

**Blended Learning Approach in Tertiary Education in Bhutan: Understanding
students' perception**

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Master in Development Studies

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JULY 2023

APPROVAL

This thesis titled “**Blended Learning Approach in Tertiary Education in Bhutan: Understanding students’ perception**”, was submitted by SangayGyeltshen to the Department of Development Studies at Daffodil International University and has been accepted as satisfactory fulfillment of the requirements for the degree of Master of Development Studies and approved as to its style and contents. The presentation was scheduled for July 8, 2023.

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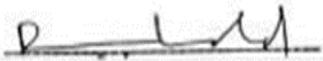
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This thesis was completed under the supervision of Mr. Md. Fouad Hossain Sarker, Associate Professor and Head of Department of Development Studies. I also declare that neither this thesis nor any portion of this thesis has been submitted to another institution for the award of a degree or diploma.

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ACKNOWLEDGEMENT

I would like to express my sincere gratitude to **Mr. Md. Fouad Hossain Sarker**, Associate Professor and Head, Department of Development Studies, Daffodil International University, in Dhaka, Bangladesh for his invaluable support and guidance throughout the journey of my thesis. His expertise, dedication, and mentorship have been instrumental in the successful completion of this research. Mr. Md. Fouad Hossain Sarker has been a constant source of inspiration and knowledge. His deep understanding of the subject matter, extensive experience in research, and commitment to excellence have significantly enriched my research journey. I am grateful for his guidance in shaping the research questions, refining the research methodology, and providing valuable insights into the data analysis and interpretation.

I am particularly appreciative of Mr. Md. Fouad Hossain Sarker's availability and responsiveness. His open-door policy and willingness to provide timely feedback and guidance have been invaluable. His patience, constructive criticism, and attention to detail have helped me refine my ideas and improve the quality of my work. I would like to express my deepest gratitude to the Deans of Research and Industrial Linkages of three colleges; Royal Thimphu College, College of Natural Resources, and Sherubtse College for supporting me to complete my survey on time. And I would not forget to thank the students of the three colleges who have participated in my research survey though they are busy with term end examinations.

Furthermore, I would like to extend my appreciation to the faculty members of Department of Development Studies, Daffodil International University for their intellectual contributions, providing necessary support and encouragement throughout this academic endeavor. Finally, I would like to express my deepest gratitude to my family for their unwavering support, understanding, and love. Their encouragement and belief in my abilities have been my constant motivation.

In conclusion, I am deeply grateful to Mr. Md. Fouad Hossain Sarker for his guidance, mentorship, and contribution to my thesis. His support has been invaluable, and I am honored to have had the opportunity to work under his supervision.

ABSTRACT

With the development of technology in education, various methods of teaching have been adopted across the world. Blended learning, combining online and in-person teaching methods, has gained significant attention as an effective educational approach. This study aims to assess the perceptions of students on effectiveness and challenges in tertiary education in Bhutan regarding the implementation of blended learning. The research adopts a student-centric perspective by employing a structured questionnaire with use of seven Likert-scale to gather data. The study was carried out for three colleges in Bhutan; Royal Thimphu College in urban area, College of Natural Resources in semi-urban area, and Sherubtse college in rural area with total of 681 respondents. The results were analyzed with use of descriptive statistics such as frequency, percentages, mean, and standard deviations and charts, tables, and graphs are used to present the findings. More than 60% of students of all the colleges have shared their perception stating that they have improved their learning outcomes and are satisfied with the practice of blended learning approach in their colleges. The findings will have practical implications for policy-makers, curriculum designers, and educators in designing effective blended learning models to enhance learning experiences of Bhutanese students.

Keywords: Blended learning; Likert-scale; student-centric; perception; tertiary education; Bhutan;

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CHAPTER ONE

INTRODUCTION

1.1 Background

The purpose of this study is to know the perspective of blended learning approach from students' perception. In the start of the year 2020, the COVID-19 have impacted all the sectors throughout the globe including government, tourism, health and education sector and even business. So, with the outbreak of the pandemic all the sectors are forced to choose other alternatives or working strategies to deliver the services to the public and customers through online platforms. In education, the COVID-19 epidemic has had a significant impact. Due to the pandemic, online learning has emerged as a crucial component of the educational process, particularly at the tertiary level where a large number of students are anticipated to enroll in university courses. Certain higher education institutions in Bhutan moved to online classes as a timely and effective response to the virus that was spreading quickly among the student population and subsequently among the citizens. Flexibility of approach and individual and group learning have benefited from this type of learning. Many countries have adapted or shifted from off-line learning to online learning platforms to teach their students so that students are kept engaged even at home (Hongsuchon, et. al, 2022).

The education today is no longer solely means of slouching and taking notes what are given and taught by the teachers. Now schools are more involved in the teaching and learning processes, such as through the use of online meeting technologies like Webex, Zoom, Google Meet, and Google Classroom for virtual classrooms. So, as a result now learning processes in the schools are student-centered rather than teacher-centered (Saleh, et. al.,2021).

As a result of pandemic, students are exposed and familiarized with the usage of online learning and self-learning platforms. So, one of the methods to enhance student-centered learning strategy is blended learning where these technologies are integrated into the course to have facility to provide both offline and online teaching and learning platforms (Vu & Bui, 2020;Saleh, et. al., 2021). Blended learning conveyed mixture of face-to-face interaction and discussion, and online learning and teaching through different sources of media. Blended learning is an advantage to those students who have cognitive ability who can learn slowly and

students are exposed to high-tech learning platforms where student and teacher can have fruitful interaction (Saleh, et. al., 2021). Additionally, by combining conventional and online learning environments, teachers can provide their students the chance to learn on their own while also facilitating interactive learning in a traditional setting (Scida& Saury, 2006; Marsh, 2012; Joosten et. al., 2013). However, diminished interest and drive as well as a lack of direct touch and social engagement were also apparent (Wu, et. al., 2010).

Many studies are being carried out on advantages of blended learning and its benefits in education sector during COVID-19 pandemic by the researchers (Saleh, et. al., 2021; Hongsuchon, et. al., 2022; Ahmed, et. al., 2022) and even existed and applied in education sector after pandemic (Ahmed, et. al., 2022). Some researchers have carried out study on blended learning as future of education from students' perspective (Ahmed, et. al., 2022). Blended learning approach or platform is adopted by many Governments of the countries to overcome access to education for students and engagement of students with better learning technologies even the challenges faced by COVID-19 pandemic (Joseph, 2021). Most of the studies are being carried out either to understand the perspective of student or faculty members in one particular university or place. However, understanding the perception of blended learning for students of different colleges located in different regions like urban, semi-urban and rural areas are not been carried out.

The country Bhutan with less than population of eight hundred thousand has greater ambitions or interest in digitalizing the country (Choeda, et. al., 2016). In order to get the students engaged themselves, the Ministry of Education (MoE), Bhutan have launched 'iSherig Master Plan (2014-2018)' explicitly states the importance of E-learning (Wangmo, et. al., 2020). With the strategy of transitioning Bhutan into digitalization, Bhutan has strong potential to kick start with introduction of blended learning method in education sector of the country especially in tertiary education in all the colleges under Royal University of Bhutan (RUB). In future if pandemic like COVID-19 or any other major disaster resurfaced, the Government or the country should be in the position to provide education services without hindrance. So, the government should be adopting and familiarizing such teaching technology like blended learning where both students and teachers are benefited. Therefore, the purpose of this study is to explore availability of blended learning approach facilities in colleges located in different regions like

urban, semi-urban and rural areas, and provide an overview of the status of blended learning under Royal University Bhutan (RUB) through students' perception.

