researcher had presented chart no.4.5 for clear glance.

Similarly, the chart no.4.6 shows that Terai Region had more access like previous theme. Though most of the devices were found in all the districts of three Regions but the districts from Mountain had very less access than Hill and Terai. Accessibility of SmartPhones had seen high access in all the Regions but other devices like Desktop, Laptop, Tablet and E-Reader had unequal distribution. We can

take an example of Tablet where 1.7% from Terai Region and 1.3% from Mountain Region had access on Tablet.

In conclusion, the family member of students had possessed various digital devices. The Family members of Kanchanpur, Kailali, Doti had most of the digital devices but the number of those devices seemed very less. Only SmartPhones can be seen in high number in all the districts of different Region. From this, it can be concluded that geography increase's digital divide but only this is the cause. Unequal distribution of digital resources, feasible availability and affordability of such devices also the factors which increase digital divide in Far Western Region.

Source of Internet

Source of internet refers to the medium or means of internet from which internet can be connected or people get opportunity to connect World Widely via different devices. The sources of internet include mobile data, Wifi, DSL, Dial-up and so on. Regarding this, different five variables were given to the respondents to collect the data related with the sources of internet.

This theme describes the sources of internet at home and colleges of the respondents. The first item was related with the sources of internet at home. For this data was collected, analyzed and tabulated as below;

Table 4.4

Source of Internet at Home

District Name	Respondents		Mobile Data		Wifi		Dial-up	DSL	No-Access	
	N	%	N	%	N	%	N	N	N	%
Kanchanpur	30	100	30	100	16	53.3	-	-	-	-
Kailali	30	100	30	100	20	66.7	-	-	-	-
Achham	20	100	18	90	4	20	-	-	2	10
Baitadi	20	100	20	100	5	25	-	-	-	-
Dadeldhura	20	100	20	100	6	30	-	-	-	-
Doti	20	100	20	100	10	50	-	-	-	-
Bajura	20	100	15	75	2	10	-	-	5	25
Bajhang	20	100	19	95	-	-	-	-	1	5
Darchula	20	100	14	70	2	10	-	-	6	30

Figure 4.7
Source of Internet at Home (District-wise)

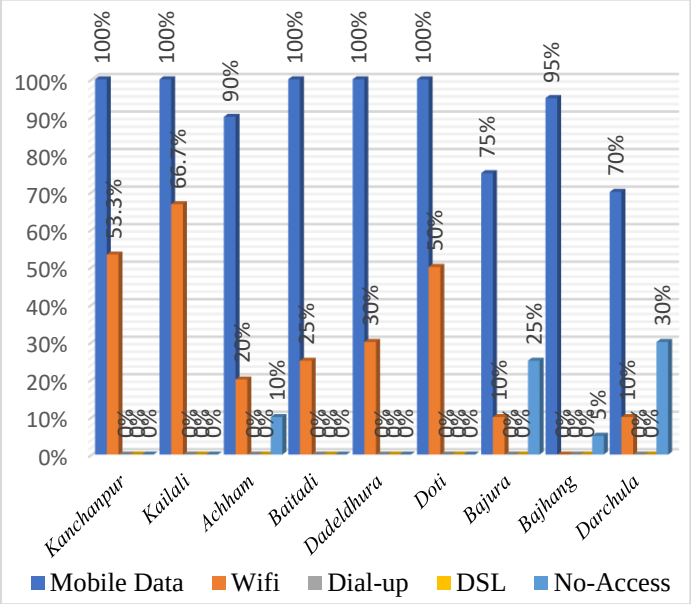
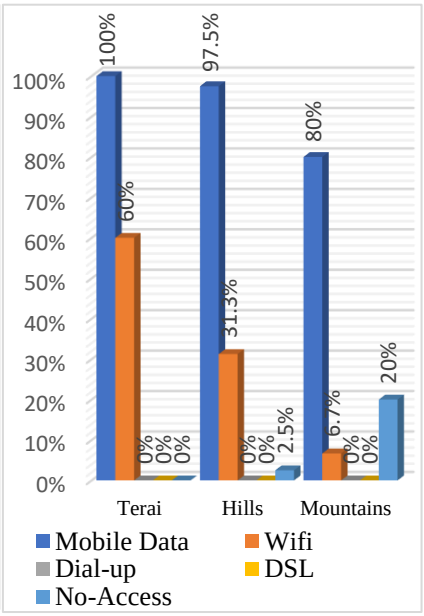


Figure 4.8
Source of Internet at Home (Region-wise)



The above table no.4.4 portrays that almost all of respondents used mobile data as source of internet. The students of Kanchanpur, Kailali, Baitadi, Dadeldhura and Doti used mobile data as the main source of internet, which can be seen in the given table clearly. More than 90% students from Achham and Bajhang were found to be using internet through mobile data. Likewise, more than 70% students of Bajura and Darchula responded that they also used internet via mobile data. Regarding another source of internet Wifi, the table shows that 66.7% students of Kailali used Wifi as the source of internet at home. Similarly, more than 50% students of Kanchanpur and Doti had access of Wifi at home. Other districts such as Achham, Baitadi were not facilitated by Wifi due to electricity access, geographic and economic reasons. The students of Bajhang responded that they did not have access of Wifi at home. There are no one from any districts who had access on Dial-up and DSL as source of internet. Some of the respondent's response that they did not have access of any sources of internet connectivity. Ten percent respondents from Achham, 25% from Bajura, 5% from Bajhang and 30% from Darchula responded that they had no access to any sources of internet. To make clear for understanding the table no.4.4 and chart no.4.7 has been presented above.

The table no.4.4 and chart no.4.7 only showed about the district wise information about the source of internet at home. But the chart no.4.8 shows the data

which depicts the Region-wise status. Describing the chart, it was clear that Terai Region had easy access of mobile data and Wifi. Similarly, 97.5% respondents from Hilly Region said that they use mobile data whereas 31.3% only used Wifi as source of internet and 2.5%, had no any access. While looking towards Mountain Region, it has comparatively less access to all the resources because 80% respondents used mobile data and only 6.7% use Wifi. Twenty percent students seemed deprived from these responses.

To sum up, most of the districts seemed depend on upon mobile data as the source of internet. More than half of the respondents responded that they had less access on Wifi because only three districts (Kanchanpur, Kailali and Doti) had more than 50% accessibility. After analyzing the data, it is found that main sources of internet for the students at home were mobile data and Wifi. The districts of Terai reason had comparatively more access on wife. Due to geography, sufficient digital devices, easy access on electricity, physical infrastructure and its affordability, most of the students found in shadow of digital world.

After analyzing the sources of internet at home, the researcher wanted to know the sources of internet at college. Therefore, the respondents were asked to display the situation of their college and the results is shown as below;

Table 4.5

Source of Internet at College

District Name	Respondents		Mobile Data		Wifi		Dial-up	DSL	No- Access	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*N*	*N*	*%*
Kanchanpur	30	100	5	16.7	30	100	-	-	-	-
Kailali	30	100	30	100	30	100	-	-	-	-
Achham	20	100	20	100	15	75	-	-	-	-
Baitadi	20	100	8	40	20	100	-	-	-	-
Dadeldhura	20	100	20	100	20	100	-	-	-	-
Doti	20	100	9	45	20	100	-	-	-	-
Bajura	20	100	7	35	20	100	-	-	-	-
Bajhang	20	100	12	60	12	60	-	-	-	-
Darchula	20	100	10	50	10	50	-	-	-	-

Figure 4.9

Source of Internet at College (District-wise)

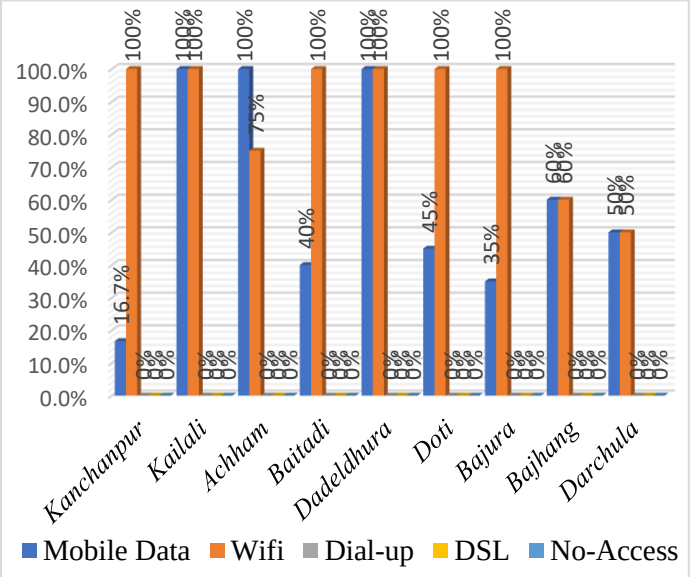
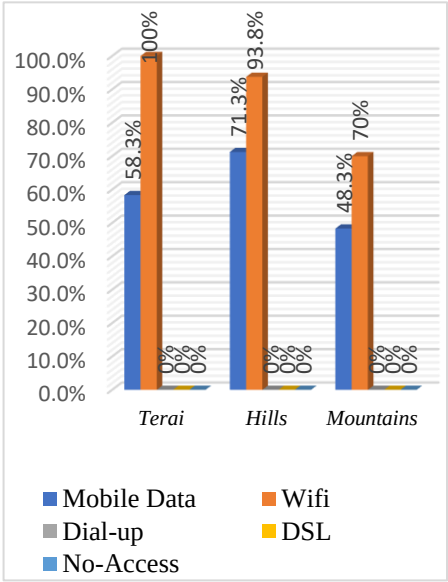


Figure 4.10

Source of Internet at College (Region-wise)



When we analyze table no.4.5, it was found that all the students from Kailali, Achham and Dadeldhura had both mobile data as well as Wifi facility to use internet. most of the students were found to be using Wifi as main source of internet connectivity. Though both mobile data and Wifi seemed to be using but comparatively Wifi was found to be using more. In the case of Bajhang and Darchula districts only 60% and 50% respectively were found in access of Wifi at college. All of the students from these two districts didn't seem to be in access that is presented by chart no.4.9.

While talking Regional based-access of internet at college, it was found that Terai Region mostly depend upon Wifi because all the respondents responded on the side of Wifi. Similarly, 93.8%, students from Hilly Region and 70% students from Mountain Region had access on Wifi at college. Likewise, students of Hilly Region found to be using more mobile data than another Region. Only 48.3%, students used mobile data at college as a source of internet that is presented by chart no.4.10.

In a nutshell, the districts of Terai Region had full access on Wifi at college. Most of the colleges had easy access on Wifi. Both of the resource mobile data and Wifi were used by the students but comparatively Terai Region's students used Wifi at college. The results show that still some of the colleges students were not getting benefits of the sources of internet at college.

Internet Speed

Internet speed plays pivotal role when analyzing the situation of digital divide. Internet is only a medium that linkage the global world into a village and reduce geographic and digital disparities. So, the researcher prepared the questions to find out where the respondents were satisfied or not with the internet speed that they had at home as well as college. After collecting data and analyzing them, the following table and charts were prepared;

Table 4.6

Internet Speed at Home

District Name	VD		D		N		S		VS		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	-	-	2	6.7	5	16.7	15	50	8	26.7	119	3.96	Positive
Kailali	-	-	4	13.3	3	10	21	70	2	6.7	111	3.7	Positive
Achham	2	10	17	85	1	5	-	-	-	-	39	1.95	Negative
Baitadi	1	5	7	35	5	25	7	35	-	-	58	2.9	Neutral
Dadeldhura	-	-	10	50	2	10	5	25	3	15	61	3.05	Neutral
Doti	-	-	7	35	9	45	2	10	2	10	59	2.95	Neutral
Bajura	3	15	2	10	5	30	10	50	-	-	62	3.1	Neutral
Bajhang	-	-	19	95	1	5	-	-	-	-	41	2.05	Neutral
Darchula	-	-	11	55	9	45	-	-	-	-	49	2.45	Negative

(VD: Very Dissatisfied, D: Dissatisfied, N: Neutral, S: Satisfied, VS: Very satisfied)

1.0-2.4(Negative_Attitude), 2.5-3.4(Neutral_Attitude), 3.5-5.0(Positive_Attitude)

Figure 4.11

Internet Speed at Home (District-wise)

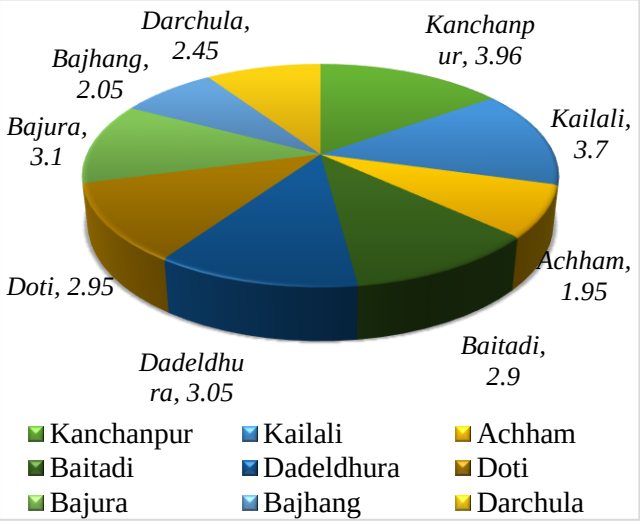
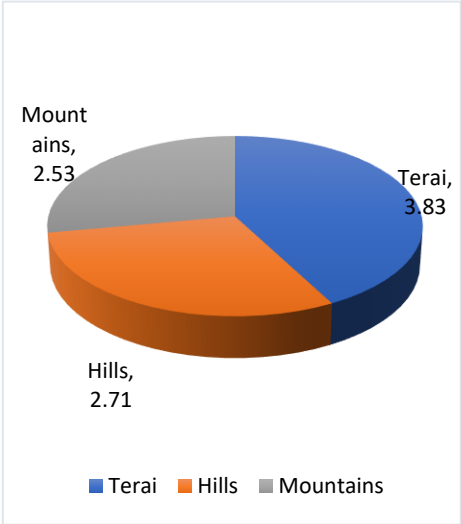


Figure 4.12

Internet Speed at Home (Region-wise)



The above presented table no.4.6 shows that the positive attitude of respondents from Kanchanpur and Kailali about the internet speed at home which portrays by the mean score of 3.96 and 3.7 respectively. Similarly, five districts along with Baitadi, Doti, Bajhang were found in neutral tendency. They were neither highly satisfied nor strongly dissatisfied. Mean sores of 1.95 and 2.45 for the respondents of Achham and Darchula respectively reveals that the respondents were very dissatisfied with the speed of internet at home. The pie chart no.4.11 make clear to understand the perception of students regarding internet speed at home. In the same way, other districts respondents responded that they were not satisfied because only few students went on the side of satisfied internet speed. Ninety five percent (95%) students from Achham and 55% of students from Darchula found strongly dissatisfied with speed of internet. The overall result shows the harsh disparities in internet speed. Internet speed was not found in smooth and proper. Different places of Far Western Region were using internet with very dissatisfied way as well as low bandwidth. They were seemed to be compelled using internet with poor access.

Students from Terai Region were found to be satisfied more than other Regions. A mean score of 3.83 reveals that students from Terai Region were satisfied with their internet speed at home. Similar to previous interpretation students responded on moderate tendency with 2.71 mean score about the internet speed of Hilly Region. Likewise, a mean score of 2.53 suggests a tendency towards neither satisfied nor dissatisfied situation of Mountain Regions. From it, can be said, Terai Region had more access of internet than other Regions that is presented in chart no.4.12.

In conclusion, the respondents of Terai Region were found more satisfied with internet speed at home than Hilly and Mountain Regions. These disparities might be seen due geographical difficulties. Terai Region can get easy access of infrastructure and resources than other Regions. The result shows that the districts which are develop than others seem more accessible in source of internet than others. Moreover, internet speed also seems to be affected by geography, economy, lack of electricity access and infrastructure factors.