1.2. Statement of the problem

Bhutan's higher education system has seen significant changes as a result of the COVID-19 pandemic, including a forced switch to online instruction. Concern has also been expressed by educators and students due to the difficulties in conducting online classes in a developing nation due to unpredictable internet access, interrupted electricity, and a lack of adequate electronic gadgets (Amin et al., 2021a).

In Bhutan, the higher education must now incorporate an online component with face-to-face instruction in order to remain relevant in the twenty-first century. The use of blended learning has become more popular, particularly in higher education, as a result of technology development (Shin et al., 2018). Kinley (2008a) states that since Bhutan lacks services and infrastructure, it would take some time for it to become popular in developing and poor nations like Bhutan. The full integration of Information Communication Technology (ICT) for education is hampered by numerous factors, including overburdened network systems, a lack of technical support, inadequate ICT infrastructure, the need for training, and reluctance to change (Jamtsho & Bullen, 2007).

Therefore, the purposes of this study are exploring availability of blended learning approach facilities in colleges located in different regions like urban, semi-urban and rural areas, and provide an overview of the status of blended learning under Royal University Bhutan (RUB) through students' perception.

1.3. The objectives of the study

- To assess experience and effectiveness of blended learning approach in tertiary education via students' perspective in urban, semi-urban and rural areas.
- To explore blended learning challenges faced by the students in urban, semi-urban and rural areas.

1.4. Research questions

The following questions will guide our investigation of the study

- i. What are the experiences gained by students on blended learning approach in tertiary education in urban, semi-urban and rural areas?
- ii. How student perceive on effectiveness of blended learning approach in tertiary education in urban, semi-urban and rural areas?
- iii. What are the challenges faced by students in blended learning approach in urban, semi-urban and rural areas?

1.5. Significance of the study

The study will be very useful for government institutions such as Ministry of Education and Skills Development (MoESD), Royal University of Bhutan (RUB), and KhesarGyalpo University of Medical Sciences of Bhutan (KGUMS) dealing with education system as it's directly related to their role and will provide detailed information on the current issues of teacher attrition in the schools and colleges.

In the year 2020 the Bhutan experienced COVID-19 pandemic where the government implemented strict lockdown to minimize the outbreak and all the schools and colleges are being closed. With closure of schools and colleges most of the students are taught through e-learning and online-learning system as education tool during COVID-19 pandemic. E-learning policies and strategic planning are in place at the majority of colleges and universities around the world. Any college can implement its strategic ambitions with the support of an e-learning plan, which will act as an enabling force (West Hills e-Learning Strategic Planning Committee, 2002). The most crucial factors in the growth of e-learning are thought to be an institutional strategic plan and learning design (Al-Humiyyan, Al-Huwail, & Al-Sharhan, 2008). Jebiele (2003) conducted study in a secondary school in Sydney concluded that when integrating e-learning into teaching, diverse activities enabled by the web and strategic planning should be taken into account.

This study is important and has policy implication where the findings of this study would make the policy makers to understand the importance and effectiveness of blended learning approach in this ICT development world and would have reforms in education teaching-learning system. With blended learning approach in tertiary education many employed people in various sectors would get opportunity to upgrade their qualification without hindrance to their on-going work and would enhance their career. This study strongly urges the creation of ICT infrastructure

and resource policies and guidelines as part of a strategic plan to direct future development initiatives at Royal University of Bhutan (RUB).

1.6. Scope of the study

Bhutan has a great chance to get off to a solid start with the implementation of blended learning in the country's education system, particularly in tertiary education in all the colleges under the Royal University of Bhutan (RUB) umbrella. If a pandemic like COVID-19 or another significant calamity recurred in the future, the government or the nation should be able to continue offering education services without difficulty. Therefore, the government should accept and familiarize itself with educational technology like blended learning, which benefits both students and teachers.

The information will be collected from two government colleges (Sherubtse college and College of Natural Resources located Rural and semi-urban respectively) and one private college (urban area) to examine the facilities that are available for the blended learning approach in colleges that are situated in various regions, such as urban, semi-urban, and rural areas, and to provide a summary of the status of blended learning at Royal University Bhutan (RUB) through students' perceptions. The study will cover four months for the collection of data, analysis, interpretation and writing the final thesis paper.

1.7. Organization of the Study

The study contains of five chapters. The first one is included background of the study, statement of the problem, objectives of the study, research questions, significance of the study, scope of the study, and organization of the study. The second chapter entails the literature, which highlights what has been previously said or written on important and effectiveness of blended learning and any other information and studies on it as well as the conceptual framework of the study. The third chapter focuses on the methodologies used for the study such as the data collection methods, sampling, and sample sizes. The fourth chapter contains the data presentation, analysis, and discussion. Chapter five is conclusions and recommendations of the study. The final part is bibliography or references.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter will critically analyze the existing research on students' perception of blended learning. By examining a range of studies, this chapter aims to provide insights into students' experiences and preferences regarding blended learning. The review will encompass various aspects, including students' satisfaction, benefits, challenges, and learning outcomes within blended learning environments. To guide the literature review, the following questions will be addressed: a. how student perceive on effectiveness of blended learning approach in tertiary education? b. what are the challenges faced by students in blended learning approach? This literature review adopts a systematic approach to identify and analyze relevant research articles, academic papers, and scholarly publications related to students' perception of blended learning. The selected studies will be critically reviewed and synthesized to provide a comprehensive understanding of students' perception of blended learning.

2.2. Background

Blended learning is the combination of traditional teaching and e-learning which integrates while teaching (Aleksic& Ivanovic, 2013;Roncevic, et. al., 2022) and the courses delivered face-to-face and paper based are now offered in blended environment and learning management system (Thomas, 2021). Chan & Leung (2016) states that blended learning with use of social media have potential to promote student-centered learning model which provide experience of social networking and personalized learning. Similarly, the amount of time spend in face-to-face education would be dramatically minimize and students are provided with self-paced learning, scheduling, and access to top-notch programs with inclusion of blended learning(Napier, Dehane& Smith, 2011).

Blended learning would become most important education tool for medium in education system in future (Ahmed, 2022). With outbreak of COVID-19 pandemic the education sector was severely affected all over the world and to recover the education learning and teaching the alternative teaching approach through blended learning approach is adopted using Google classroom, zoom and Google meet (Joseph, 2021; Saleh et. al., 2021). Blended learning is one of

the solutions to adopt in education system in post Covid period where education sector would change from teacher-centered to student-centered where the education is no longer sitting, listening to teachers and taking notes(Saleh et. al. 2021).

2.3. Benefits of blended learning

The COVID-19 pandemic has affected schooling for the students and Bhutan was not exceptional in this case, all schools are closed and students are taught through electronic-learning with various Information and Communication technology (ICT) tools (Wangmo et. al., 2020). The Ministry of Education of Bhutan has launched iSherig Master Plan (2014-2018) to adopt E-learning in education system to make effective teaching and learning environment among educators and learners (Ministry of Education, 2015).

The Covid-19 epidemic has given rise to ICT where a new learning environment called blended learning to ensure that teaching and learning sessions go smoothly(Roncevic, et. al., 2022; Ahmed, 2022). Online teaching is found most important tool in teaching process at tertiary level (Roncevic, et. al., 2022; Ahmed, 2022). Additionally, it offers flexible lecture attendance options and faster access to the instructional materials. Therefore, this sort of education is quite important for working students who can't always make it to lectures at the scheduled time (Roncevic, et. al., 2022).

Ghimire (2022) expressed that an educational technology has advanced, several teaching methods have been implemented on a global scale. Many nations have incorporated technology into their educational system, and some have made significant efforts to do so in different ways (Vu & Bui, 2020; Ghimire, 2022). Valentine, et. al. (2019) shared that theblended learning technological tools serving as a catalyst inspire learning and effectively meet peoples'expectation, particularly those of the younger generation.In tertiary education, blended learning strategies present a chance to include learners with Web 2.0 technology resources and tools that are easily accessible to both professors and students(Hiasat, 2018).

With advancement of information technology students and teachers are provided with a platform to communicate and learn with each other (Chan & Leung, 2016; Kardirbayeva, et. al. 2022; Aleksic&Ivanovic, 2013). One could argue that technology, which offers a fresh viewpoint on how education and training are understood, has an irreversible impact on education

(Kardirbayeva, et. al. 2022; Kinley, 2010). Juke (2010) points out that modern kids are accustomed to graphic, entertainment, imagination, and the Internet, the old teaching style is incredibly tedious. The instructional design and blended learning strategies need to alter in order to motivate the “digital” generation of students.

2.4. Students’ perspective on blended learning

2.4.1. Positive perception towards blended learning

Many studies are carried out to explore and examine how teachers and students shows positive attitudes towards blended learning approach in various courses of different countries. Ghimire, B. (2022) have conducted qualitative research based on literature review to find out possible solutions to solve the problem of teacher shortages in rural area schools in norther Canada with implementation of blended learning approaches. This paper has found many advantages in blended learning where comparing blended learning to traditional and online learning, students are far more motivated. Students can study at their own pace since they feel independent and free in their learning and issue of teachers demand in remote areas are solved with the introduction of blended learning in schools of rural areas.

Saleh et. al. (2021) has carried out research at six different cities in Indonesia i.e., Yogyakarta, Surabaya, Malang, Samarinda, Tulungagung, and Jember to explore the application of blended learning in Islamic context. Both the lecturers and students are used as subject and interviewed thirty students using semi-structured questionnaire to highlight their perspectives on application of blended learning. The study has found students have positive attitude towards blended learning especially for low achiever students as they can have more time for understanding the materials provided by the lecturers.

The study was conducted at International University in Vietnam to investigate the impacts of blended learning on writing skills and students’ perspective towards this study mode. The study has used combination approach of experimental design and questionnaires to examine the scores of the pre-test and post-test of the students. One group of students with 35 are treatment participants where they are involved with alternative learning applications like mind map presentation, online readings, and Facebook group postings. And other group with 35 students are thought with traditional method like brainstorming and discussion. After eight-week

period of observation this paper revealed that students in experimental group performed better than control group which indicates that blended learning has positive impact on students in improving English essay writing competence (Vu & Bui, 2020).

Roff (2018) conducted study using mixed method study design with a sample of 23 students from blended undergraduate course to assess whether students are satisfied or dissatisfied with use of blended learning at University of Florida and the American Association of State Colleges and Universities. With graphs and pie charts finding indicated that students were satisfied with blended learning environment due to flexibility and its convenience.

Wangmo, et. Al. (2020) have carried out study at schools of Punakha Dzongkhag (District) in Bhutan to determine students' perspective on E-learning and contributing to learning outcomes. The quantitative research method is used to interview through telephone interview, online google forms and direct survey closed ended questionnaire to total of 165 students consisting 57 boys and 108 girls. With graphical presentation the results showed that 95% students have positive attitudes towards e-learning due to easy achievable individual goal.

The author has carried out study to explore students' attitudes towards the use of social media particularly Twitter for blended learning. A survey was conducted for 100 undergraduate students using well-structured questionnaire at the end of the course to collect feedback from students so that Twitter blended learning mode is practically applicable in higher education. The paper found that students are expressing positive attitudes towards the use of Twitter for learning as it is effective and easy to use (Chan & Leung, 2016).

The study was carried out at Georgia Gwinnett College (GGC) a small public liberal arts college to assess impact of blended learning on introductory computing course. So, the final exam performance of the students was compared between traditional and blended learning section and with tables and graphs shows that students of blended learning section show positive attitudes and favorable for the computing course (Napier, Dehane & Smith, 2011).

Valentine, et. al. (2019) conducted study to explore students' perspective on effectiveness of blended learning for tertiary level at Sunway College, Malaysia. The study has used sampled size of 745 students from 6000 full-time students using mixed-method approach from, the Victoria University Undergraduate Program (VUUP), Foundation in Arts (FIA), Monash

University Foundation Year (MUFY), Australian Matriculation and Canadian International Matriculation Programme (CIMP). With use of statistical tool SPSS and Spearman's correlation model data are analyzed and found that more than half of the students are satisfied with blended learning.

The research is conducted to evaluate effectiveness of blended learning through the Microsoft Teams' platform between the course business English 1 and business English 3 at the study programme Anglistics at Singidunum. The paper reveals that blended learning provides flexibility for students learn their own pace and even found the platform is user-friendly where anyone can easily be accessed through mobile device (Roncovic, et. al. 2022).

The study was conducted at Lagos State in one of the tertiary institutions in Nigeria to examine how blended learning influence in delivering health education to undergraduate students. The author has selected sample of one hundred and fifty respondents and adopted descriptive research method and group discussion. The study with table and graphical presentation declared that majority of the respondents (students and lecturer) agreed that blended learning approach has significant influence on skill acquisitions and health instruction in health education with mean of 3.43 (Joseph, 2021).

Hiasat (2018) has carried out study at federal tertiary institution in the UAE to assess application of blended learning tools like Google+, Trello, Padlet, Socrative, Flip Grid, Wiki Spaces, and Kahoot in tertiary education. The study has collected data from faculty members and students and found that blended learning promotes flexible learning environment.

To explore how students and teachers perceive for transitioning to a blended learning environment. Thomas (2021) has carried out the study using mixed methods data collection for three teachers and 12 students from three regional locations. The results revealed that with the use of learning management system, and Google classroom have made students to become self-directed in their learning and made easy for collaboration with students though absence of their physical presence.

2.4.2. Negative attitude towards blended learning

The qualitative research method study was carried out by Kardirbayeva, et. al. (2022) to evaluate how blended learning technology is applicable in mathematics education in various high schools

in Nur Sultan City of Kazakhstan. Total of 80 mathematics teachers participated in semi-structured interview and teachers stated that students are least interested in blended learning due to software and hardware programmes not suitable for blended learning environment.

The study is conducted to investigate the choice preference of different types of blended learning approach by the students and plan for successful implementation of the option. Total of 306 students from Bangladesh University of Professionals (BUP) and North South University (NSU) were used for the study and the results showed that students have negative attitudes towards blended learning even the students having mobile internet facility chose to prefer offline classes (Ahmed, 2022).