After analyzing the perceptions of students about the internet speeds of home, the researcher asked another question to find out the condition of internet speed of college. The responses of participants have been shows below in table and charts;

Table 4.7

Internet Speed at College

District Name	VD		D		N		S		VS		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	-	-	8	26.7	5	16.7	10	33.7	7	23.3	106	3.53	Positive
Kailali	-	-	-	-	6	20	24	80	-	-	114	3.8	Positive
Achham	2	10	17	85	1	5	-	-	-	-	39	1.95	Negative
Baitadi	2	10	7	35	8	40	3	15	-	-	52	2.6	Neutral
Dadeldhura	-	-	8	40	8	40	4	20	-	-	56	2.8	Neutral
Doti	2	10	10	50	5	25	3	15	-	-	49	2.45	Negative
Bajura	3	15	4	20	2	10	11	55	-	-	61	3.05	Neutral
Bajhang	-	-	19	95	1	5	-	-	-	-	41	2.05	Negative
Darchula	7	35	13	65	-	-	-	-	-	-	33	1.65	Negative

Figure 4.13

Internet Speed at College (District-wise)

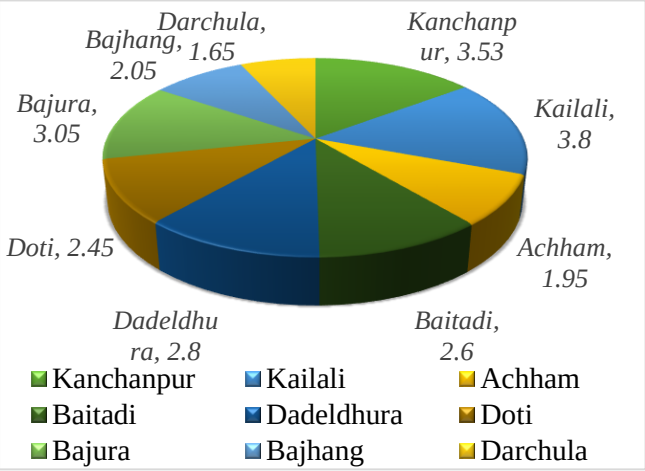
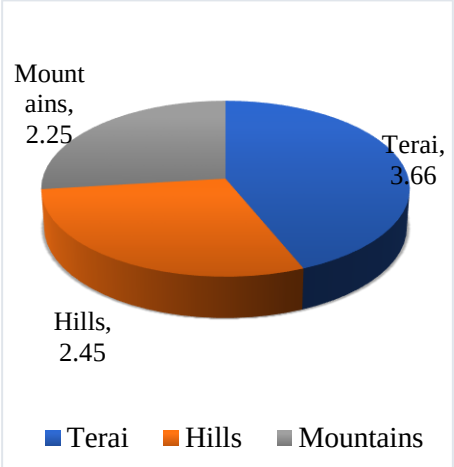


Figure 4.14

Internet Speed at College (Region-wise)



The table no.4.7 and chart no.4.13 shows the positive attitude of students about the condition of internet speed at college of Kanchanpur and Kailali district with the mean score of 3.53 and 3.8 respectively. Only these two districts had found somehow satisfied with the speed of internet at college. In the same way, five districts along with Dadeldhura and Bajura etc. showed moderate tendency about the internet speed of college. The respondents of Achham, Bajhang, Doti and Darchula showed dissatisfaction with the internet speed of college with the mean score 1.95, 2.45 and 1.65 respectively. From this, it can be said both of the district's respondents were depriving from the easy access of internet at college.

After analyzing the district-wise data, it was found every district had different situation. Therefore, the data was thought to analyze being Region base to know which Region had more access. Regarding this, the above pie chart no.4.14 had clearly depicts that Terai Region had positive altitude with 6.3 mean score. Both Mountain and Hill Region had neutral tendency about the internet speed. From this it was clear that the districts or Region which had managed infrastructures and well-developed geographical area were found more satisfied with the internet speed of college.

To sum up, the districts which belong from Terai belt such as Kanchanpur and Kailali had satisfied with internet speed at college. Similarly, the districts which had difficulty due to geography had very less access of infrastructure, regarding digital devices. From this, it can be concluded students who were from rural Hilly and Mountain area had difficulty with poverty, unequal distribution of different infrastructure which causes digital divide.

Online Learning Materials

Online learning materials refers to educational resources, content and materials that are accessible via the internet as well as WWW. Online learning materials can take many forms such as text, audio, video, images, animations, simulations, quizzes, or interactive scenarios, websites and so on. Online learning materials can enhance students learning skills properly because students can have multiple materials for a single topic. YouTube, social media and Google Chrome are some common online platforms from where students can access materials for their learning process. So, the researcher prepared a few questions about digital materials for students to know whether they were in access or not. Regarding this, response of the participants of different nine districts has tabulated and presented in chart below.

The given table no.4.8 and chart no.4.15 shows that 90% students of Kanchanpur districts were using online materials for learning. Similarly, all of the students from Kailali were found to be using online materials for learning. Sixty percent (60%) students of Achham and 85% students of Baitadi were found using different online materials for learning. In the same way, more than 65% participants of Dadeldhura, Doti and Bajura responded that they use online materials. Likewise,

only about 50% students from Bajhang and 45% students from Darchula were deprived to learn using online resources.

Table 4.8

Online Learning Materials

District Name	Respondents		Yes		No	
	N	*%*	*N*	*%*	*N*	*%*
Kanchanpur	30	100	27	90	3	10
Kailali	30	100	30	100	-	-
Achham	20	100	12	60	8	40
Baitadi	20	100	17	85	3	15
Dadeldhura	20	100	13	65	7	35
Doti	20	100	15	75	5	25
Bajura	20	100	16	80	4	20
Bajhang	20	100	10	50	10	50
Darchula	20	100	11	55	9	45

Figure 4.15

Online Learning Materials (District-wise)

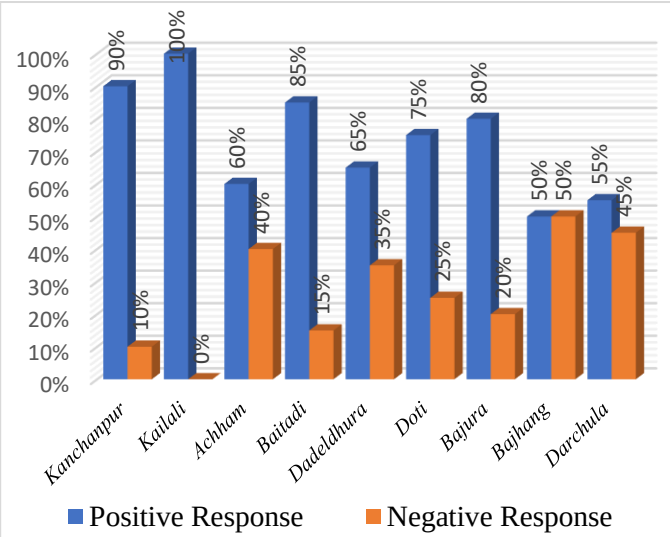
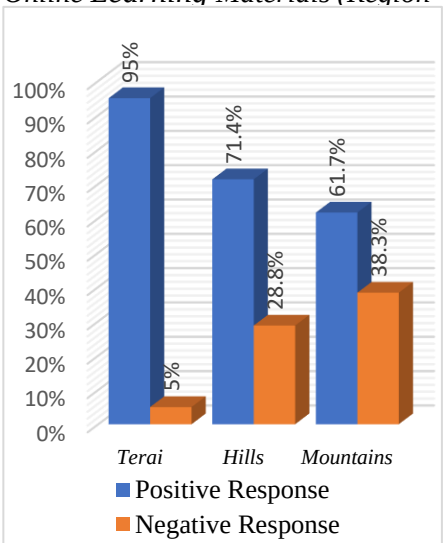


Figure 4.16

Online Learning Materials (Region-wise)



The chart no.4.16 shows that all the students were not getting opportunity to use online materials for learning due to geographical diversity, economic status, unavailability of infrastructure, network bandwidth and so on. For example, 100% students from Kailali from Terai were found to be using online materials whereas only 80% students were in access of online materials in Bajhang (Mountain). The above chart no.8.16 was drawn to make clear about the Regional condition of online materials. The chart no.8.16 shows that that 95% students from Terai Region were learning through online material and about 71.4% students from Hilly Region were using online materials for learning. When, we look at the situation of mountain

Region 38.3% were not getting access of online resources. From this, it reveals that Mountain Region has less access than other Region.

In a nutshell, students of Terai Region seemed more access of online materials than another Region. But we look about district wise data, the districts from the same Region also had a great difference to the access of online materials. For example, 80% students from Bajura of mountain Region were getting opportunity to use online materials but only 50% students from Bajhang of same Region were using online resources. Therefore, the districts which have well geographical and developed from other sources had more access on digital worlds. This disparity occurred due to unequal economic growth, difficult geographical condition which hinder the literacy level too and access in digital resources which increases digital divide.

Availability of Digital Contents

Digital content indicates the contents which exist in the digital forms. This includes multi-media contents such as images, audio, video, animations as well as e-books, e-journals, digital learning platforms and so on. This content can be used for educational purposes too. Therefore, the researcher asked the respondents whether they were satisfied or not with the digital content that were related with the course. Regarding this, the following table and pie charts are presented;

Table 4.9

Availability of Digital Contents

District Name	VD		D		N		S		VS		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	-	-	2	6.7	3	10	24	80	1	3.3	114	3.8	Positive
Kailali	-	-	6	20	3	10	18	60	3	10	108	3.6	Positive
Achham	1	5	19	95	-	-	-	-	-	-	39	1.95	Negative
Baitadi	4	20	8	40	4	20	4	20	-	-	48	2.4	Negative
Dadeldhura	1	5	18	90	-	-	1	5	-	-	41	2.05	Negative
Doti	1	5	7	35	9	45	2	10	1	5	55	2.75	Neutral
Bajura	3	15	1	5	4	20	11	55	1	5	66	3.3	Neutral
Bajhang	-	-	19	95	1	5	-	-	-	-	41	2.05	Negative
Darchula	-	-	8	40	12	60	-	-	-	-	52	2.6	Neutral

Figure 4.17

Availability of Digital Contents (District-wise)

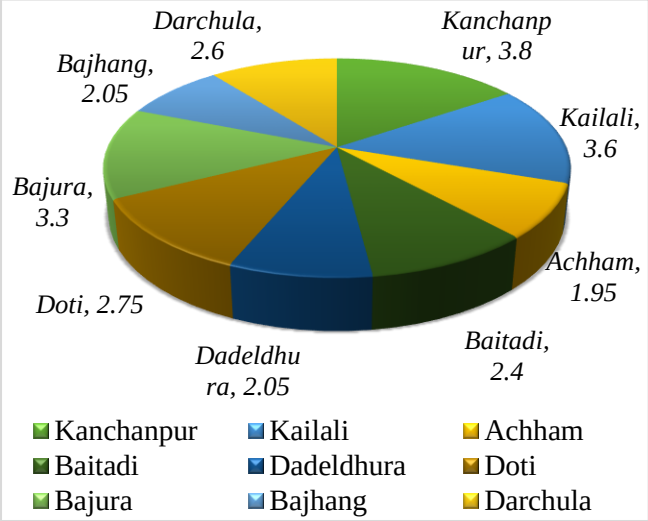
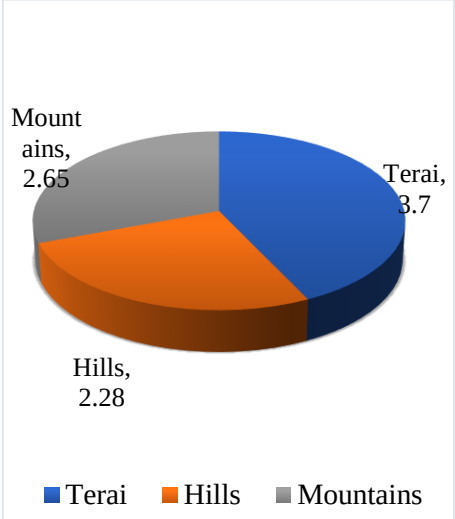


Figure 4.18

Availability of Digital Contents (Region-



The table no.4.9 and pie chart no.4.17 show the positive tendency of the students from Kanchanpur and Kailali districts with the mean score of 3.8 and 3.6 respectively. They were found satisfy with the digital content of the course. Similarly, mean scores of 1.95(Achham) and 2.4 (Baitadi), 2.05 (Dadeldhura) and 3.3(Bajura) reveal that the students were very dissatisfied with the digital contents related with the courses which they had. In the same way, remaining five districts were found in moderate situation and they were neither satisfied nor dissatisfied with the digital content related with the course. The pie chart no.4.17 shows more clearly about the perception of students regarding digital content.

Like previous themes, the researcher wanted to find out the situation of Regional context. For this, pie chart no.4.18 is presented above which portrays that a mean score of 3.7 implies that students from Terai Region were satisfied with their digital content of the course. Similarly, a moderate tendency was shown with the mean score of 2.65 in Mountain and 3.28 in Hilly Regions respectively. This shows that students who are from Terai belt were satisfied with digital content than others Region because Terai has more access on internet, electricity and digital devices.

Availability of ICT Tools for Teaching Learning

ICT tools are required to connect person with modern technology and digital world. Desktop, Projector, Laptop, Tablets, SmartPhones, internet, internet of things,

metaverse, video conferencing and collaboration tools, ICT lab and so on are some examples of ICT tools. Therefore, the researcher raised two questions to find out what kind of tools were available at college and what kind of tools were used by teachers at college for teaching learning purpose. Regarding this, the following table and charts are presented;

Table 4.10

Availability of ICT Tools for Teaching Learning

District Name	Respondents		Projector		Computer		ICT lab		Smart Board		PPT	
	N	*%*	N	%	N	%	N	%	N	%	N	%
Kanchanpur	30	100	22	73.3	15	50	16	53.3	-	-	20	66.7
Kailali	30	100	30	100	30	100	16	53.3	-	-	30	100
Achham	20	100	10	50	10	50	-	-	-	-	10	50
Baitadi	20	100	11	55	9	45	-	-	-	-	2	10
Dadeldhura	20	100	20	100	18	90	-	-	-	-	20	100
Doti	20	100	10	50	10	50	10	50	-	-	10	50
Bajura	20	100	10	50	10	50	10	50	-	-	10	50
Bajhang	20	100	-	-	5	25	-	-	-	-	-	-
Darchula	20	100	-	-	6	30	-	-	-	-	-	-

Figure 4.19

Availability of ICT Tools for Teaching Learning (District-wise)

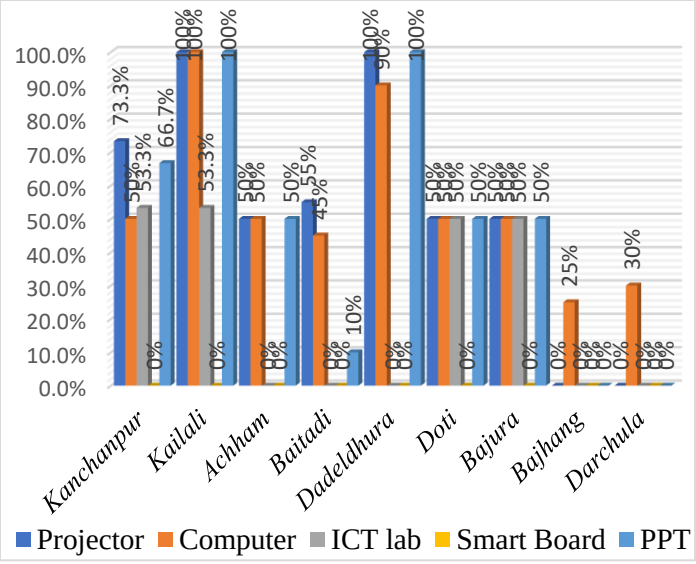
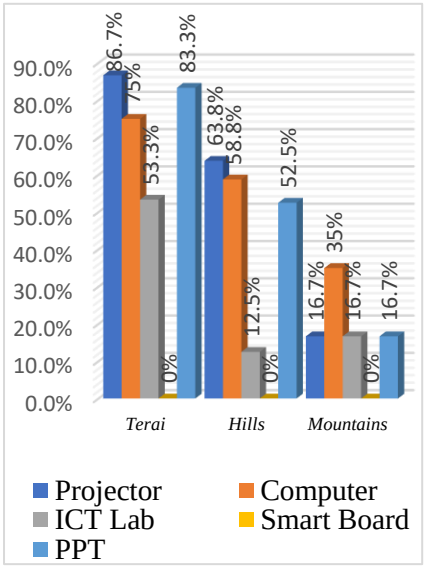


Figure 4.20

Availability of ICT Tools for Teaching Learning



The above presented table no.4.10 and chart no.4.19 shows that 100% respondents of Kailali and Dadeldhura districts had projector at college. Similarly,

73.3% respondents of Kanchanpur said that they had projector at college. The respondents of Bajhang and Darchula responded that they had no any protector at their college. Other remaining four districts shows that they had some projectors at college.

Another ICT tool is computer and the table and chart show that all of the respondents said that colleges had computers though the some had high in number and some had few. For example, all the students of Kailali said that they had computers at college whereas only 25 percent students from Bajhang said that they had computer at college. In the same way, only, 53% from Kanchanpur and Kailali and 50% from Doti and Bajura had ICT lab at college. There was not found smartboard at any colleges. The last variable was PPT. The data shows that except Bajhang and Darchula all districts had PPT at college.

When we analyze the chart no.4.20 it shows that the 86.7% respondents of Terai Region responded that they had protector at college. Similarly, 83.3% of Hilly Region said they had projector and only 52.5% said they had projector at Mountain Region. The chart reveals that the respondents of Terai Region had every tool more than other two Regions.

In nutshell, distributions of ICT tools also seemed inequal and centralized with in a developed district. Most of the ICT tools were seen in those colleges where IT courses are available such as Kanchanpur, Kailali, Doti and Bajura. It reveals that still most of the districts has very low literacy skill due to various reason such as undeveloped geography, economy crisis, insufficient infrastructure, lack of IT courses, lack of skilled human resources and so on.

From the aforementioned table and charts show the availability of ICT tools at college of the respondents. We got to know what type of tools were found in those college. And now, the researcher presented the detailed data of the tools which were used by teachers of the respondents in teaching learning process. For this, the following table and charts are drawn;

The given table no.4.11 and chart no.4.21 portray the condition where teacher used ICT tools at college during teaching learning process. When analyzing the data, 86.7% of respondents responded that their teacher used protector in Kanchanpur.