Kinley (2010) has carried out study at Paro College of Education (PCE), Royal University of Bhutan (RUB) to explore the availability of e-learning services, whether the teaching faculty and students are aware of e-learning management software and challenges faced during e-learning and teaching process. The author has used mixed research method with semi-structured questionnaire for data collection on 54 respondents; 44 lecturers from different departments and 10 students from undergraduate program. The study has found that the institute have challenges in implementing e-learning teaching and learning approach due to average computer competency though the lecturers have enough computers in their office and students have only few hours of accessibility to ICT (computer) facility in college. So, this study concludes that e-learning at college is challenging for both the lecturers and students.

Therefore, all the aforementioned studies carried out by different authors on blended learning in different institutions and scenarios would help meto understand the effectiveness and importance of blended learning platform in education system in other countries and improving blended learning facilities in Bhutanese education context.

CHAPTER THREE

METHODOLOGY

3.1. Introduction

This chapter discusses the methodologies and tools utilized by the researchers in data collecting and analysis. It outlines the researcher's research design, data sources and collection techniques, data processing and analysis, and the problems that the researchers experienced. It includes the research methodology, the research population, the sample size used, as well as the sampling strategies used, how the data is obtained, and which data collection device is used. Furthermore, data analysis methodologies and techniques, research reliability and validity, and, ultimately, ethical issues and study limits

3.2. Research Design

The study used quantitative research method to conduct survey using structured or closed ended questionnaires to collect students' perception on blended learning in tertiary education in Bhutan. The survey questionnaire used seven Likert-Scales to get genuine feedback or information from the respondents regarding the effectiveness and challenges of blended learning as an alternative teaching model or approach in their respective colleges.

3.3. Study Area

The study areas are within the country Bhutan which is located in between two giant highly populated country; China in north and India in south. The study is conducted in three colleges (one private owned and two state owned) located in three different locations or areas; urban, semi-urban and rural. Royal Thimphu College (RTC) located in urban areas or capital city Thimphu, College of Natural Resources (CNR) and Sherubtse College located in Semi-urban and rural areas respectively. Sherubtse College is located in Eastern part of the country under Trashigang District which 464 km away from the Capital Thimphu and CNR at Western part of the country under Punakha District which 60 km away from the capital (Figure 3.3.1).

RTC is only A+ accredited institution in Bhutan and offers various programmes or subject areas like Development Economics, English, Business, Anthropology, Environmental Management, Political Science, Sociology, Mass Communication, and Nursing. The institution

provides Continuing Education (CE) programme to those people who missed the opportunity to continue their higher education and those who are in services. The CE courses are offered toward evening. The RTC provides semester study-abroad and exchange programmes as an academic partnership with SEISA university of Japan, and Pitzer College, California, USA to their existing students and even offer courses to international students. RTC collaborate with international university of USA, EU, Canada, Japan, Australia, Nepal, Indonesia, and India in hope of enriching opportunities for both Bhutanese and international students. The RTC have faculty strength of 66 including international faculty (RTC, 2022) with total students of 1685 heads (RTC, 2023).

The Sherubtse College (SC) is the oldest college in the Bhutan where it is located in the Eastern Region of the Country. It was established in the year 1968 as Public School and inaugurated by His Majesty the Third King himself and named as Sherubtse, meaning 'peak of learning'. Later in the year 1983, Sherubtse college became fully-fledged degree college affiliated to Delhi University. SC offers wide range of undergraduate programmes like social sciences, physical and biological sciences, arts, humanities, and computer sciences (Data science & statistics). SC has faculty staff of 79 heads with total student of 1539 heads (Sherubtse, 2023).

College of Natural Resources (CNR) erstwhile it was known as Natural Resources Training Institute (NRTI) which came into existence in the year 1992 to support sustainable development in Bhutan. CNR is the only institution in the Bhutan which provides higher education in the fields of Agriculture, Rural Development and Natural Resources Management where its objectives are aligned towards achieving the national vision of Gross National Happiness (GNH). CNR is offering undergraduate courses like Agriculture Science, Animal Science, Forestry Science, Food Science and Technology, Environment and Climate Science, Sustainable Development, and Organic Agriculture Science. The college offer post graduate programmes like Development Practice, Natural Resources Management Science, and Conservation Biology Science and PhD in Climate Studies. The CNR is the only college which provide Doctorate in Philosophy (PhD) program under Royal University of Bhutan (RUB). CNR have faculty staff of 51 heads and total students of 870 heads (CNR, 2023).