Likewise, all the teachers of respondents of Kailali and Dadeldhura were found to be using projector at college. Similarly, more than 50% teacher were using projector except Achham, Bajhang and Darchula. Only 40% students from Achham responded that their teachers used projector at college where as the respondents of Bajhang and Darchula said their teachers didn't use.

Table 4.11

Use of ICT Tools by Teacher

District Name	Respondents		Projector		Computer		ICT lab		Smart Board		PPT	
	N	*%*	N	%	N	%	N	%	N	%	N	%
Kanchanpur	30	100	26	86.7	15	50	15	50	-	-	20	66.7
Kailali	30	100	30	100	30	100	15	50	-	-	30	100
Achham	20	100	8	40	10	50	-	-	-	-	10	50
Baitadi	20	100	11	55	8	40	-	-	-	-	2	10
Dadeldhura	20	100	20	100	18	90	-	-	-	-	18	90
Doti	20	100	16	80	8	40	10	50	-	-	10	50
Bajura	20	100	12	60	8	40	10	50	-	-	10	50
Bajhang	20	100	-	-	5	25	-	-	-	-	-	-
Darchula	20	100	-	-	6	30	-	-	-	-	-	-

Figure 4.21

Use of ICT Tools by Tearcher (District-wise)

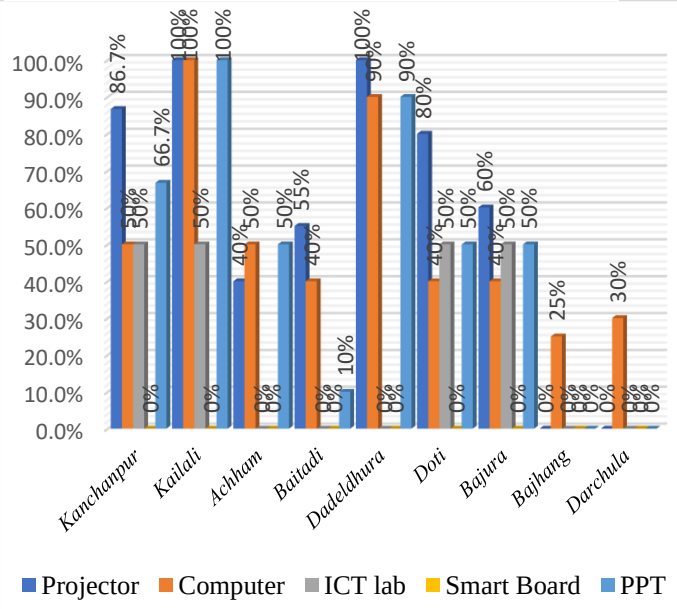
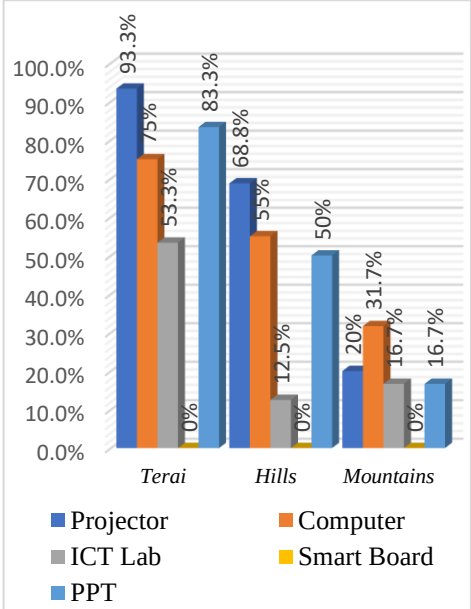


Figure 4.22

Use of ICT by Teacher (Region-wise)



Another ICT tool is computer. Regarding this, all of the respondents responded that their teacher used computer while teaching learning process though the percept of respondents varied. For example, 100% students from Kailali responded

that their teacher used computer whereas only 25% students seemed responding from Bajhang. Overall, it seems that most the teachers were not found using computer at college. While analyzing about ICT lab, only 50% students From Kanchanpur, Kailali, Doti and Bajura responded that their teacher uses ICT lab because their colleges were running ICT courses. No smart board was found in the selected colleges. The chart and table showed that all the districts' respondents said their teacher used PPT except Bajhang and Darchula. More than 50% students of six districts along with Kanchanpur, Achham, Bajura etc. said that their teacher used PPT at class whereas only 10% students of Baitadi replied that their teacher used PPT.

While analyzing the data, being based on Region, Terai Region's teacher seemed using more ICT tools at college. In the other side, teachers of Mountain Region were found to be using less. The chart no.4.22 shows that on average, the more increasing the geographical height of the districts the less use of ICT tools. For example, 83% students of Terai reason said their teacher use PPT. Similarly, 50% students from Hilly and only 16.7% students from Mountain said that their teacher used PPT at college.

Concluding the theme, it was found that like the geographical diversity, the digital access also diversified. This caused due to various Region such as socio-economic situation of physical infrastructure and geography of the districts. Terai Region where geography has less difficulty had more access on ICT tools. The rural area of Mountain and Hilly Region found to more depriving from the sources of ICT tools. These disparities cause because most of the developments are focused and centralized where geography made easier and cost low.

Digital Learning Materials for Students

There are various learning materials are available that help for teaching learning process. YouTube, website, e-journals, e-books, digital library, online programming tools etc. are some examples of digital learning platforms. Due to the rapid growth of digital world, it has been using significantly. All students could not get access due to lack of knowledge about digital resources. Therefore, teacher can be facilitator for the students who can help them to use digital reading materials. For this, the researcher asked a question whether their teacher provide digital learning

materials or not. Regarding this, the following table and pie chart have been presented;

Table 4.12

Digital Learning Materials for Students

District Name	N		R		Occ		Oft		A		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	2	6.7	9	30	1	3.3	9	30	9	30	104	3.46	Positive
Kailali	-	-	3	10	10	33.3	3	10	14	46.7	118	3.93	Positive
Achham	-	-	14	70	6	30	-	-	-	-	46	2.3	Negative
Baitadi	2	10	5	25	8	40	5	25	-	-	56	2.8	Neutral
Dadeldhura	-	-	19	95	1	5	-	-	-	-	41	2.05	Negative
Doti	-	-	-	-	10	50	4	20	6	30	76	3.8	Positive
Bajura	5	25	2	10	1	5	2	10	10	50	70	3.5	Positive
Bajhang	17	85	3	15	-	-	-	-	-	-	23	1.15	Negative
Darchula	-	-	5	25	12	60	3	15	-	-	58	2.9	Neutral

(N: Never, R: Rarely, Occ: Occasionally, Oft: Often, A: Always)

1.0-2.4(Negative_Attitude), 2.5-3.4(Neutral_Attitude), 3.5-5.0(Positive_Attitude)

Figure 4.23

Digital Learning Materials for Students (District-wise)

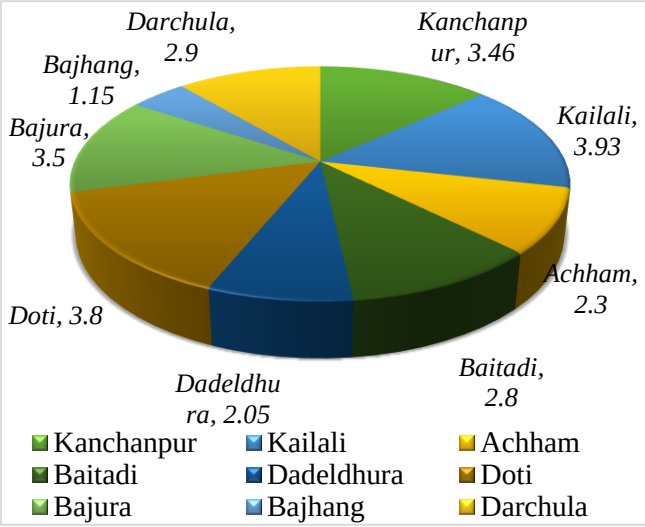
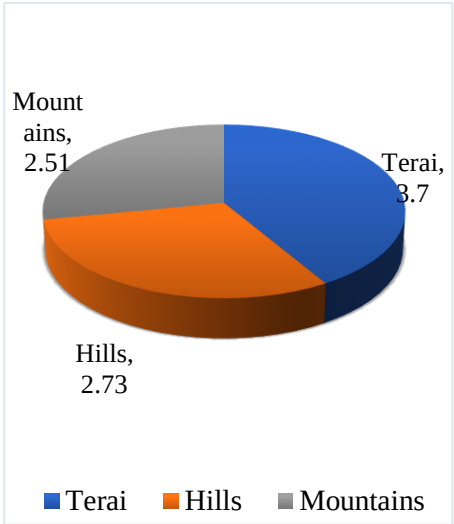


Figure 4.24

Digital Learning Materials for Students (Region-wise)



The above presented table no.4.12 and chart no.4.23 shows the frequency of teacher who provided digital reading materials for students. The table and pie chart show that the students from Kanchanpur and Kailali responded that they were getting digital learning materials from teacher. For this, they shared the mean score of 3.46 (Kanchanpur) and 3.93 (Kailali). In the same way, a mean score of 3.8 and 3.5 share

positive attitude of the respondents of Doti and Bajura districts respectively. This means they were also getting digital materials from teacher. The students from Achham, Dadeldhura and Bajhang responded that they didn't get significant reading materials from teacher. A mean score of 1.15 shows that the teachers of Bajhang were not providing digital reading materials.

When the data was analyzed from Regional perspectives the chart no.4.24 said that Terai Region had positive perspective with 3.7 mean score that depicts teacher were providing digital reading materials for the respondents of Terai. Similarly, the respondents of Hilly and Mountain Region share moderate tendency with 2.73 and 2.51 mean score respectively. When analyzing three Region Mountain had very less access to the digital reading materials.

In conclusion, the districts from Terai Region had access on digital reading materials. More than 60% students from Terai based districts said their teacher provided digital reading materials. Similarly, 25% students from Baitadi and 60% students from Doti were found to be getting digital reading materials other two districts students were had no access. While interpreting Mountain Region, it was found that only 60% students got materials from teacher whereas Bajhang had no access. From this, it can be said that the students who were reading ICT courses getting digital reading materials. Those students who were not ICT background and unaware about online materials were found in shadow and they found only depending in textbook.

Affordability of Students to Purchase Laptop or Desktop

Laptop and Desktop are some examples of ICT devices. These are the mediums from which students can get knowledge and link with global village. Due to geographical hazards in Far Western Region, other development and growth are also affected such as social, cultural, educational, economic growth and so on. Therefore, the researcher wanted to know the affordability status of students to purchase ICT devices that is Laptop/Desktop. Regarding this the given table and charts provide detail information.

Table 4.13

Affordability of Students to Purchase Laptop/Desktop

District Name	Respondents		Yes		No	
	N	*%*	*N*	*%*	*N*	*%*
Kanchanpur	30	100	15	55	15	45
Kailali	30	100	24	80	6	20
Achham	20	100	5	25	15	75
Baitadi	20	100	6	30	14	70
Dadeldhura	20	100	10	50	10	50
Doti	20	100	12	60	8	40
Bajura	20	100	13	65	7	35
Bajhang	20	100	3	15	17	85
Darchula	20	100	3	15	17	85

Figure 4.25

Students Affordability to Purchase Laptop/Desktop (District-wise)

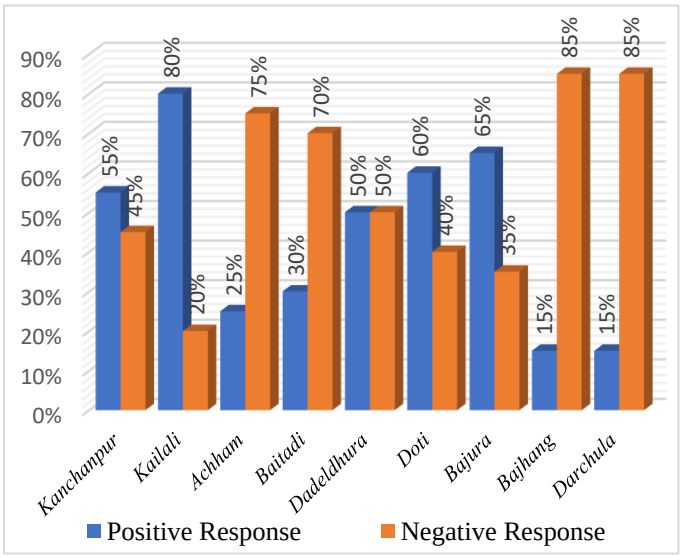
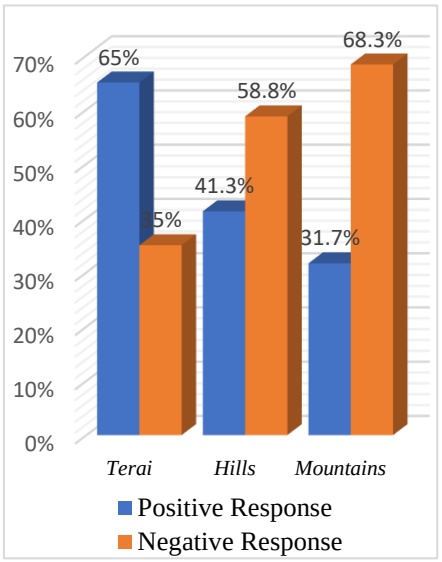


Figure 4.26

Students Affordability to Purchase Laptop/Desktop



The above presented table no.4.13 shows how many of the respondents had good economic condition to purchase Laptop and Desktop. The chart no.4.25 also clearly displays that 55% students from Kanchanpur and 80% students from Kailali had good economic condition to purchase the ICT tools. In the same way, only 25% students from Achham and 30% students from Baitadi had capacity to purchase the devices. It means these two districts students had; low economic status and could not afford the tools properly. Half of the students from Dadeldhura and Doti could afford to purchase Laptop and Desktop. Likewise, 65% students from Bajura responded that they could purchase Laptop and desktop because most of them were IT based colleges

and faculties. On the other side 85% students from Bajhang and Darchula were not able to purchase Laptop or Desktop. The chart no.4.25 shows clear status of the respondents from different nine districts.

The chart no.4.26 displays the status of Regional affordability level of students. Interpreting the chart, it shows that 65% students from Terai Region had capacity to purchase whereas only 41.3% students could purchase the tools from Hilly Region. Similarly, 68.3% students from Mountain Region were not able to purchase these tools. This shows that the students from Hilly and Mountain Region had deprived from the use ICT tools because of poor economic condition.

In conclusion, from Terai Region had ability to purchase Laptop/Desktop than other Regions. This happened because of urban area with easy geographical situation. Only two districts from Hilly Region could afford little more than other. Only respondents from Bajura showed the ability of purchasing ICT tools. From this, it was found that the districts which have geographical difficulties had economic problem so, they could not buy Laptop/Desktop. Similarly, the districts which were running ICT course had more purchase capacity than others. Geographical diversity, lack of ICT courses and economic condition seemed directly engaged in creating digital divide.

Role of ICT Tools for Enhancing Learning Outcome

As we discussed previously, there are various ICT tools that can be used for teaching learning process. So, this theme describes the perception of students about the ICT tools and their role for successful learning process and the students were asked question whether the tools they had at college were improving and helping for successful outcome of the learning. Firstly, the researcher presented the table and pie charts that show the perception of students regarding overall ICT tools and their effect on learning.

The given table no.4.14 and pie chart no.4.27 show the most of the respondents from all the districts said ICT tools enhance in their learning. Regarding this, all the students showed positive attitude with various mean score such as Kanchanpur holds 4.3 mean score whereas Bajhang carries 4.3 mean score. It means all the students from different part of the province agreed that ICT tools support for learning.

Table 4.14

Role of ICT Tools for Enhancing Learning Outcome

District Name	N		R		Occ		Oft		A		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	-	-	3	10	2	6.7	8	26.7	17	56.7	129	4.3	Positive
Kailali	-	-	-	-	9	30	9	30	12	40	123	4.1	Positive
Achham	-	-	1	5	-	-	12	60	7	35	85	4.25	Positive
Baitadi	2	10	2	10	4	20	5	25	7	35	73	3.65	Positive
Dadeldhura	-	-	-	-	3	15	9	45	8	40	85	4.25	Positive
Doti	1	5	1	5	4	20	6	30	8	40	79	3.95	Positive
Bajura	3	15	1	5	-	-	11	55	5	25	74	3.7	Positive
Bajhang	1	5	2	10	-	-	-	-	17	85	90	4.5	Positive
Darchula	-	-	-	-	1	5	8	40	11	55	90	4.5	Positive

Figure 4.27

Role of ICT Tools for Enhancing Learning Outcome (District-wise)

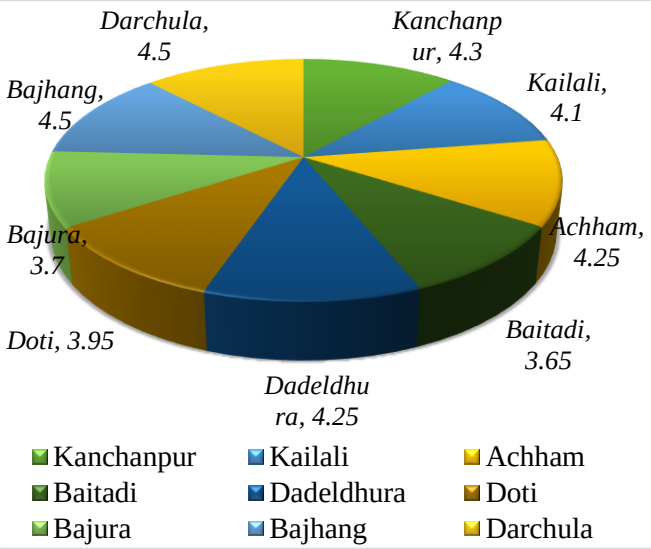
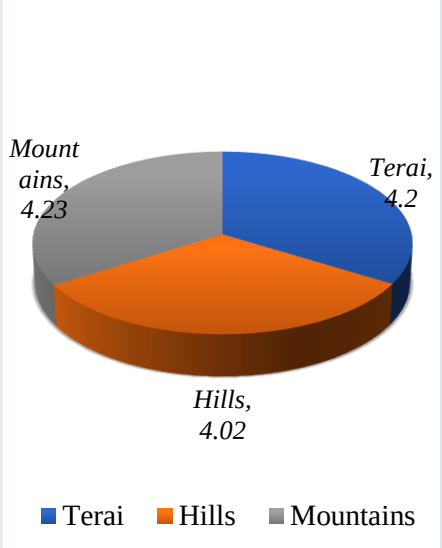


Figure 4.28

Role of ICT Tools for Enhancing Learning Outcome (Region-wise)



After analyzing district wise situation, the chart no.4.28 shows the detail information of different Region regarding the perception of students about ICT tools and its significant. For this, a mean score of 4.23 implies positive attitude of the students from Mountain Region about the significance of ICT tools. Terai Regions hold 4.2 and Hilly 4.02 mean score for the importance of ICT tools. This clearly shows that ICT tools always help for successful learning.

In conclusion, the respondents who are from Mountain Region responded that ICT tools always help for successful learning outcomes because those tools are essential for accessing the online materials and different educational tools and platforms. This means the district which had more digital literacy and easy access on ICT tools thought it is really helpful. The availability of infrastructure, internet connectivity, physical resources, digital skills, educational and economic status of the students also affect the understanding of students towards ICT tools and its role for learning process of students. Though ICT tools help for successful learning, they seemed to be compelled to be away from those tools because of geographical, economical aspects.

Importance of Internet in Teaching Learning

Rapid growth of science, and technology, internet has great importance. Internet is a major factor which opens door for the digital world. But only accessibility of basic internet connectivity is not sufficient, there should be good speed and bandwidths of internet. This theme is prepared to know the high internet speed of college helped for teaching learning process. For this, the questions were made which is shown below in table and pie charts;

Table 4.15

Importance of Internet in Teaching Learning

District Name	N		R		Occ		Oft		A		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	2	6.7	7	23.3	3	10	-	-	18	60	115	3.83	Positive
Kailali	-	-	-	-	6	20	11	36.7	13	43.3	127	4.23	Positive
Achham	-	-	-	-	-	-	10	50	10	50	90	4.5	Positive
Baitadi	4	20	2	10	1	5	4	20	9	45	72	3.6	Positive
Dadeldhura	-	-	-	-	4	20	7	35	9	45	85	4.25	Positive
Doti	-	-	-	-	4	20	10	50	6	30	82	4.1	Positive
Bajura	4	20	-	-	1	5	3	15	12	60	79	3.95	Positive
Bajhang	2	10	16	80	1	5	1	5	-	-	41	2.05	Negative
Darchula	-	-	-	-	-	-	9	45	11	55	91	4.55	Positive

Figure 4.29

Importance of Internet in Teaching Learning (District-wise)

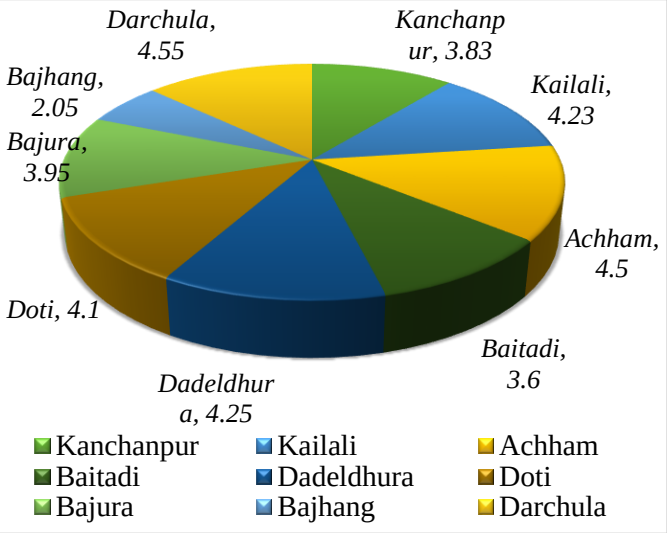
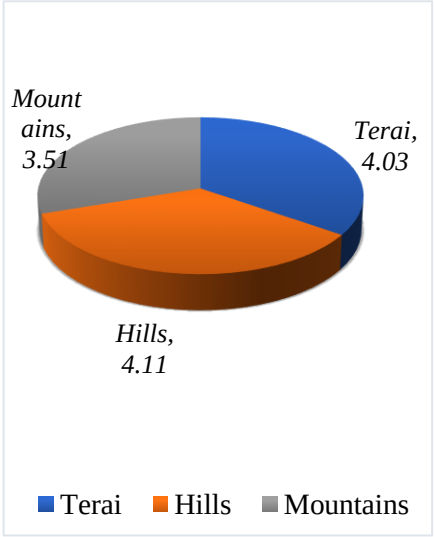


Figure 4.30

Importance of Internet in Teaching Learning (Region-wise)



The above presented table no.4.15 shows that high speed of internet broadband helped teaching leaning process. All the districts except Bajhang had positive attitude towards the support of Internet for teaching learning process. It means most of the respondents were on the side of high Internet speed and its support for teaching learning process. Only a mean score of 2.05 expressed that high speed internet only didn't support for successful learning process. The pie chart no.4.29 also clearly presents the mean score of districts that supported for the importance of high-speed internet of college for successful teaching learning.

Describing the pie chart no.4.30 mean score of 4.03 shows positive tendency of the students from Terai reason about the importance of internet speed in teaching learning process. Similarly, students of Hilly Region said the same like Terai Region. Overall all the three Regions had similar opinion regarding this.

In conclusion, all the respondents agreed that high speed internet of college helped for teaching learning process. The results showed that high speed internet at college helped for effective teaching learning process because students can get more resources for learning about the courses. The students from all geographical, educational, economic background agreed on the importance of high-speed internet.

After knowing the perception of students about high speed internet at college and its significance, the researcher wanted to know the perception of student regarding the concept of Wifi- hotspot at various places, and with its usefulness. The collected data regarding this is presented down in table and pie charts;

Table 4.16

Wifi-hotspot at Various Place

District Name	N		R		Occ		Oft		A		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	4	13.3	6	20	7	23.3	3	10	10	33.3	99	3.3	Neutral
Kailali	-	-	-	-	7	23.3	15	50	8	26.7	121	4.03	Positive
Achham	-	-	-	-	-	-	11	55	9	45	89	4.45	Positive
Baitadi	4	20	5	25	3	15	4	20	4	20	59	2.95	Neutral
Dadeldhura	-	-	-	-	4	20	8	40	8	40	84	4.2	Positive
Doti	1	5	2	10	3	15	4	20	10	50	80	4.0	Positive
Bajura	4	20	3	15	2	10	1	5	10	50	70	3.5	Positive
Bajhang	1	5	18	90	-	-	1	5	-	-	41	2.05	Negative
Darchula	-	-	-	-	1	5	10	50	9	45	88	4.4	Positive

Figure 4.31

Wifi-hotspot at Various Place (District-wise)

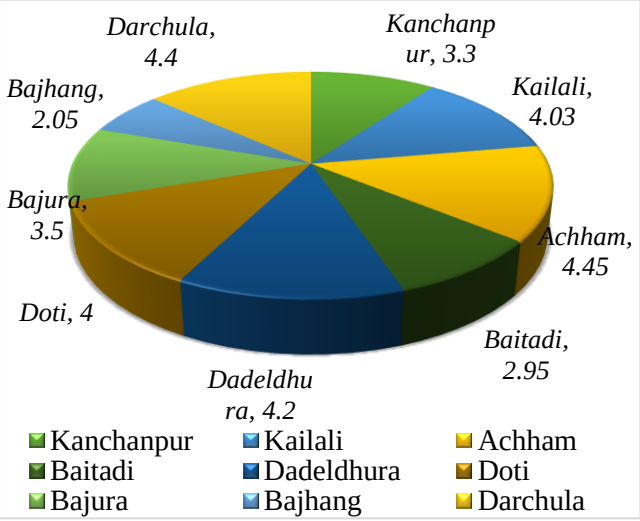
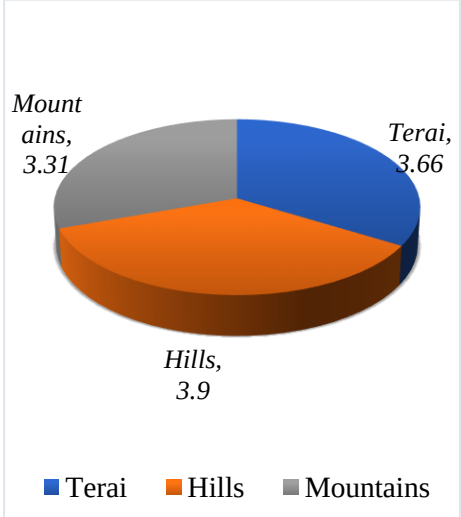


Figure 4.32

Wifi-hotspot at Various Place (Region-wise)



The above presented table no.4.16 shows different opinions regarding Wifi-hotspot zone in various places. The respondents of Kailali, Achham, Dadeldhura, Doti, Bajura and Darchula had positive attitude which support for free Wifi zone in

different places. They thought it helps for learning process. Almost all of the respondents from these districts support for the concept of internet connection at different places helps in students learning. Similarly, mean scores of 3.3 (Kanchanpur) and 2.95 (Baitadi) share the moderate tendency regarding the concept of Wifi- hotspot/fee Wifi-zone at various places. They thought those Wifi-hotspot helps rarely otherwise students misuse the facility. The perception of students regarding the concept of keeping Wifi-hotspot was shown more dearly in pie chart no.4.31

In the same way, pie chart no.4.32 shows the perception of students regard the concept of free Wifi zone based on Region. Regarding this, all of the Regions had shared positive attitude and thought the concept helped for the learning process of students. Respondents of Terai Region were in the side of wife-hotspot and its support in learning which was shown with the mean score of 3.66. Similarly, respondents of Hilly Region supported the concept with 3.9 mean score and 3.31 for Mountain Region. This shows the respondents from all Region thought that free Wifi zone helped for learning of the students.

In conclusion, most of the district's respondents thought that Wifi hotspot should be opened everywhere anytime which helped for learning. For example, 100% students from Achham, 80% from Dadeldhura thought the positively with the concept. If the Wifi-hotspot would open everywhere, the students who are from adverse geographic, economic background also could get chance to learn from digital resources. In short, it helps to eradicates digital disparities.

Accessibility of Digital Resources and its Effects

The researcher wanted to find out the condition of digital resources for students. Whether all of the students were facilitated with digital resources at college or not. Most of the colleges had digital resources which was shown in previous tables. Though the number of the digital resources seemed unequal but maximum colleges were found using computer, laptop. ppt, and ICT lab, internet connectivity, different programming tools, online educational tools and so on.

This theme discusses whether the students were getting opportunity to those digital resources or not. Were all the students had equal accessible with those digital

resources? To find out the answer of the question, the researcher prepared an item. The collected data regarding this is tabulated down with pie charts;

Table 4.17

Accessibility of Digital Resources

District Name	SD		D		N		A		SA		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	1	3.3	5	16.7	8	26.7	14	46.7	2	6.7	101	3.36	Neutral
Kailali	12	40	15	50	2	6.7	-	-	1	3.3	53	1.76	Negative
Achham	14	70	5	25	1	5	-	-	-	-	27	1.35	Negative
Baitadi	-	-	5	25	7	35	7	35	1	5	64	3.2	Neutral
Dadeldhura	-	-	4	20	11	55	2	10	3	15	64	3.2	Neutral
Doti	-	-	-	-	4	20	14	70	2	10	78	3.9	Positive
Bajura	2	10	4	20	2	10	7	35	5	25	69	3.45	Neutral
Bajhang	-	-	1	5	-	-	3	15	16	80	94	4.7	Positive
Darchula	3	15	14	70	2	10	1	5	-	-	41	2.05	Negative

(SD: Strongly_Disagree, D: Disagree, N: Neutral, A: Agree, SA: Strongly_Disagree)

1.0-2.4(Negative_Attitude), 2.5-3.4(Neutral_Attitude), 3.5-5.0(Positive_Attitude)

Figure 4.33

Accessibility of Digital Resources (District-wise)

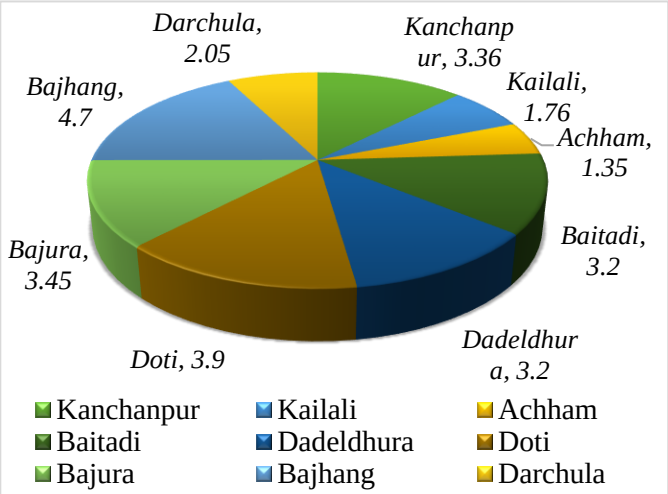
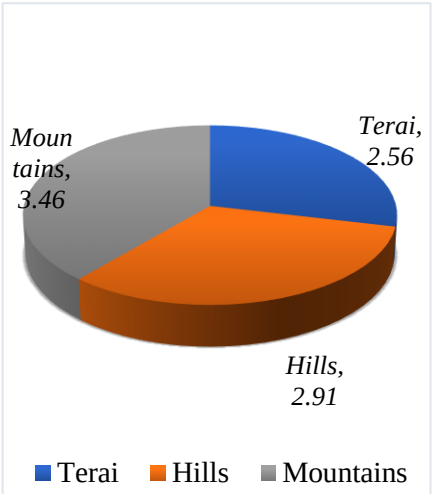


Figure 4.34

Accessibility of Digital Resources (Region-wise)



The above presented table no.4.17 shows the opinion of students regarding the accessibility of digital resources at college. For this, the students of Kanchanpur, Baitadi, Dadeldhura, and Bajura shared their opinion emphasizing and selecting

neutral interpretation. This shows that some students seemed satisfy whereas some students were disagreed regarding equal access of the students to digital resources. The mean score that they carried is shown in the pie chart no.4.33. Similarly, the respondents of Kailali, Achham and Darchula were disagreed and said there was no equal access to all the students. From this, it was found, only the students who were from ICT courses were getting opportunity to use those tools and resources and some colleges were found not using digital resources for learning process due to insufficient infrastructure, lack of skilled manpower. Among these three districts, students of Achham were found strongly disagreed with the access of digital resources at college which was shown by the mean score of 1.35. This means, they were completely deprived by the resources. Only the students of Bajhang and Doti shared positive tendency with 4.7 and 3.9 mean score. The data shows these two district students were getting equal opportunity to use digital resources whatever the colleges had.

Similarly, the pie chart no.4.34 displays the Regional comparison of perception of students about the theme. The pie chart shows the students from all three Region were neither agreed nor disagreed because the results showed they were in neutral tendency. While comparing them, students from Mountain Region seemed having little more access than other whatever resources in the college. Though Terai Region had easy access on digital resources, the students wore found unequal access on those digital resources. This might happen due to lack of skill manpower, lack of awareness about the ICT based courses and so on.

In conclusion, the situation of accessibility of digital resources was found in various level. Though some districts were geographically developed and had more infrastructure but also, they were unbaled to provide equal access to all the students. For example,95% students from Kailali disagreed and said they had no equal access on digital resources. In another side, the students who belonged comparatively less developed district had more equal access to digital resources. For example, 95% students from Bajhang had equal access to digital resources at college because there was no any course related with ICT and all students belongs to the non-IT courses. From this, it was found that the colleges which seemed more developed and had more infrastructure also failed to give equal access to digital resources. Only geographical perspective is not seen as the major cause for digital divide but digital literacy and ICT based courses cause the digital disparities.