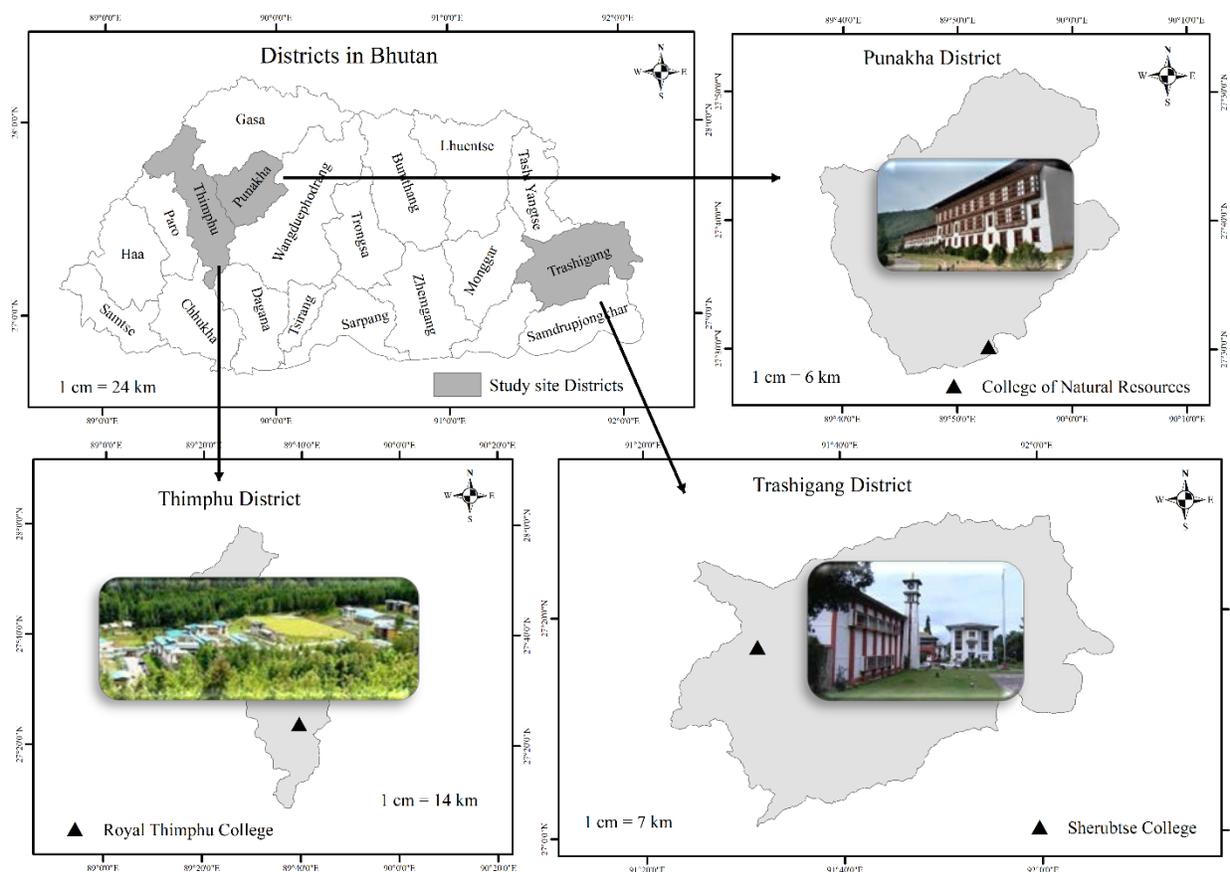


Figure 3.3.1: Study Areas

3.4. Data Collection Methods and Techniques

In order to get the necessary and comprehensive information from the target respondents in the three colleges of the study, a correspondence of approval from Dean of Research and Industrial Linkages of three colleges are carried and after approval from the Deans the questionnaire prepared in “Google Form” is shared with the respective Deans and Deans have shared the Google survey link to all the respondent email identity (ID) officially to complete the survey form. The questionnaire is divided into four sections; section one on demographic information, section two on practice of blended learning in colleges, section three talks on problems and challenges in adopting blended learning, and section four gives information on way out for improving blended learning approaches in the colleges. A combination of primary and secondary data sources was used to gather the data (Figure 3.4.1). The target respondents were surveyed and interviewed to obtain the main data directly from them. The secondary data has been collected from journals and articles written related to blended learning approach from different countries.

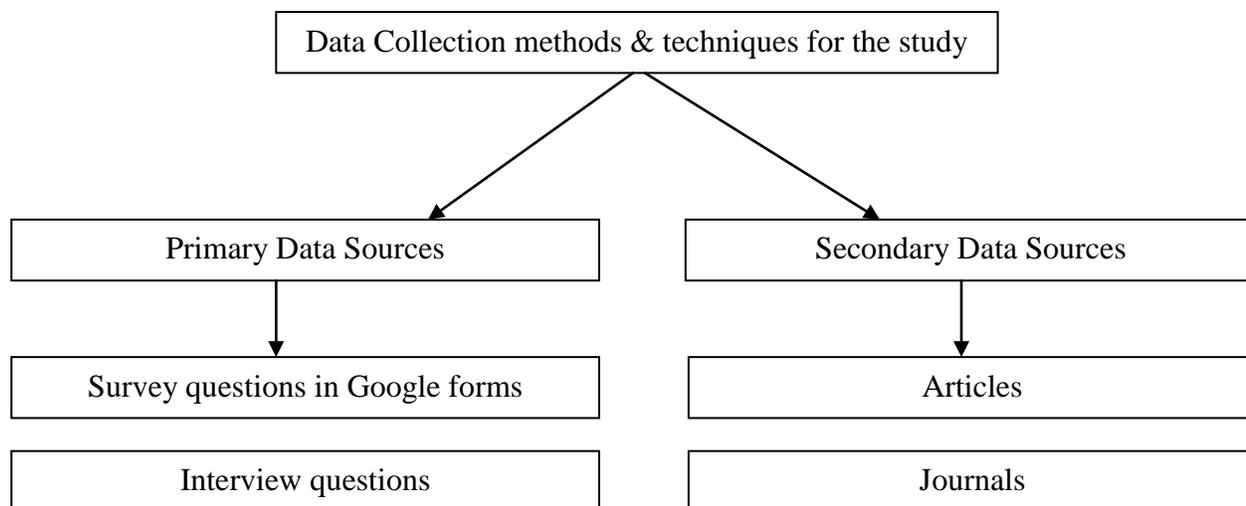


Figure 3.4.1: Data collection methods and techniques used in the study

3.5. Data Analysis

After confirming that all of the study's target respondents had provided complete and accurate information in the Google form survey, the responses were downloaded to excel sheet and started arranging and screening the data. Then all the data are assigned numerical coding to make data analysis easier with use of Pivot table in Microsoft excel and Statistical Package for the Social Sciences (IBM SPSS 23). Mostly descriptive statistics such as frequency, percentages, mean, and standard deviations are used. Charts, tables, and graphs are used to display the data. The association between the colleges and the different practice, benefits, challenges, and way forward is analyzed using Pearson Chi-square test. The different overall perception for practice, benefits, challenges, and way forward among urban, semi-urban, and rural colleges is compared using one way ANOVA. If the result was significant, a Tukey Post Hoc multiple comparison was done to check the difference among the three college groups ($p < 0.05$ is considered as significant).

3.6. Target Population of the Study

The study was chosen in order to gather data from the appropriate sources that are knowledgeable about the study's subject. To have a holistic perspective on blended learning approach in tertiary education in Bhutan, students are randomly selected irrespective of their courses, grades (Freshmen, Sophomore, Juniors, Seniors) and gender. The study focuses on more participation of women in the survey. Students of three colleges are selected, one college from urban area, one college from semi-urban area, and one college from rural area. The students have

experienced blended learning approach during COVID-19 pandemic and even some colleges are continuing the approach as part of digitalization in education system.

3.7. Sampling Strategy and Size

The three colleges each from urban, semi-urban, and rural areas are purposively selected for the study. The Royal Thimphu College, private college is selected for the urban region, College of Natural Resources for the semi-urban region, and Sherubtse College for rural region. All the students irrespective of the grades, courses, and gender are selected randomly from for the study. Firstly, total number of students from each college is collected from the respective Dean of Research and Industrial Linkages office. After confirming the total strength of students in the college the sample size was computed with use of the Slovene’s formula to have required sample size (Table 3.7.1)for data collection as mentioned below:

$$n = \frac{N}{1 + N(e)^2}$$

Where, n= the required sample size. N= the known population size. e= the level of significance, which is p=0.05

After have formal correspondence with Dean of Research and Industrial Linkages of respective colleges 77% responses received from semi-urban college, 74% from urban college, and 72.2% from rural college (Table 3.7.1).

Table 3.7.1: Study population and respondents

Sl. No.	College	Total Students (nos)	Sample Size (nos)	Response received
1	Semi-urban	870	275	212 (77%)
2	Urban	1685	324	240 (74%)
3	Rural	1539	317	229 (72.2%)
	Total	4094	916	681

3.8. Ethical Consideration

We established a principle that guides research practices and design, which will serve as a code of conduct for our studies, such as protecting participants' rights, improving research validity, and maintaining scientific integrity through informed consent, confidentiality, and voluntary participation, during data collection. We kept the ethical aspects of our research in mind because

we had forwarded our research questions to the heads of departments for ethical permission before collecting data. To avoid any suspicion and obtain precise and complete information, we also carefully defined the aims of the study to each respondent of concern. While arranging and screening the data the numerical coding is assigned for demographic information and the email identities (IDs) of respondents are deleted to maintain confidentiality. The final findings will be shared with the concern colleges to avoid conflict of interests. Gender participation is valued, and everyone who took part in the survey was thanked and acknowledged.