After knowing the situation of accessibility of students with digital resources, another question was raised to know the perception of students to find about its effect on education. In other words, whether unequal access to digital resources hamper to the quality of education or not. Regarding this following table and pie charts are presented;

Table 4.18

Insufficient Digital Access Hampers Education Quality

District Name	SD		D		N		A		SA		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	-	-	3	10	2	6.7	15	50	10	33.3	122	4.06	Positive
Kailali	1	3.3	-	-	-	-	16	53.3	13	43.3	130	4.33	Positive
Achham	2	10	-	-	-	-	3	15	15	75	89	4.45	Positive
Baitadi	-	-	1	5	5	25	13	65	1	5	74	3.7	Positive
Dadeldhura	3	15	-	-	-	-	9	45	8	40	79	3.95	Positive
Doti	-	-	-	-	2	10	17	85	1	5	79	3.95	Positive
Bajura	-	-	8	40	5	25	3	15	4	20	63	3.15	Neutral
Bajhang	-	-	-	-	-	-	2	10	18	90	98	4.9	Positive
Darchula	-	-	-	-	-	-	2	10	18	90	98	4.9	Positive

Figure 4.35

Insufficient Digital Access Hampers Education Quality (District-wise)

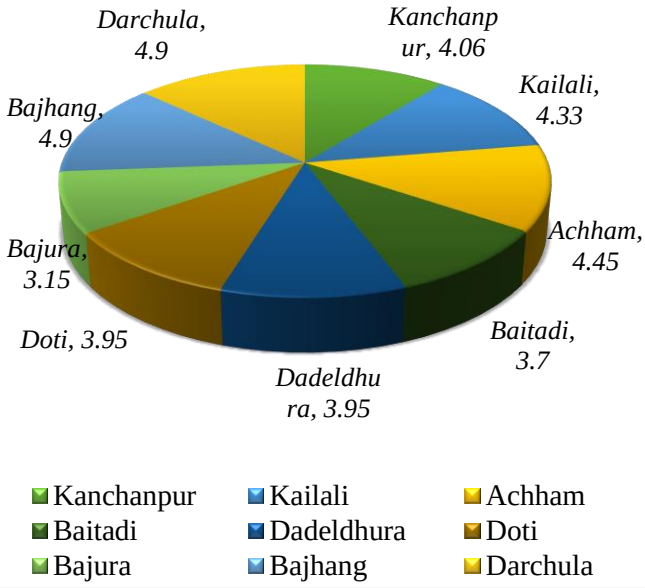
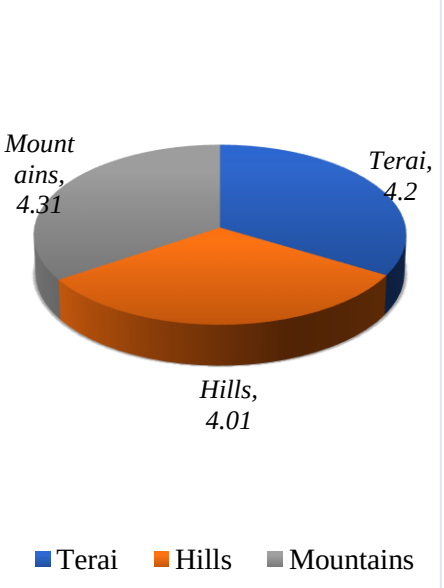


Figure 4.36

Insufficient Digital Access Hampers Educations Quality (Region-wise)



The above presented table no.4.18 and pie chart no.4.35 depicts the detail of the perception of students regarding the effect of unequal access to digital resource in the quality of education. The data shows that respondents from all districts except Bajura shared common opinion and said unequal access hampers education quality. The positive interpretation along with their mean score was presented in pie chart no.4.35. A mean score of 3.15 implies that on average the students were neither agreed nor disagreed. Forty percent students from Bajura disagreed that insufficient access of digital resources hampers quality education. Only 35% agreed with the concept of hampering education quality by unequal access to digital resources.

Interpreting the pie chart no.4.36 the chart shows positive attitude of all the three Regions. The students from Mountain Region shared the highest tendency with 4.31 mean score whereas 41.2 mean score from the students of Terai and 4.01 from the respondents of Hilly Region. It seems that the most disadvantaged Region felt more important of digital resources. All of the students thought digital resources had great influence in education because, it provides wide area of knowledge.

To sum up, the respondents were found dissatisfied with unequal destitution of digital resources. They thought equal access of all the students would improve the quality of education and broaden knowledge of students. The students from all districts and Region had common opinion regarding equal access of digital resources and its importance on education.

Influence of Infrastructure, Resource and Literacy Level

Information communication Technology (ICT) Infrastructure, digital resources, Internet connectivity and digital literacy are some factors that are important to connect the world digitally. These are the basic things that required for conducting teaching learning process digitally. Therefore, the researcher asked a question to know the perception of students whether they actually thought these factors contribute digital divide or not. The researcher wanted to find out students' perception on digital divide in Higher education with its factors. For this, the following table and charts are presented;

Table 4.19

Influence of Infrastructure, Resource and Literacy Level

District Name	SD		D		N		A		SA		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	-	-	1	3.3	2	6.7	13	43	14	46	130	4.33	Positive
Kailali	-	-	-	-	-	-	20	66.7	10	33.3	130	4.33	Positive
Achham	-	-	-	-	-	-	4	20	16	80	96	4.8	Positive
Baitadi	-	-	2	10	4	20	11	55	3	15	75	3.75	Positive
Dadeldhura	3	15	-	-	-	-	10	50	7	35	78	3.9	Positive
Doti	-	-	-	-	6	30	13	65	1	5	75	3.75	Positive
Bajura	-	-	3	15	7	35	4	20	6	30	73	3.65	Positive
Bajhang	-	-	-	-	-	-	1	5	19	95	99	4.95	Positive
Darchula	-	-	-	-	-	-	2	10	18	90	98	4.9	Positive

Figure 4.37

Influence of Infrastructure, Resource and Literacy Level (District-wise)

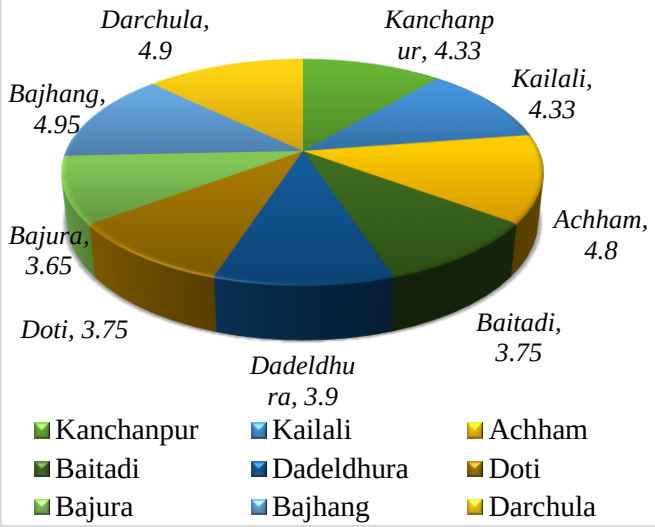
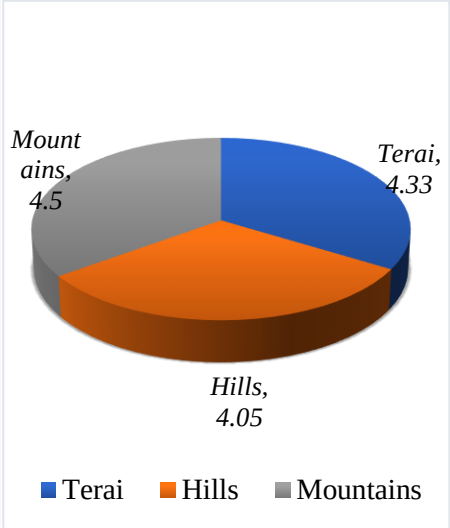


Figure 4.38

Influence of Infrastructure, Resource and Literacy Level (Region-wise)



Interpreting the table no.4.19 and pie chart no.4.37 all the respondents from nine districts responded that unequal distribution of ICT infrastructure, digital resources, internet connectivity and digital literacy has been causing digital divide in higher education. All of the respondents shared positive tendency regarding the theme. For example, Kanchanpur shared 4.33 mean score, respondents of Baitadi shared 3.75 mean score, respondents of Bajura shared 3.65 mean score and so on. From the charts and table, it was clear that ICT infrastructure, digital resources had great significance for creating digital divide. The more detailed information can be seen in pie chart no.4.37.

In the same way, the pie chart no.4.38 shows the perception of students regarding the theme with Regional basis. The pie chart shows Mountain Region's students mostly agreed that ICT infrastructure, digital resources, digital literacy influence digital divide because they were being in the target of digital divide due to the lack of these resources. Similarly, students from Terai and Hilly Region shared 4.33 and 4.05 mean score respectively. This shows that those Regions which had more access and facilitated with infrastructure, internet connectivity, digital literary program agreed less with the statement for than those who were marginalized and disadvantaged group.

In conclusion, most of the students had same opinion and said infrastructure, ICT tools, literary level effect and create digital divide in higher educations. The main causes of digital divide were shown due to the contribution of above-mentioned factors. This was proved through previous tables, and charts.

Teachers and Students Digital Literacy Level

As discussed above in previous theme, digital literacy level contributes the creation of digital disparities. Therefore, this theme wanted to explore the condition of digital literacy of those representative colleges. The researcher wanted to find out how much the students and teachers of the selected colleges had the knowledge about digital resources, and digital technology. The collected data is tabulated and presented in the following table and pie charts as below;

The given table 4.20 and pie chart 4.39 clearly portrays how much the respondents and their teachers were aware about digital technology and digital resources. Regarding this, the respondents of Kanchanpur had positive attitude with 3.53 mean score and respondents from Kailali also had positive altitude with 3.56 mean score. This means respondents from both districts almost aware about digital resources. Similarly, a mean score of 3.9 portrays that students and teachers of Doti also had good knowledge of digital resources. In the same way, the respondents of Baitadi, Dadeldhura, Bajura and Darchula responded that they had moderate digital literacy level. Only halves of the teacher and students of those selected colleges had digital knowledge. The pie chart no.4.39 shows that the respondents of Achham and Bajhang seemed that very poor in the level of digital literacy. It means students also

unaware about digital world and teacher also seemed unskilled and unaware about the digital education.

Table 4.20

Teachers and Students Digital Literacy Level

District Name	VP		P		F		G		E		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	2	6.7	2	6.7	5	16.7	20	66.7	1	3.3	106	3.53	Positive
Kailali	-	-	1	3.3	11	36.7	18	60	-	-	107	3.56	Positive
Achham	15	75	4	20	-	-	1	5	-	-	27	1.35	Negative
Baitadi	2	10	8	40	4	20	5	25	1	5	55	2.75	Neutral
Dadeldhura	-	-	-	-	11	55	9	45	-	-	69	3.45	Neutral
Doti	-	-	-	-	3	15	16	80	1	5	78	3.9	Positive
Bajura	1	5	5	25	3	15	10	50	1	5	65	3.25	Neutral
Bajhang	19	95	-	-	-	-	1	5	-	-	23	1.15	Negative
Darchula	-	-	-	-	20	100	-	-	-	-	60	3.0	Neutral

(VP: Very_Poor, P: Poor, F: Fair, G: Good, E: Excellent)

1.0-2.4(Negative_Attitude), 2.5-3.4(Neutral_Attitude), 3.5-5.0(Positive_Attitude)

Figure 4.39

Teachers and Students Digital Literacy Level (District-wise)

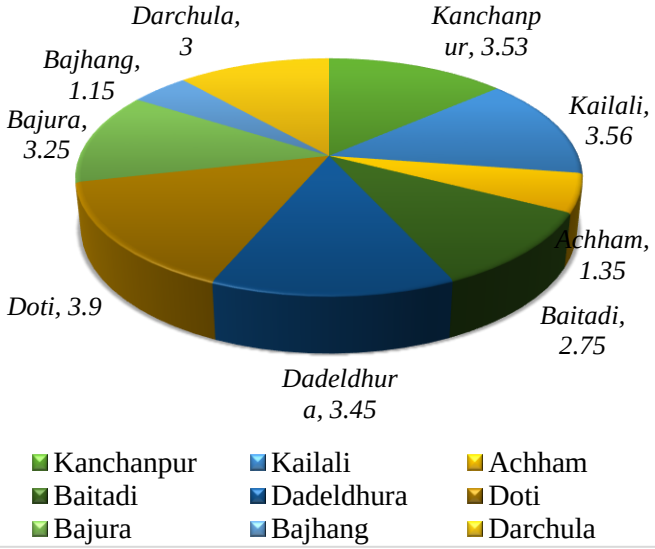
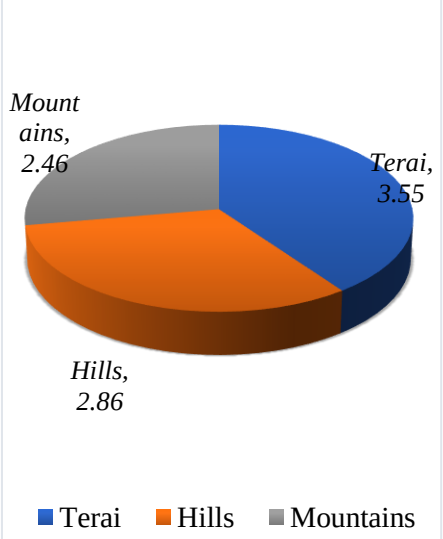


Figure 4.40

Teachers and Students Digital Literacy Level (Region-wise)



Pie chart 4.40 presents the given district-wise data in Regional form. Among the three Regions, only the respondents of Terai Region said they and their teacher had good enough knowledge. The statement was proved by the mean score of 3.55. Remaining two Region shared moderate tendency with the mean score of 2.86 (Hills) and 2.46 (Mountain) respectively.

In conclusion, the districts which are belonged to Terai reason had more digital literacy level due to easy access of all infrastructure and rapid educational development. More than 85% students from Terai reason seemed knowledge and aware about the digital education and digital world. In the same way, only the districts from Hills found positive attitude. More than 90% students and teachers from Doti were found good in digital literacy. While talking about other districts very few teachers and students were familiar about digital world. For example, only 1.35% students and teachers were found literate from Achham about digital resources and its importance. This shows that the more difficult geographical variation, the less digital literacy level. They know basic thing with their importance but still they have good enough knowledge about ICT and its infrastructure which results digital divide. Moreover, a smaller number of students and teachers had excellent knowledge of digital education and its resources.

Supporting Students Digital Skills

The level of digital literacy seems very poor. Students as well as teachers are needed to educate about digital skill. Digital skill seems mandatory in present world due to the digitalized market and technology-based development. To enhance digital skill, concerned person and place need to support and guide students, which make them capable to be sold in this digital market. Therefore, the researcher raised a question whether the students of Far Western Region were guided and supported from teachers and parents to enhance digital skills. And for the detail results, the following table and pie charts are presented;

The given table no.4.21 and chart no.4.41 shows the condition of support that the students were getting for the enhancement of digital skill. The table clearly shows that only the respondent from Kanchanpur, Kailali and Doti were getting motivation and support from parent and teachers. The mean scores of 3.7 from Kanchanpur, 3.76 from Kailali and 3.95 from Doti shared the positive attitude which denote there was good environment to learn digital education and familiar about digital skill. Other districts had less supportive environment, Achham and Bajhang had very poor environment to Learn digital courses and gain digital skilled. This means the respondents were not getting enough support to learn digitally.

Table 4.21

Supporting Students Digital Skills

District Name	VP		P		F		G		E		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	-	-	3	10	4	13.3	22	73.3	1	3.3	111	3.7	Positive
Kailali	-	-	4	13.3	3	10	19	63.3	4	13.3	113	3.76	Positive
Achham	13	65	6	30	1	5	-	-	-	-	28	1.4	Negative
Baitadi	2	10	5	25	5	25	7	35	1	5	60	3.0	Neutral
Dadeldhura	-	-	1	5	10	50	9	45	-	-	68	3.4	Neutral
Doti	-	-	-	-	2	10	17	85	1	5%	79	3.95	Positive
Bajura	1	5	6	30	1	5	10	50	2	10 %	66	3.3	Neutral
Bajhang	1	5	18	90	-	-	1	5	-	-	41`	2.05	Negative
Darchula	-	-	4	20	14	70	2	10	-	-	58	2.9	Neutral

Figure 4.41

Supporting Students Digital Skills (District-wise)

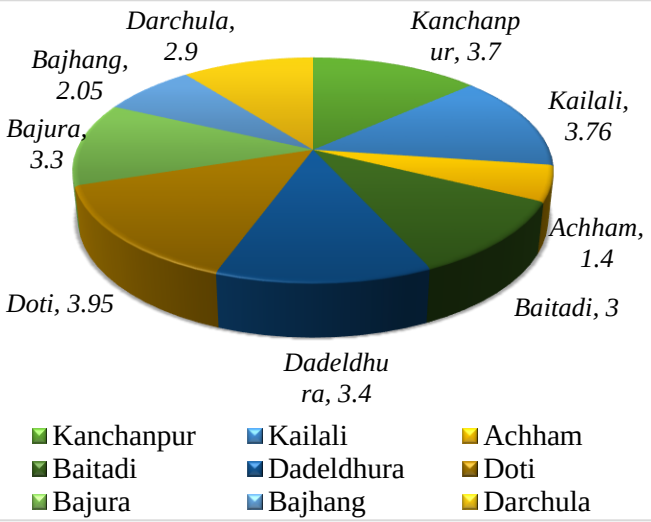
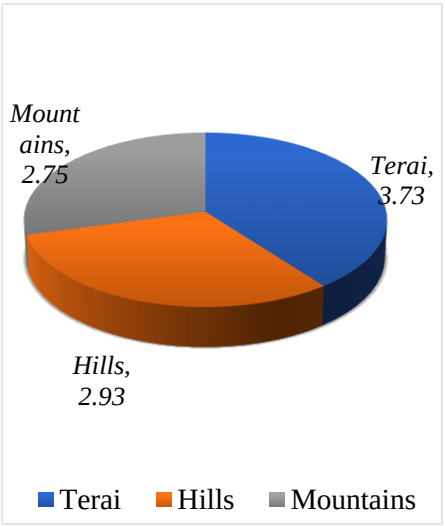


Figure 4.42

Supporting Students Digital Skills (Region-wise)



The chart no.4.42 portrays that only Terai Region had positive attitude and motivate students for digited skill. The respondents from Hilly and Mountain Region were had fair environment. It means some students got support and motivation whereas some of them were deprived to enhance digital skill.