3.9. Limitations of the Study

The study on blended learning approach in education system is not being carried out in Bhutan regarding academic research and to find out relevant data in Bhutanese context is difficult. This study on knowing students' perspective on blended learning approach in tertiary education in Bhutan is a first kind of research in Bhutan. Difficult to receive required percentage of respondents even after officially channeling through Dean of Research and Industrial Linkages. The study was coincided with the examination period of the colleges so students paid less interest in participating the survey and even limited time to conduct the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND FINDINGS

4.1. INTRODUCTION

This chapter contains the analysis and the presentation of the data that is collected from the respondents through google link form, which was closed ended questionnaire with use of seven Likert scale to know the student's perspective on blended learning approach in tertiary education in Bhutan. The data is analyzed using available statistical tools and findings are presented in the form of graphs and tables. The data collected from the target respondents are organized in sections such as first section for demographic information, second section is regarding the practice of blended learning in the colleges followed by problems and challenges encountered with use of blended learning approach and finally way out to improve and enhance blended learning approach in tertiary education system in Bhutan.

4.2. Demographic profile of the respondents

The figure 4.2.1 displays the distribution of respondents in the study where male of 42%, 35%, and 43% and female respondents of 58%, 65%, and 57% for colleges in urban, semi-urban, and rural areas respectively participated in the study. The graph represents that more female from semi-urban college and more male from rural area college actively participated in the study. The respondents involve different grades and various courses from all the three colleges. Overall women have actively involved in the study for all the three colleges.

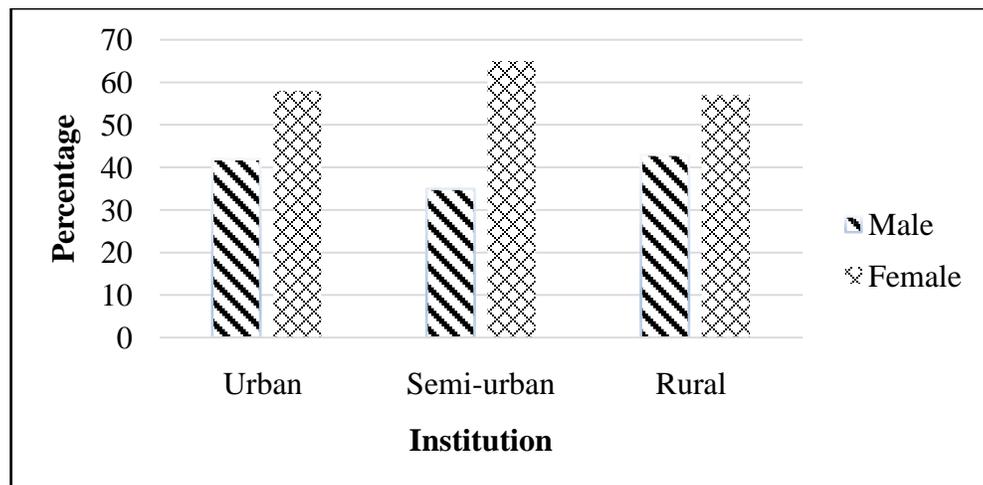


Figure 4.2.1: Gender of Survey Respondent

The figure 4.2.2 shows that the age ranges from 20-24 are found active participation in the study with 42%, 71%, and 41% from urban, semi-urban, and rural area colleges respectively followed by the age range 16-19 with 34%, 14%, and 31% and least respondents are above age 28 with 3%, 1%, and 0% from urban, semi-urban, and rural area colleges respectively. In semi-urban college the majority of the respondents (71%) are from the age range 20-23. The figure mentioned 3% of students age above 28, these are the students who are involved in Continue Education, providing for in-service people like those working in Government office, private, and corporate offices or to those who are missed the further studies. In semi-urban college only 1% mentioned for age above 28, this means only few in-service or Civil servant in the field of agriculture, livestock and forestry are given opportunity to join the regular courses as first track courses which means they are directly enrolled in third year.

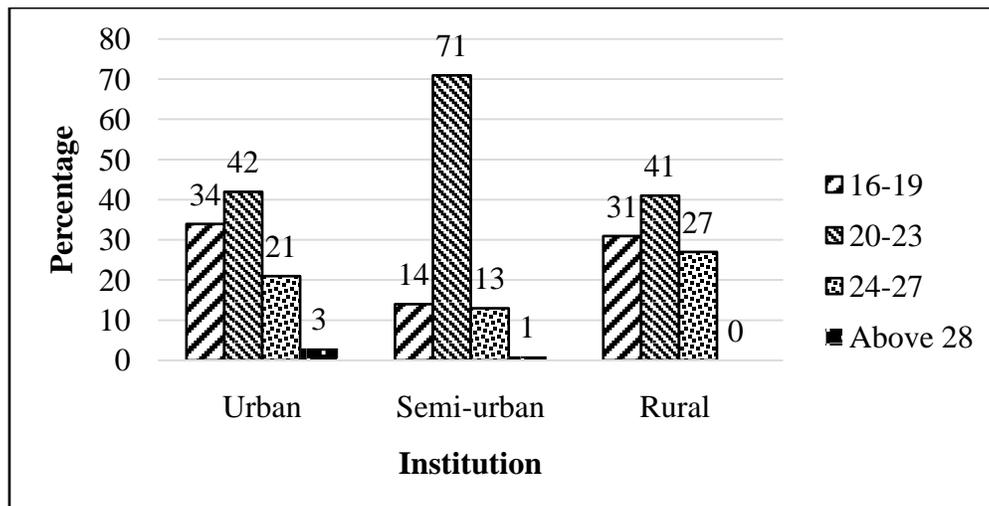


Figure 4.2.2: Age distribution for survey respondents

The figure 4.2.3 exhibits the major category of respondents of three colleges. In semi-urban college majorly (95%) courses are related to science category and only few courses are related to social sciences. Regarding urban and rural colleges almost all the major category like Science and Environment, Media and Computer, Literature, Arts and Social Sciences, and Economics and Developments are equally distributed and have equal respondents. In rural college, Literature, Arts and social sciences responded highest with 31% and least with 19% by media and computer category. In urban college, science and environment and literature, arts and social sciences responded equally with 28% each and least by media and computer with 19%. The

figure depicts that respondent from media and computer has less respondents which indicates less engaged in blended learning system.

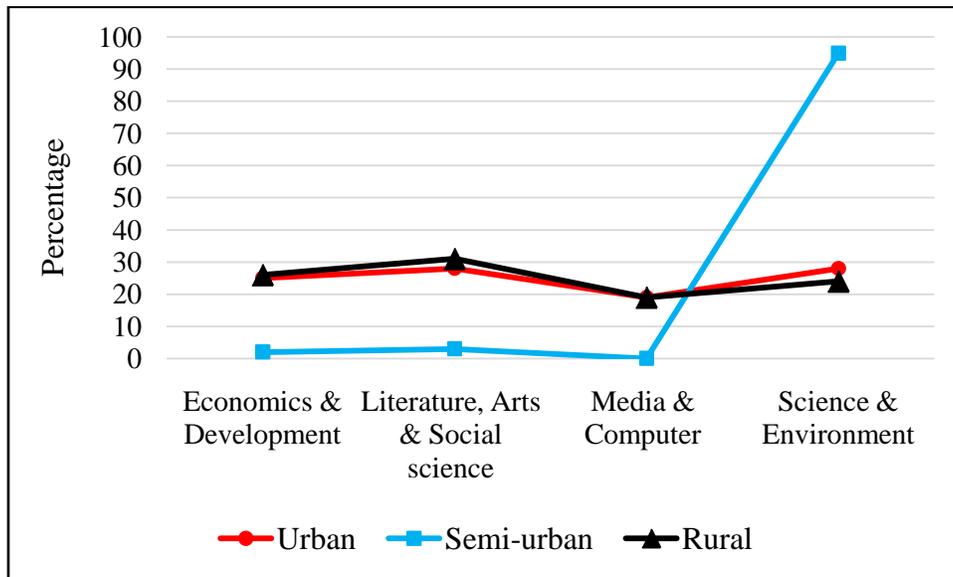


Figure 4.2.3: Major Category for Survey Respondents

The figure 4.2.4 shows that in rural college 44% of students have experienced or learned through blended learning approach more than three semesters followed by 34% for more than four semesters, 19% for more than two semesters and 3% with more than one semester. Regarding semi-urban college, the 38% of respondents have experienced blended learning more than one semester, followed by 25% more than four semesters, 20% for more than three semester and 17% more than two semesters. Similarly, in urban college, 40% of students have experienced blended learning approach in colleges more than three semesters, followed by 28% for more than four semesters, 23% for more than two semesters and 9% for more than one semester. In average all the students from the three colleges have experienced blended learning approach more than three semesters (34%) with 16% of students experienced more than one percent. The

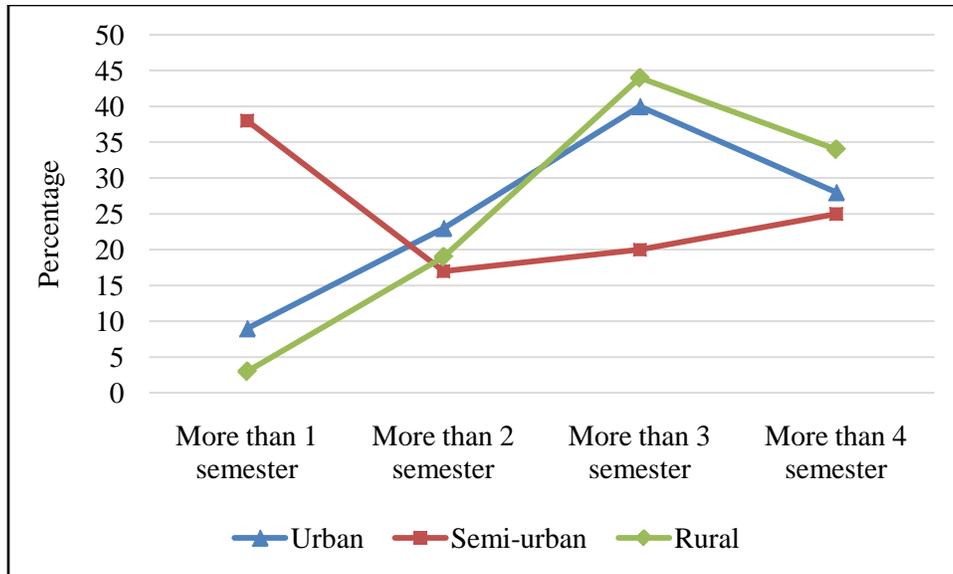


Fig 4.2.4: Blended Learning Experience of Survey Respondents

4.3. Practice of blended learning in tertiary education

Various means are adopted to enhance and impart education to students through blended learning via online classes, providing online materials, organizing online discussion, carrying out online assessments and even conducting physical classes and involvement of teachers and students in promoting blended learning approach in the colleges. The Table 4.1 shows how students find effectiveness of online lectures or classes in their respective colleges. The students of urban and rural colleges found that online lectures are very effective (57.1% and 59.4% respectively), while the student of semi-urban college found slightly effectiveness (31.1%) in use of online classes. Regarding online discussion all the three colleges; urban, semi-urban and rural found slightly effectiveness (40.4%, 37.7%, and 43.2% respectively). The colleges carry out online assessments like quizzes, assignments, and term exams to assess performance of the students. The students of the rural college found online assessment very effective (38%) while students of urban (34.6%) and semi-urban (32.5%) colleges found slightly effective (Table 4.3.1).

The responses from the students of all the colleges regarding the effectiveness of online classes, discussion, and assessments found from slightly effective to very effective and some students found even very effective. So, with overall responses from the students indicates that blended learning approach with use of online platforms like classes, discussions, and assessments are found effective in all the colleges irrespective of urban, semi-urban and rural areas.

Table 4.3.1: Effectiveness of online approaches

Practice of blended learning	Institution	Effectiveness (%)						
		Extremely not effective	Not effective	Slightly not effective	Neutral	Slightly effective	Very effective	Extremely effective
Online lectures/classes	Urban	0	1.7	4.2	5.4	24.6	57.1	7.1
	Semi-urban	1.4	5.2	10.4	21.2	31.1	26.4	4.2
	Rural	0.9	0.4	4.8	5.2	21	59.4	8.3
Online discussions/activities	Urban	0	1.7	3.3	10.8	40.4	34.2	9.6
	Semi-urban	0.5	2.8	8	25.9	37.7	19.3	5.7
	Rural	0.4	1.3	3.1	8.7	43.2	35.4	7.9
Online assessments like quizzes/assignments/exams	Urban	0	3.8	2.1	12.9	34.6	33.3	13.3
	Semi-urban	2.4	6.6	9	22.2	32.5	21.2	6.1
	Rural	0.9	4.4	3.1	10.5	34.5	38	8.7

To promote and enhance the use of blended learning approaches in tertiary education systems in Bhutan, firstly the availability of blended learning materials and platforms should be made available to the students and the faculty staff. Blended learning materials includes e-book, e-library, accessibility of internet facility, usage of online platforms like google meet, zoom, and social media. The figure 4.3.1 explained that blended learning materials are available in all the colleges; urban, semi-urban and rural. In urban college with 45.4% student accepts that they have availability of blended learning materials in their college followed by 38.4% and 35.3% in rural and semi-urban college respectively. Overall, the colleges have availability of blended learning materials and are used by the students in their day-to-day study period.