In a nutshell, most of the respondents were not getting enough support and guidance from teachers, parents and concern authorities. For example, students from Baitadi shared that they had not good environment to enhance digital skill. Ninety five

percent students were found depriving from the digital knowledge due to lack of support and guidance. From this, it was clear that those districts which have more digital literacy level were found to be guiding and motivating students for enlarging digital skill. Similarly, the districts which are more developed also found to be supporting the students to study IT related subjects with digital skill. Moreover, the level of infrastructure development, literacy level and digital resources determine the environment for learning digital skill.

Role of Socio-economic Constraints in Digital Divide

As we know that digital divide refers to the disparities in the access of digital resources, the causes of digital divide can be different factors. Some causing factors of digital divide are geographical diversities, literacy level, socio-economic factors, educational status and so on. Among them, this theme deals with the socio-economic factors. The researcher wanted to explore the perception of students about the economic importance for causing digital divide. For this, the following tables and pie charts have been presented;

Table 4.22

Role of Socio-economic Constraints in Digital Divide

District Name	Not Imp		SImp		MImp		Imp		VImp		Total Score	Mean	Interpretation
	N	%	N	%	N	%	N	%	N	%			
Kanchanpur	-	-	1	3.3	1	3.3	20	66.7	8	26.7	125	4.16	Positive
Kailali	-	-	8	26.7	14	46.7	4	13.3	4	13.3	94	3.13	Neutral
Achham	-	-	1	5	-	-	5	25	14	70	92	4.6	Positive
Baitadi	1	5	2	10	4	20	9	45	4	20	73	3.65	Positive
Dadeldhura	-	-	3	15	2	10	13	65	2	10	74	3.7	Positive
Doti	-	-	1	5	-	-	19	95	-	-	78	3.9	Positive
Bajura	-	-	-	-	-	-	9	45	11	55	91	4.55	Positive
Bajhang	-	-	-	-	-	-	3	15	17	85	97	4.85	Positive
Darchula	-	-	-	-	-	-	-	-	20	100	100	5	Positive

(NotImp: Not Important, SImp: Slightly Important, MImp: Moderately Important, Imp: Important, VImp: Very Important)

1.0-2.4(Negative_Attitude), 2.5-3.4(Neutral_Attitude), 3.5-5.0(Positive_Attitude)

Figure 4.43

Role of Socio-economic Constraints in Digital Divide (District-wise)

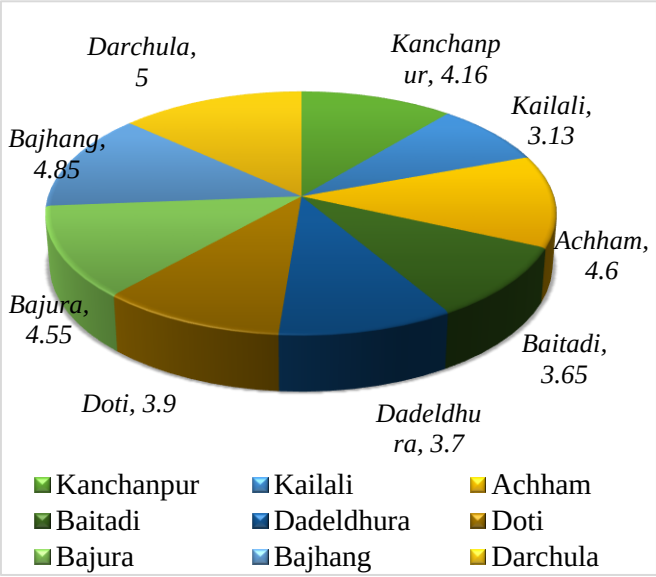
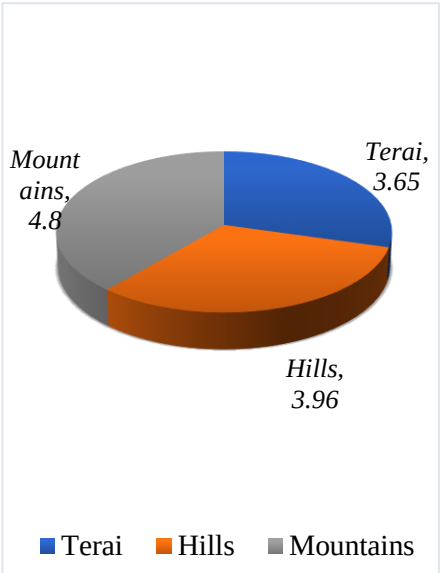


Figure 4.44

Role of Socio-economic Constraints in Digital Divide (Region-wise)



The above presented table no.4.22 and charts no.4.43 show the perception of students about the importance of socio-economic factor for increasing digital divide. For this, most of the respondents thought that economic condition determines the status of digital divide. All of the respondents responded with positive attitude except the respondents of Kailali. Only the respondents of Kailali presented neutral tendency with 3.13 mean score they thought interest and dedication also the factor to increase the digital divide. Otherwise, all of the respondents thought economic condition should be good to eradicate, digital divide. They thought economic conditions is very important which determine the condition of digital disparities.

Similarly, the chart no.4.44 explores the mean scores of the perception of students that were analyzed being based on Region. Regarding this, Mountain Region was found with more positive attitude than other two Regions. A mean score of 4.8 exhibits that most of the respondents from Mountains, agreed that socio-economic factors affects the most. Similarly, Hilly and Terai shared the mean score of 3.96 and 3.65 respectively. This shows that the respondents of Terai Region thought socio-economic constraint had effect but not the most.

In conclusion, more than 80% respondents from all districts except Kailali thought socio-economic status plays vital role to determine digital divide. Respondents of

Kailali responded that economic factors have great influence however other factors also play determining role to create digital divide. The respondents from Terai belt where development took fast, thought economic factors had less role whereas the respondent from Mountain Region where development activities seems very poor, thought socio-economic constraints plays vital role. From this comparison, it is concluded that the students from less developed Region thought economic status plays great role because they were for depriving from digital resources due to economic crisis and affordability of the infrastructure. The opinion of respondents found diverse along with diversity of geography.

Analysis of Semi-structured Interview

Semi-structured interview is one of the tools that is suitable to go depth of any study. Therefore, I had used semi-structured interview to collect the information of my study. This chapter consists the analysis and interoperation of interview questionnaires. 27 students of different 9 districts were my populations for the semi-structured interview. The acquired data are deeply analyzed and interpreted in different themes. Eight questions were asked the respondents in order to gather information which were presented below:

Exploring Digital Divide

The digital divide encompasses inequalities in both access to and utilization of information and communication technology. Understanding the digital divide is crucial in accessing disparities in access to technology and digital resource. This theme aims to investigate the status of the digital divide both within academic institutions and local communities. Therefore, interview was taken where the question was asked to the students to analyze the situation of digital divide in college of different districts of Far Western Region. The question was ‘What is the status of digital divide in your college?’. Regarding the questions, most of the participants shared common opinions. The participants were selected addressing differences of students such as girls, boys, students of IT and non-IT, geographical diverse students (Mountains, Hills and Terai). Some common response is presented here as below;

S1- *'The students who are studying IT courses are easy access to ICT lab, internet connectivity and ICT infrastructure who belongs to Non-IT have limited access.'*

S2- *'The digital divide is increasing due to unequal access, low access to the ICT and its infrastructure.'*

S3- *'Though college has some of the ICT infrastructure, all of the students are not allowed to use them.'*

S4- *'Only few students have access to modern technology.'*

S5- *'Digital divide is high in my college due to insufficient access of electricity, poor ICT infrastructure.'*

After analyzing presented response, it shows that most of the college have been facing digital disparities. Students are not getting proper access of digital tools and resources. College who are conducting IT courses have found easy access to computers, ICT lab, Wifi, digital literacy program and other technology infrastructures than Non-IT colleges. But still, only IT students seems getting access of internet connectivity, ICT lab and tools. Similarly, the district of Terai Region had less disparities than Mountain and Hilly districts. To sum up, digital disparities has seemed all of the districts though some has more and some has less based in the different scenarios.

Likewise, another question was asked to the students regarding digital divide at their home/town/village. Regarding this question, some response has been presented here as representative opinions;

S1- *'There is a lack of electricity and internet connectivity.'*

S2- *'We are unable to use digital tools because of poor electricity and infrastructure.'*

S3- *'I'm using ICT tools facing with various difficulties such as mobile data doesn't work properly.'*

S4- *'We have to face difficulty due to unavailability of technological resources, proper digital skills.'*

S5- *'Only few of us can afford the ICT tools so digital disparities seems high.'*

S6- *'It seems low divide because most of the parents are educated and they are in easy access to digital tools.'*

From the above response, it is revealed that almost all students who are from Hilly and Mountain are facing digital divide. Due to geographical aspects, socio-economic status they are depriving from digital tools and modern technology. On the other hands, Terai districts like Kailai and Kanchanpur has less disparities because they are easy access to modern technology and internet connectivity in comparison to remote districts. In conclusion, along with the diversity, there exists differences among people and so does in digital divide.

Contributing Factors of Digital Divide

Digital divide is caused not only from single factor, it consists multiple factors. To know the causes of digital divide from the student's perspective, I raised the question in the interview, 'What are the primary factors that contribute to create digital divide?'. Answering the question, students have somehow same opinion which are presented below;

S1- *'The factors of digital divide include demographic and demographic factors, age, gender, family types, income, technical skills.'*

S2- *'Factors such as low literacy and income level, geographical restrictions, lack of motivations, lack of physical access to technology contribute to digital divide.'*

S3- *'Educational status, skills related to ICT, physical resources, electricity and geography are some factors that contribute to digital disparities.'*

S4- *'Digital divide is created due to lack of access to ICT education, financial factors, remote location, transportations, socio-cultural factors etc.*

S5- *'Lack of internet access with regular electricity, government policy and its implementations etc. are taken as primary factors.'*

In conclusion, digital divide is created due to various factors such as economic status, socio-cultural status, geography, education and income level, digital skill, digital literacy, unavailability of ICT infrastructure, lack of electricity, age, gender and so on. These factors cause digital divide widely which is seen from the analyzed

data too. Similarly, inadequate resources, lack of effective instruments etc. also play significant role to increase digital divide.

Use of ICT Tools by Teacher for Teaching Learning Activities

Another question regarding ICT tools and its usage for teaching learning activities was asked to the students. And for this, some representative answers have presented below;

S1- *'Yes, they use ppt, multimedia, office tools, projector, laptop for teaching learning activities.'*

S2- *'Yes my teacher uses multimedia projectors, office tools, ICT lab, programming tools, email and different social media.'*

S3- *'They use video conferencing platforms, interactive white boards, online resources, smart board, Moodle, MOOC, google etc.'*

S4- *'No, my teacher doesn't use any ICT tools they use manual books for teaching learning.'*

S5- *'Teacher does not access and use ICT tools because of remote area.'*

After analyzing above respondent, it can be said that teacher of urban area and IT courses has been found of using ICT tools such as multimedia projectors, office tools, interactive contents, video conferencing tools, Moodle, MOOC google and social media tools etc. Similarly, the teacher who are from remote area and Non-IT courses have been restrict access or no access to educational tools and focusing on manual text books and white boards only. Teacher of Terai Region have been found focusing ICT enabled tools for teaching learning activities. On the other hand, teacher of Hilly and Mountain districts doesn't use ICT tools due to unavailability of ICT resources, lack of electricity and internet connectivity.

Access of Students to Online and Digital Learning Platform

Students have varieties due to geography, culture, socio-economic status and educational backgrounds. These aspects can make unequal distributions to the students for online and digital learning platforms. Therefore, a question was asked to the students 'Do you have access to online learning material and digital learning

platform?' to understand and analyze their access. Regarding the question, the respondents have presented as below;

S2- *'Yes, I have access to online materials such as digital library, e-journals, e-books, YouTube and different social media.'*

S3- *'No, I don't have easy access to the online learning platforms due to poor internet connectivity.'*

S4- *'Yes, I use some of the online learning platform such as YouTube, social media, google but can't use regularly due to poor resources and infrastructure.'*

S5- *'Yes, I use YouTube and websites.'*

S6- *'No, because I don't have internet connectivity at home. Mobile data also doesn't also work properly. So, I'm unable to use those online learning platforms.'*

In a nutshell, it is found that halves of the students have some access whereas rest of them has poor or no access to online learning platforms. Very few students found to be using online learning platform such as e-library, e-journals, and e-books. Most of the students found in the access of YouTube and social media. Due to unequal access of the internet and lack of infrastructural resources some students were found to be deprived from those online learning platforms. The students of Terai and urban Region seems more accessible on digital learning than Mountains and Hilly Regions. Likewise, many boys found to be using more digital platforms whereas only few girls were known and use those platforms. They were found to be using social media but not for learning.

Availability of ICT Courses

Another question was asking to the respondents regarding the IT courses. I wanted to know whether IT courses has been conducting the selected area. Regarding this question, it was found that only four districts are conducting courses related to IT. Two districts from Terai Region Kailali and Kanchanpur has been conducting Bed.CSIT courses. And most of the students of those courses were boys. Very few girls were studying the courses. Similarly, BCA program has been conducting in Doti districts which is located in Hilly Region. On the same way a college of Bajura is also found to be conducting Bed.CSIT program. Which is situated in Mountain Region.

To sum up, very limited college has been conducting IT related courses. District of Terai Region seems more attracted to conduct ICT courses than other Regions. It might be happening due to geographical easiness and infrastructure facility.

Suggestion for the Government to Minimize Digital Disparities

Government is the central power which has the ability and capacity to make impossible to possible. Therefore, a question was asked to the students that can be the initiatives that governments should take to minimize the digital gap. Answering this question, students have presented somehow similar perceptions so, some of the common response are presented below;

S1- *'Government should make strong policy to expand broadband internet services and implement those policy properly.'*

S2- *'Government need to improve affordability of digital resources, digital literacy skill, ICT courses etc.'*

S3- *'Government should aware about digital literacy, build infrastructure, create equal access to internet and electricity, provide training related to the ICT.'*

S4- *'First of all, government should make easy access of electricity and then organize digital literacy program.'*

S5- *'Government should co-ordinate with local level, educational institutions, private sector and develop favorable environments which reduce digital divide.'*

S6- *'Economics status of parents should be developed and for this government should bring effective, efficient policy.'*

In these way students have suggested to the government. Student have suggested for the sustained investment of government to enlarge ICT courses and its usage. Organizing digital literacy awareness program, coordinating with different sectors, developing suitable infrastructure, expanding electricity and internet, making proper policy plans and implementing them are some measures that suggested by the students to concern and responsible authorities.

Strategies to Address the Digital Disparities in Higher Educations

Another inquiry posed to the students concerned the tactics aimed at diminishing the digital gap in higher education. The question was ‘what strategies or recommendations do you suggest for addressing digital divide in higher educations?’. Answering the questions, students have presented their opinions which are presented below;

S1- *‘Fostering economic growth, expanding internet connections, providing digital skills training, developing infrastructure are the ways to reduce digital divide in higher education.’*

S2- *‘College should develop proper infrastructure and provide equal opportunity to all students to utilize ICT lab, computer and so on.’*

S3- *‘Teacher should provide training and workshop programs for students and teacher should organize with in a time span.’*

S4- *‘Teacher should provide digital content, relevant online material, sufficient and authentic online resources to the students and encourage them to use these materials.’*

S5- *‘Digital access scholarship should start that establish financial aid programs to help students to afford necessary technology tools and internet access.’*

In nutshell, I was found that almost all students suggested to foster economic growth, make easy access of internet connection and electricity, developing proper infrastructure, ICT literacy program etc. On the same way students suggested teacher to provide online materials with authentic resources. Digital divide won’t be reduced with single effort so, students suggested a number of measures to be implemented for mitigating digital divide.

Chapher-5

Findings, Conclusions and Recommendations

This section encompasses the findings of the research alongside its conclusions and recommendations for concern authorities and stakeholders. The study's findings are presented here after the interpretation of the gathered data. Likewise, the conclusion has been prepared based on the major findings of the results and discussions. And, recommendations have been recommended being related with policy, practice and further research.

Finding of the Research

The finding of the study refers to the results or conclusions drawn from the analysis of data collected during the research process. These findings are the key discoveries that the study uncovers in relation to the research questions or objectives. Therefore, the researcher discovered and drawn following findings based on the analysis of data interpretation;

Status of Digital Divide in Higher Education in Far Western Region

Digital disparities have analyzed and presents the finding in this section. The status of digital divide has analyzed from two perspectives; District-wise and Region-wise. Therefore, based on those perspectives, the researcher had presented following finding thoroughly. As we know, there are nine districts and three Regions in Far Western province, the data was collected from representative samples from those districts and explored following findings categorizing them as district-based and Region-based;

Accessibility of Students on Electricity.

District-based.

- It was found that all the students from Kanchanpur and Kailali had the access on electricity at home as we as college.
- Majority of the students (70%) from Achham districts had access on electricity whereas 30% seems deprived from the access at home.
- A number of students (85%) from Baitadi had access on electricity at home.
- All of the students from Dadeldhura and Doti were in easy access of electricity at home.
- Eighty percent students from Bajura were found using electricity at home.

- It is found that more than half of the students of Bajhang and Darchula had access on electricity at home.
- While talking about the status of electricity at college, it is found that all the colleges had facility of electricity.

Region-based.

- Regarding accessibility of electricity, students in Terai Region (Kanchanpur and Kailali) have full access to electricity at home.
- About 89% students in Hilly districts (Achham, Baitadi, Dadeldhura and Doti) have access to electricity at home.
- Similarly, 68.3% students in Mountain districts (Bajura, Bajhang and Darchula) have access to electricity at home.
- Colleges in all of the districts have access to electricity regardless of home access disparities.
- It is found Terai Region has better access to electricity compared to Hilly and Mountain Region.
- In conclusion, the districts of Terai Region which are geographically, infrastructurally developed in comparison to other two Regions (Hill and Mountain) have easy access on electricity at home as well as college.

Availability of ICT Tools.

District-based.

- Regarding the topic, all of the respondents from nine districts had access in SmartPhones.
- It is found that other ICT tools except SmartPhones had very low access of the respondent.
- While talking about availability of Desktop, it is found that very few numbers of students had the facility of Desktop such as; 16.7% students of Kanchanpur, 10% students of Bajura, 20% students of Kailali and Doti, 5% students of Baitadi.
- In the same way, the respondents from Achham, Bajhang and Darchula had not found using Desktop.
- Similarly, only the 80% respondents of Kailali, 50% students of Doti and 36.7% respondents of Kanchanpur had Laptops whereas most of the students of remaining six districts had very less access on laptops.

- Majority of the students from all the districts had found very less access on Tablet. Regarding this, only 3.3% students from Kanchanpur, 13.3% students from Kailali and 5% students from Doti had found in access of Tablet.
- Similarly, most of the students were found to be depriving from using E-reader at home.
- Talking about the accessibility of ICT tools from their family, most of the family of respondents had access of tools in very less number.
- It is found that the family members had only the access of SmartPhones because more than 85% respondents of all districts responded that they had.
- Other ICT tools seemed very less access for the family members of respondents.
- It is found that the family members of Kanchanpur, Kailali, Doti had most of the ICT devices whereas remaining districts seemed very less access of those tools.
- Overall, it was found that most of the district had access on SmartPhones and very few districts could reach in the access of other ICT tools such as Tablet, Laptop and so on.

Region-based.

- Most of the students of Terai Region have access on ICT tools such as Desktop, Laptop, Tablet whereas very small number of family member had access on those ICT tools.
- A small number of students of Hilly reason are found in access of those tools whereas a smaller number of family member had access on those devices.
- Mountainous Region seems more affected with the ICT tools access disparities for both students and their family.
- SmartPhones were the most widely accessible device among students and their family members in all Regions.
- In conclusion, students and their family member of Terai Region generally had better access to ICT devices compared to Hilly and Mountain Regions.

Source of Internet.

District-based.

- All the respondents from Kanchanpur, Kailali, Baitadi, Dadeldhura and Doti were found using mobile data at home as the source of internet.
- Similarly, most of the students more than 90% from Achham and Bajhang found using internet through mobile data.
- And about 70% students from Bajura and Darchula were found using mobile data as source of internet at home.
- Most of the students seemed using internet from mobile data than Wifi.
- More than 50% respondents of Kanchanpur, Doti and Kailali seemed to be using Wifi as source of internet otherwise other districts found using mobile data.
- It is found that nobody was found using Dial-up and DSL as the source of Internet.
- A smaller number of students such as 10% from Achham, 25%from Bajura, 5% from Bajhang and 30% from Darchula had no access of internet of any sources at home.
- All the students from Kailali, Achham, and Dadeldhura had both mobile data as well as Wifi as the source of internet at college.
- Most of the students were found to be using Wifi as main source of internet connectivity at college.
- Almost all colleges of the respondents found the facility of Wifi at college.
- Moreover, most of the districts were found depending on Mobile-Data at home as the source of internet and access of Wifi was seen in all the colleges of the districts.

Region-based.

- Terai Region had both mobile data and Wifi as sources of internet at home as well as college.
- Students from Hilly Region was found to be using both mobile data and Wifi mainly they were depending mobile data at home but they had full access in Wifi at college.

- Almost all students were found using internet via mobile data at home where some students seemed zero access too.
- Terai and Mountain Region were found using more mobile data and Wifi at home as well college.
- Access of Wifi connectivity at home and college seemed lower in Mountainous Region.
- Finally, the study displays that Terai Region had more access on both Wifi and Mobile Data where disparities was shown in Hilly and Mountain Region.

Perception of Students with the Internet Speed.
District-based.

- Most of the students (about 76%) from Kanchanpur and Kailali were found satisfied with the internet speed of their home.
- Most of the respondents from other remaining districts opined that they were neither satisfied nor dissatisfied with internet speed.
- Similarly, respondents of Achham and Darchula opined dissatisfaction with the internet speed of their home.
- Most of the districts were found dissatisfied with the internet speed of home.
- Regarding the internet speed of college, it was found that only the respondents of Kanchanpur and Kailali were satisfied with internet bandwidth.
- Most of the students such as 95% from Achham and 100% from Darchula were found dissatisfied with the internet speed of college.
- Almost all students of Baitadi, Dadeldhura, Doti, Bajura and Bajhang were found neutral. It means they were also not satisfied.
- In summary, the districts which have diversified and difficult in geography such as Achham, Darchula, Baitadi, Bajhang were less satisfy with the internet speed

Region-based.

- Students from Terai Region was more satisfied with internet speed at home and colleges compared to those from Hilly and Mountain Region.
- Majority of the students from Hilly and Mountain Region had shown their dissatisfaction with the internet speed of home as well as colleges.

- Only the districts of Terai Region had presented positive attitudes that means they were satisfied with the internet speed of both home as well as college.
- In conclusion, it can be said that geography hampers the speed of internet and its access to the students.

Use of Online Materials for Learning.

District-based.

- Most of the students (90%) of Kanchanpur district were found to be using online material for learning.
- All of the students from Kailali were also found to be using online materials for learning.
- Rest of the above districts have found disparities in access of online learning materials.
- Similarly, it was found that more than half of the students were using online materials in remaining districts.
- Regarding the using online learning material, most of the students from Kanchanpur, Baitadi, Kailali, Dadeldhura, Doti, Bajura were found using whereas only half of the students from Achham, Bajhang and Darchula found using online learning materials.
- In the final analysis, the study shows that disparities are seen in those districts which are comparatively less developed.

Region-based.

- Almost all students of Terai Region were found using online materials such as YouTube and social media.
- Disparities was seen in Hilly Region about the use of online learning materials but most of the students found to be using online learning materials for learning purpose.
- Only half of the students of Mountain Region were found to be using online learning materials such as YouTube and social media.
- In addition, marginalized and disadvantaged place seems more affected from digital divide with unequal access in online learning materials.

Availability of Digital Content for the Course.
District-based.

- Regarding the availability of digital content for the course, most of the students of Kanchanpur (83.3%) and Kailali (70%) were found satisfied.
- On the other hand, all the respondents from Achham and 60% students from Baitadi were dissatisfied with digital content for the course.
- This unequal distribution of digital content shows clearly the digital divide in Far Western Region because only the districts which are from Terai Region had easy access on digital content for the course.

Region-based.

- Students from the Terai Region showed higher level of satisfaction with digital content as proved by a mean score of 3.7.
- Similarly, most of the students of Hilly and Mountain presented their dissatisfaction with the mean score 2.28 and 2.65 respectively.
- It is found that Terai Region had more satisfaction than the Hilly and Mountain which shows divide in the distribution in digital content for the students.

ICT Tools at Colleges and their Use for Teaching Learning Process.
District-based.

- All the students of Kailali and Dadeldhura had projector, computer, and PPT at college.
- Half of the students from Achham, Baitadi, Doti and Bajura opined that their college had protector, computer and PPT.
- Regarding ICT lab, only half of the respondents from Kanchanpur, Kailali, Doti and Bajura the were found in the access.
- Only 25% respondents from Bajhang, 30% from Darchula had only one ICT tools that was computer.
- The majority of students indicated that their teachers utilize projectors, computers, and PowerPoint presentations during instruction, with the exception of those in Bajhang and Darchula.
- About 50% teachers were found using ICT lab in Kanchanpur, Kailali, Doti and Bajura.

- A smaller number of teachers were found to be using only computer from Bajhang and Darchula.
- Ultimately, a significant portion of both teachers and students refrained from utilizing ICT tools in the teaching and learning processes due to insufficient knowledge and inadequate ICT-related infrastructure.

Region-based.

- Regarding the availability of digital device at college, Terai Region had higher access to ICT tools compared to the Hilly and Mountain Regions.
- About 77% of respondents from the Terai Region having projectors in their colleges, while only 52.5% from the Mountain Region.
- In the same way, the usage of PPT by teachers was higher in Terai Region (83%) compared to the Hilly (50%) and Mountain Regions (16.7%).
- Mountain Region seemed very low access in those devices and the teacher also used in a smaller number.
- Most of the ICT tools utilization was seen in Terai Region, it is because of easy access on digital materials and physical infrastructure.

Digital Learning Materials for Students.

District-based.

- The teachers of Kanchanpur, Kailali, and Doti and Bajura were found to be providing digital learning materials to the students for learning.
- Teachers from Bajhang, Achham and Dadeldhura were found providing digital learning materiel rarely to the students.
- Baitadi and Darchula had neutral tendencies, which indicates teachers in these areas provided digital learning materials occasionally.
- This shows diversity to the access of digital divide for students because only four districts found providing enough digital learning materials.

Region-based.

- It was found that the students from Terai Region use digital learning materials more frequently that was proved by mean score of 3.7.
- Similarly, Hilly Region was indicated by neutral tendency (2.73) which means the students from this area used digital learning material sometimes only.

- And Mountain Region had the least attitude among three Regions with 2.51 mean score that means the students from this Region used digital learning materials rarely.
- It shows digital divide is found more in Mountain Region comparing other two Regions.

Affordability of Students to Purchase Laptop or Desktop.
District-based.

- Kanchanpur and Kailali had a higher percentage of students (55% and 80% respectively) with the economic capacity to purchase Laptops and Desktops.
- It is found that more than half of the students from Dadeldhura, Doti and Bajura had the capacity to purchase Laptops and Desktops.
- A smaller number of Achham and Baitadi (25% and 30% respectively) were found to be able to purchase Laptops and Desktops.
- Eighty five percent students of Bajhang and Darchula found to be depriving to use Laptops and Desktops due to economic barrier.
- Very few students were found having capacity to purchase Laptops/Desktops which shows economic barriers among the districts and eventually creates digital divide.

Region-based.

- More than half of the students (65%) from Terai Region were found to be able to purchase Laptops/Desktops.
- In contrast, only 41.3% and 31.7% students from Hilly and Mountain Region respectively could afford to buy Laptop and Desktops.
- It was found that the students from Hilly and Mountain Region deprived from using ICT tools because of economic disparities.

Findings from Semi-structured Interview.

- It is found that most of the college were found to be facing digital disparities.
- Most of the students were not getting proper access of digital tools and resources.
- Only the colleges who were conducting IT courses have found in easy access to computer, ICT lab Wifi than Non-IT colleges.

- Similarly, the districts of Terai Region had less disparities than Mountain and Hilly districts.
- Almost, all students who were Hilly and Mountain Regions were facing digital divide.
- Regarding the use of ICT tools by teacher, it was found that teachers of urban area and IT courses were using ICT tools such as multimedia projectors, office tools, Moodle, programming tools, and so on.
- Similarly, teacher of Terai Region had been found using and emphasizing ICT tools in teaching learning activities than Hilly and Mountain.
- Likewise, halves of the students had a few accesses and most of the students had no access to online learning platforms such as; e-library, e-Journal, e-books etc.
- The students of Terai Region seemed more accessible on digital learning platforms than Mountains and Hilly.
- Regarding availability of ICT courses, only four districts Kailali and Kanchanpur from Terai Region, Doti from Hilly Region and Bajura from Mountain were running ICT courses.

Contributing Factors to the Digital Divide

Role of ICT Tools for Enhancing Successful Learning Outcome.
District based.

- Almost all the respondents from the nine districts opined that ICT tools enhance successful learning process.
- All the nine districts showed positive attitude with various mean score such as 4.3 (Kanchanpur), 4.1 (Kailali), 4.25 (Dadeldhura) and so on.
- It is found that all the students supported to use ICT tools in learning process.
- In summary, all of the respondents thought ICT tools and its distribution is a factor that influence the status of digital divide.

Region based.

- The analysis further categorized respondents based on their Region (Mountain, Terai and Hilly). Regarding this, Mountain Region expressed the highest mean score with 4.23.

- Terai (4.2) and Hill (4.02), comparatively presented less mean score but they were also in the side of ICT tools and their positiveness in learning outcome.
- This finding shows all the Region had equal curiosity and desire to reach digital world and overcome the problem of digital divide.

Importance of Internet Connectivity at Teaching Learning Process.
District-based.

- Almost all the students from all districts except Bajhang predominantly thought that internet connectivity helps teaching learning process.
- Only Bajhang presented negative tendency and with 2.05 mean score and indicated the minor role of internet connectivity.
- Most of the students believed that high speed of internet connectivity enhances successful teaching learning process.
- Regarding the concept of Wifi- hotspot at various places, Kailali, Achham, Dadeldhura, Doti, Bajura and Darchula agreed that putting Wifi- hotspot at various places help for successful learning outcomes
- The respondents from Kanchanpur and Baitadi responded that those Wifi-hotspot helps learning process occasionally.
- Similarly, 95% respondents from Bajhang expressed their perception that Wifi-hotspot supports their teaching learning process rarely.
- Almost all the respondents of nine districts shown their interest in the significance of internet connectivity and thought internet connectivity is also a determining factor to make possible the concept of digital world.

Region-based.

- All the three Regions were found positive attitude towards high speed of internet connectivity and its support for learning.
- The Hills expressed a higher level of attitude with the mean score 4.11 to show the importance of internet connectivity.
- Similarly, Terai had 4.03 and Mountain 3.51 tendency to show their opinion with positive interpretation regarding the speed of internet.
- About the concept of free Wifi-zone, all of the Regions had shared positive attitudes and thought it would be helpful for learning process and it helps to reduce digital divide.

Accessibility of Digital Resources and its Influence.
District-based.

- Only two districts Doti (80%) and Bajhang (95%) were positive about equal distribution of digital resources.
- The districts such as Kanchanpur, Kailai, Baitadi, Dadeldhura and Bajura thought they were facing unequal access in those digital resources.
- Similarly, students of Kailali (90%) Achham (95%) and Darchula (85%) were seen dissatisfy with the distribution of digital resources.
- Regarding the influence of the unequal access of students in education quality, almost all district thought insufficient access hamper the quality of education.
- The finding shows unequal distribution of digital resources and centralized distribution of ICT infrastructure which ultimately helps to flourish digital disparities. So, it was found that insufficient access plays a determining role for successful learning.

Region-based

- The result shows that though Mountain Region had a little access on digital device, they had equal access to the students.
- Terai and Hills expressed that there was unequal access on digital devices.
- Similarly, all the respondents from three Regions thought unequal distribution hamper the quality of education. Which was verified by the mean score 4.2 (Terai), 4.01 (Hills) and 4.31 (Mountain).

Influence of Infrastructure, Resources and Literacy Level to Digital Divide.
District-based.

- More than 90% students from all the districts agreed that infrastructure, literary level, physical resources play important role to digital divide in higher education.
- It was found that ICT infrastructure, digital resources, literacy level had great significance for creating digital divide.
- It shows that infrastructure, digital resources and digital literacy play vital role to determine the level of digital divide because most of the districts are facing the problem of digital divide due to insufficiency of above-mentioned factors.

Region-based.

- All the three Regions strongly agreed that infrastructure, digital sources influence the level of digital divide.

Digital Literacy Level of Teachers and Students.
District-based.

- Most of the students from Kanchanpur (about 68%) Kailali (60%) and Doti (85%) responded that their teacher had good knowledge regarding digital world and modern technology.
- Similarly, the digital literacy level of Baitadi, Dadeldhura, Bajura and Darchula were found fair enough.
- In contrast, the digital literacy level of teachers and students in Achham and Bajhang found negative which means teachers and students had little knowledge only.
- In summary, the districts which had good infrastructure, digital resources, internet connectivity had skilled teacher comparison to other less access districts.

Region-based.

- The digital literary level of teachers and students found a higher scale in Terai Region with mean sore 3.55.
- Similarly, Hills presented that the teacher had a fair knowledge but Mountain Region had very less knowledge about digital world.
- All things considered that digital literacy level determines the status of digital divide.

Guidance and Support to Enhance Digital Skill for Students.
District-based.

- Only the respondents of Kanchanpur, Kailali and Doti reported receiving substantial motivation and support from parent and teachers.
- Achham and Bajhang were identified as districts with particularly poor environment for learning digital skills.
- Baitadi, Dadeldhura, Bajura and Darchula had presented neutral tendencies that indicated moderate environment for learning digital skills.

- In conclusion, the level of digital literacy is determined by the environment of learning process. Most of the parents found unaware about ICT and its importance so, their children could not get proper support and guidance to enhance digital skill.

Region-based.

- Terai Region had found more positive attitude and motivation towards digital skills compared to Hilly and Mountain Regions.
- It was found that Mountain Region had the least environment and support for students about digital skills.
- The level of motivation and encouragement is seen more in Terai where development has taken place more comparatively to other Regions.

Role of Socio-economic Constraints to Create Digital Divide.
District-wise.

- All the districts showed positive attitude and thought with economic aspect plays determining role to reach in access to the digital world.
- Only Kailali expressed the moderate importance of economic factor as contributing factors to create digital divide.
- It is found that most of the districts had adverse geography, unequal distribution of sources, less access in internet and electricity and these all happens due to poor economic status and which increase digital divide.

Region-based.

- Mountain Region shared the highest positive attitude with 4.8 mean score to support the concept that economic factor determines the status of digital divide.
- Similarly, Hills shared 3.96 and Terai shared 3.65 mean score to know the perception of students regarding the influence of socio-economic factors.
- It was found that the more difficult geographical disparities, the more digital divide arises.

Finding from Semi-Structured Interview.

- Most of the respondents responded that demographic factors, age, gender, family background, income level and technical skills create digital divide.
- Similarly, almost all students opined that low literary and income level, geographical diversities, the lack of physical resources are contributing factors of digital divide.
- Majority of the students thought electricity accessibility, educational factors, socio-cultural factors remote location cause digital divide.
- In conclusion, physical, social, economic, technical, political, governmental, educational and geographical factors are the contributing factors which influence digital disparities.
- Most of the students suggested to the governments to expand broadband internet service and creates sufficient digital resources.
- Almost all students suggested for the sustained investment of government to enlarge ICT courses and its use.
- Majority of the students suggested to foster economic growth, easy access on internet connectivity and electricity to reduce digital disparities.
- Similarly, most of the students suggested to develop proper infrastructure, ICT literacy program and online materials for the students.

Conclusion

In conclusion, the research findings shed light on the status of digital divide with its contributing factors in Far Western Region of Nepal. The analysis reveals that the districts from Terai generally demonstrate better access to electricity both at home and college compared to both Hilly and Mountainous districts. While smartphones are widely accessible across all districts, other devices such as Laptops, Tablets and E-Readers shows considerable variation in availability with Terai generally had better access compared to Hilly and Mountain. Similarly, the findings portray that mobile data and Wifi are the main sources of internet at home as well as college of all the districts. In the same way, the researcher found positive attitudes towards internet speed at home and college in Terai district such as Kanchanpur and Kailali, whereas respondents generally expressed dissatisfaction in the districts like Achham, Darchula. This disparity is further under scored when considering Region-based analysis, with Terai Regions showing higher satisfaction levels compared to Hilly and Mountain. Likewise, districts of Terai Region had more access of online learning materials than other Region. The finding of the study shows the unequal distribution of internet and its hamper on educational quality. The researcher found significant disparities in satisfaction levels with digital course content across different districts and Regions. Similarly, the study reveals unequal distribution of ICT tools and centralized with in a developed district such as Kailali, Kanchanpur. The study showed that most of the districts, teacher didn't use ICT tools in teaching learning process due to insufficient infrastructure and resources. Regarding the access of digital learning materials, only the districts of Terai Region had accessed those materials. Those students who were non-IT background and unaware about online materials were found in shadow and they were only depending in manual textbook. Similarly, the data reveals that students from Terai Region had ability to purchase Laptop/Desktop than other Regions. It is found that the districts which have geographical difficulties hinders economic growth and eventually effects on the capacity of purchasing ICT tools (Laptop/Desktop).

The researcher found some contributing factors that generally creating digital divide. Regarding this, ICT tools play significant role because the more access ICT tools the more successful learning and eradicate digital divide. This means the districts which have more digital literacy and easy access on ICT tools can reduce

digital divide. Another contributing factor is internet connectivity. The results showed that high speed of internet at college helped for effective teaching learning process and eventually eradicate digital disparities. Similarly, the researcher found positive attitude of all the respondents about the concept of wife-hotspot at various places. Furthermore, digital sources also a determining factor of digital divide. The study showed that the colleges which were taken as more developed and had more infrastructure also failed to give equal access to digital resources which hampers learning process and enlarges digital divide. In the same way, the study revealed that infrastructural status, internet connectivity, digital literary program also contributes for the creation of digital divide. While talking about digital literacy level, a smaller number of students and teachers had excellent knowledge of modern technology, digital education and its resources. Guidance and support also play important role in digital divide which was found unequal to the different districts of Far Western Region. Similarly, socio-economic status also creates digital disparities and the improper government initiative also creates digital divide. Moreover, Income level, technological skill, geographical diversities, tack of physical resources, socio-economic factors, internet connectivity, electricity accessibility are some major contributing factors of digital divide which should be managed and distribute equally to all the districts.

Recommendations

Recommendations are the advices or opinions for further betterment in the related field. Therefore, some recommendations have been recommended in accordance with the outcomes of results, limitation of the study. Which have been presented categorizing in different themes.

Policy related

The findings of the study reveal that government initiative, teachers, parents and concern stakeholders have significant role to eradicate digital divide. Therefore, I have presented a few recommendations to the concern authorities to provide a glance regarding improvement in the status of digital divide. The recommendations are as follow;

1) The findings of the study support to design policy and strategy for government to reduce digital divide.
2) The outcome of the research helps to know the digital disparities in Far Western Region and prepare digital literacy program accordingly.
3) It is recommended that local, federal and province level should develop proper infrastructure and physical resources in the districts of Far Western Region specially in Hilly and Mountain.
4) The finding of the study suggested that concerned authorities should distribute the resources equally with the concept of decentralizations.
5) Concerned authorities are recommended to implement the policies such as Digital Nepal Framework-2076, ICT master plan and policy to eradicate digital divide.

Practice related

Practice related recommendation inserts the activities that are needed to act in real field. Regarding this, the researcher recommended some points as below;

1) Local, federal and province level governments are suggested to co-ordinate and focus on developing required infrastructure, resources etc.
2) Concerned authorities are highly recommended to organize training, digital literacy program, conference, exhibition to increase digital skill of teachers and students.

3) Family, society and local government are suggested to encourage their children to study ICT courses and its technology.
4) The finding of the study helps the concerned place to know the factors that are required to develop and work accordingly.
5) IT colleges should use ICT tools properly whatever they have and they should guide teachers for effective utilization of those tools for successful learning outcomes.
6) Teachers are recommended to provide ample of digital learning materials to the students and guide them properly.

Further Research Related

Only a single study for a topic is not sufficient to know the depth of the problem because the study is conducted with limitations, boundaries with regard to its objectives, areas, coverage, research methods. Therefore, this research is a piece of study to give a glance to the topic and open area for further study. Regarding this, the researches recommend some areas for further research in this field which are as follow;

1) The study was studied taking only one college for each district of Far Western Region. So, the further research can be carried out more thoroughly increasing sample of area and population.
2) Further research can be conducted using qualitative and quantitative research method separately such as in-depth interviews and focus group discussions, to gain a deeper understanding of digital divide.
3) The population of study was limited only on bachelor level students, so further research can also study including master's level, secondary level, basic level students.
4) This study was only limited to Far Western Region, so, further research can be carried out boarding its area.
5) The further researcher can study the perception of teachers, parent and governmental authorities.
6) The study only presents the situation and contributing factor of digital divide, so, further research can be done presenting solutions to those disparities.

References

Alam, I. (2011). Higher education and digital divide in India. *Journal of Library Information Science.* 1(2) 133-140. https://ssrn.com/abstract=2659476

Baral, R. P. (2022). The digital divide in online learning; a case study of university student in Nepal. *Prithvi Academic Journal*.5, 88-99 ISSN 2631-2352. DOI: https://doi.org/10.3126/paj.v5i1.45043

Boham, W. et al. (2018). *Critical theory.* Standford Encyclopaedia of Philosophy. https://plato.stanford.edu/entries/critical-theory/

Brookfield, S. (2014). Foundations of critical theory. *Adv Dev Hum Resour* 16(4):417-428. www.researchgate.com

Creswell, J. W. (1994). Research design; qualitative and quantitative approaches. Thousand Oaks.CA:Sage. www.google scholar.com

Cresswell, J.W.& Plano Clark. (2011). *Designing and Conducting Mixed Methods Research.* Sage Publications. www.researchgate.com

Davis, F.D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. Management Information Systems Quarterly. 13(13),319-340. doi:10.2307/249008.

GON, (2009). *School sector reform plan (2009-2014).* Ministry of Education. Kathmandu: Author. https://moest.gov.np.

GON, (2010). *IT policy 2010*. Information Technology High- Level Commission. Kathmandu: Author. https://techsansar.com.

GON, (2013). *ICT in education master plan (2013).* Ministry of Education. Kathmandu: Author. https://moest.gov.np.

GON, (2015). *National information and communication technology policy 2015.* Ministry of Education. Kathmandu: Author. https://moest.gov.np.

GON, (2019). *National curriculum framework (2019).* Ministry of Education. Kathmandu: author. https://moest.gov.np.

GON, (2019). *Digital Nepal framework (2019).* Ministry of Communication and Communication Technology. Kathmandu: Author. https://drc.gov.np.

GON, (2022). *School education sector plan (2022-2032).* Ministry of Education, Science and Technology. Kathmandu: Author. https://moest.gov.np.

Groves R.M. et al. (2004). *Survey methodology*. WILEY Interscience 2nd edition. https://www.wiley.com.

Georage T. (2020). Semi-structured interview definition, guide and example. *Scriber.* https://www.scriber.com/methodology/semi-structure interview.

Hamidi, et al. (2011). Information technology in education. *Procedia Computer Science*. 3, 369-373. doi: 10.1016/J. proes.2010.12.062

Hollywood, B. et al. (2018). Addressing information literacy and the digital divide in higher education. *Interdisciplinary Journal of e-skills and Lifelong Learning.* 14,77-93. https:// doi.org/10.28945/4029

Jabareen, Y. (2009). Building a conceptual framework: philosophy, definitions and procedure. *International Journal of Qualitative Method.* 8(4), 49-62. https:// doi.org/10.1177/160940690900800406

Jha, S. & Pandey, S. (2016). Digital divide; exploring national and international approaches to bridge the digital divide in the perception of developing countries Especially in the context of Nepal. International Journal of Latest Trends in Engineering and Technology.7(3) 368-383. https://doi.org/10.21172/1.73.549

Kolasi, K. (2020). *Structuration theory.* In Romaniuk; The Palgrave Encyclopaedia of Global Security Studies. https:// doi.org/10.1007/978-3-374336-3-360-1

Laufer, M. et al. (2021). Digital higher education; a divider or bridge builder? Leadership perspectives on edtech in a COVID-19 reality. *National Library of Medicine.*18(1), 51. Doi: 10.1186/s4239-021-00287-6

Marikyan, D. & Papagiannidis, S. (2023). *Technology Acceptance Model; A Review in S. Papagiannidis*. Theory Hub Book. ISBN:9781739604400. https://open.ncl.ac.uk.

Medlin, B.D. (2001). The factors that may influence a faculty member's decision to adopt electronic technologies in instruction. ProQuest Digital Dissertations. www.researchgate.com

Miles, M.B. & Huberman, A.M. (1994). Qualitative data analysis: an expanded source book second edition. Newbury Par. CA: Sage. www.google scholar.com

Parisot, A.H. (1995). Technology and teaching: the adoption and diffusion of technological innovation by a community college faculty. ProQuest Digital Dissertations. www.researchgate.com

Sahin, I. (2006). Detailed review of Roger's diffusion of innovation theory and educational technology related studies based on Roger's theory. *The Turkish*

Online Journal of Educational Technology. ISSN: 1303-6521 (5) 2. https://files.eric.ed.gov.

Warwick, D.P. & Linninger, C.A. (1975). *Survey Research.* p.p.5-6. https://www.scribd.com.

Zhou, Y. et al. (2011). The digital divide in rural south Asia: survey evidence from Bangladesh, Nepal and Sri Lanka. *IIMB Management Review.* 23, 15-29. https://www.researchgate.net.

Appendix –I

Close-Ended Question for Students

Dear Students,

You have been invited to participate in exclusive Closed-Ended Questionnaire designed for our research project titled "Assessment of the Digital Divide in Higher Education: A Case of the Far Western Province of Nepal." This innovative study is being conducted within the Department of ICT Education at Tribhuvan University, Kirtipur, under the guidance of Mr. Arjun Saud, a dedicated teaching assistant of Tribhuvan University, for the partial fulfilment of Master of ICT Education. I kindly request your participation and appreciate your contribution of accurate and truthful information to assist in this research endeavour.

Sincerely,
Narendra Singh Saud
Researcher
Department of ICT Education
Tribhuvan University

Students Detail:

Name: -……

Level: -……

Semester: -……...

Major Subject: -……...

District: -……

University Name: -…….

Campus Name: -……

Choose one from any given alternative.

1. Do you have electricity at your home?

   i. Yes ii. No

2. Do you have access to electricity at your college?

   i. Yes ii. No

More than one alternative can be selected for the following questions.

3. What kind of ICT device do you possess?

   i. Desktop ii. Laptop iii. Tablet
   iv. Smartphone v. eReader

4. Which ICT devices are owned by members of your family?

   i. Desktop ii. Laptop iii. Tablet
   iv. Smartphone v. eReader

5. How do you access internet at your home?

   i. Mobile data ii. Wifi iii. Dial-UP
   iv. DSL v. No access to Internet

6. How do you access internet at your college?

   i. Mobile data ii. Wifi iii. Dial-UP
   iv. DSL v. No access to Internet

7. Are you satisfied with the internet speed at your home?

   i. Very Dissatisfied ii. Dissatisfied iii. Neutral
   iv. Satisfied v. Very Satisfied

8. Are you satisfied with the internet speed at your college?

   i. Very Dissatisfied ii. Dissatisfied iii. Neutral
   iv. Satisfied v. Very Satisfied

9. Do you use online material for learning?

   i. Yes ii. No

10. Availability of digital content and learning material for your course?

    i Very Dissatisfied ii. Dissatisfied iii. Neutral
    iv. Satisfied v. Very Satisfied

11. What kinds of ICT tools are available in your college for teaching learning purpose?

    i. Projector ii. Computer iii. ICT lab

iv. Smart Board v. PPT

12. What kinds of ICT tools are used by your teacher in teaching learning?

i. Projector ii. Computer iii. ICT lab

iv. Smart Board v. PPT

Choose any one from given alternatives.

13. How often does your teacher provide digital reading material?

i. Never ii. Rarely iii. Occasionally

iv. Often v. Always

14. Can you afford to purchase a laptop or desktop?

i. Yes ii. No

15. Do you think that access to ICT tools enhance for your successful learning outcome?

i. Never ii. Rarely iii. Occasionally

iv. Often v. Always

16. Do you think that availability of high-speed internet at your college help in teaching learning?

i. Never ii. Rarely iii. Occasionally

iv. Often v. Always

17. Do you think that Wifi-hotspot at various places in your village/town helps in your learning?

i. Never ii. Rarely iii. Occasionally

iv. Often v. Always

18. Access to digital resources is equitable for all the students at your colleges.

i. Strongly agree ii. Agree iii. Neutral

iv. Disagree v. Strongly Disagree

19. Insufficient access to digital resources hampers education quality.

i. Strongly Agree ii. Agree iii. Neutral

iv. Disagree v. Strongly Disagree

20. Do you think ICT infrastructure, access to digital resources, internet connectivity, and digital literacy levels significantly contribute to the digital divide in higher education institutions?

i. Strongly agree ii. Agree iii. Neutral

iv. Disagree v. Strongly Disagree

21. Status of digital literacy to the students and teachers in your college.

    i. Very Poor ii. Poor iii. Fair

    iv. Good v. Excellent

22. The level of support and guidance provided to you in enhancing your digital skills for educational purposes?

    i. Very Poor ii. Poor iii. Fair

    iv. Good v. Excellent

23. Role of socio- economic constraints of students to creating the digital divide in your college?

    i. Very Important ii. Important iii. Moderately Important

    iv. Slightly Important v. Not Important

Appendix-II

Guidelines for the Interview

1. What is the status of digital divide in your college?
2. What is the status of digital divide in your home/village/town?
3. What are the primary factors that contribute to creations of digital divide?
4. Does your teacher use ICT tools for teaching learning activities? If yes, what kind of educational tools do they use?
5. Do you have access to online learning material and digital learning platform? How do you access those learning materials and platforms?
6. What kind of courses have been conducting related to the ICT by your college? What are the resources for operation of such technical courses?
7. What initiatives (measure) the government should take to minimize digital divide?
8. What strategies or recommendations do you suggest for addressing the digital divide in higher educations?