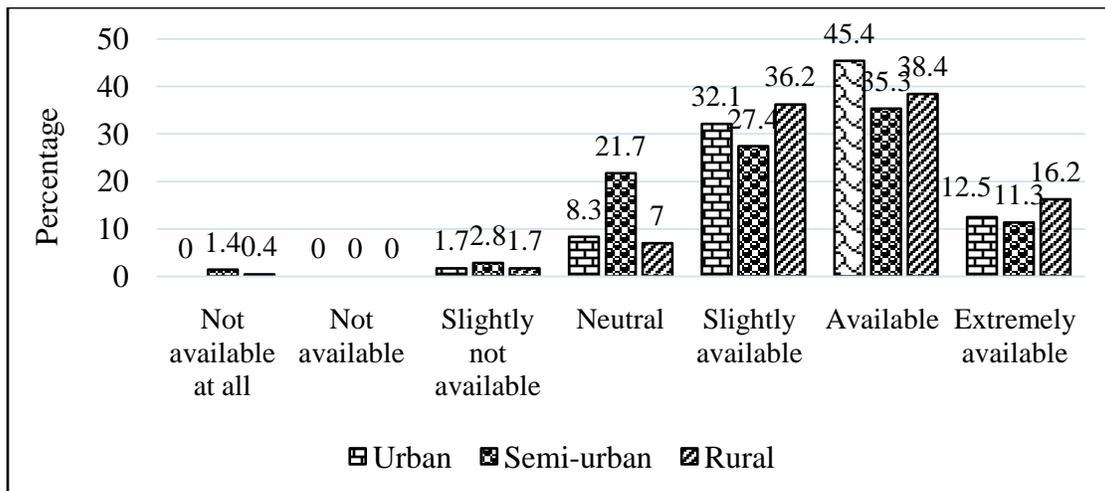


Fig 4.3.1: Availability of blended learning materials

Blended learning is a mixture of online learning and traditional learning method which is face-to-face learning. In-person learning is as important as learning through online platforms. The table 4.3.2 indicates how students are interested and found effective in physical presence class or in-person learning. To make physical classes more effective and friendly learning teachers have important role to play on it and even friends are important in in-person learning. The students from semi-urban and rural college found in-person learning very effective 38.2% and 37.1% respectively while 42.5% of students of urban college found slightly effective in in-person learning. Similarly, involvement of friends in in-person learning found very effective by the students of all the colleges urban, semi-urban and rural with 28.8%, 42.5%, and 38.4% respectively. The respondents from all the colleges found that involvement of both teacher and friends in-person learning very effective.

Table 4.3.2: Effectiveness of in-person learning

Practice of blended learning	Institution	Effectiveness (%)						
		Extremely not effective	Not effective	Slightly not effective	Neutral	Slightly effective	Very effective	Extremely effective
Role of teachers in-persons learning	Urban	0	1.3	2.9	9.6	42.5	34.6	9.2
	Semi-urban	0.5	0	0.5	18.9	20.8	38.2	21.2
	Rural	0.4	1.7	3.5	12.2	31.9	37.1	13.1
Role of peers/friends in-persons learning	Urban	0	0.8	3.3	9.2	35.4	38.8	12.5
	Semi-urban	0.5	0.9	0.5	15.6	27.4	42.5	12.7
	Rural	0	0.9	3.1	10.5	33.6	38.4	13.5

To make an effective usage of blended learning approach in education systems there should be someone to lead and implement and practice the approach. Blended learning approach should be considered as one of the alternative educational tools to impart knowledge to students in this Information and Communication Technology (IT) advancing world. In colleges main promoter and implementers are faculty staff, if they are not confident and not keen enough to take up this educational tool, it will remain as it is. So, to make best use of it in this IT world faculty staff should practice and promote it. Even students have an equal role to accept and practice this alternate educational tool.

The table 4.3.3 indicates that teachers promoting blended learning approach in colleges are slightly effective 40.8%, 32.5%, and 38% in urban, semi-urban, and rural areas respectively.

Similarly, friends in promoting blended learning approach in college found slightly effective 34.6%, 38.7%, and 35.4% in urban, semi-urban, and rural areas respectively. However, more than 23% of respondents of irrespective of the colleges found teachers promoting blended learning very effective and similar case is in friends more than 31% of respondents of all the colleges found promoting blended learning approach very effective. So, overall, both the faculty staff and friends are found positive in promoting blended learning approach in their respective colleges or in a tertiary education system in Bhutan.

Table 4.3.3: Promotion of blended learning in colleges

Practice of blended learning	Institution	Effectiveness (%)						
		Extremely not effective	Not effective	Slightly not effective	Neutral	Slightly effective	Very effective	Extremely effective
Role of teachers in promoting blending learning	Urban	1.3	3.3	10	12.1	40.8	27.1	5.4
	Semi-urban	0	1.4	2.4	31.1	32.5	23.6	9
	Rural	0	5.7	8.3	10	38	34.1	3.9
Role of peers/friends in promoting blending learning	Urban	0.4	5.4	9.6	12.5	34.6	31.3	6.3
	Semi-urban	0.9	2.4	2.8	25.9	38.7	36.4	2.8
	Rural	0	4.4	7.4	14.8	35.4	34.1	3.9

The introduction of blended learning approach is new to the tertiary education system in Bhutan, blended learning initiated after COVID-19 pandemic where there was nationwide lockdown which hampers the education sector the most and deprived students for physically attend the classes. So, ministry of education has adopted blended learning approach to provide classes as regular to the students. The figure 4.3.2 reveals that majority of the students (52.5%) of urban college have mentioned that they are slightly satisfied with introduction of blended learning approach in the college. Similarly, 44.5% of students of rural area college responded as they are slightly satisfied with the blended learning courses. However, 37.7% of students of semi-urban college show satisfied with use of blended learning approach in their college. However, few students; 0.4%, 0.5%, and 1.3% are extremely not satisfied with the usage of blended learning approach in urban, semi-urban, and rural college respectively.

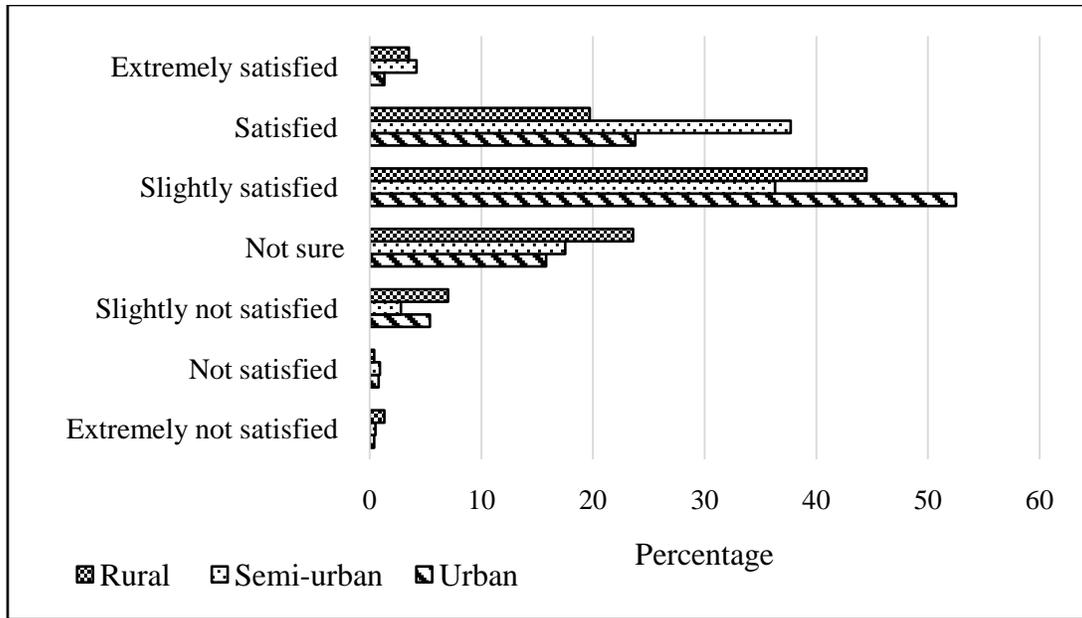


Fig 4.3.2: Students satisfaction for blended learning

The figure 4.3.3 explained how students learning outcomes improved with the use of blended learning approach in tertiary education system. The learning outcome of the students (42.5%) from urban have slightly improved. Similarly, 45.4% of students from rural college have slightly improved. However, 34% of students from semi-urban college have expressed that their learning outcomes have improved with use of blended learning approach. The overall learning outcome for all the students have improved as the findings.

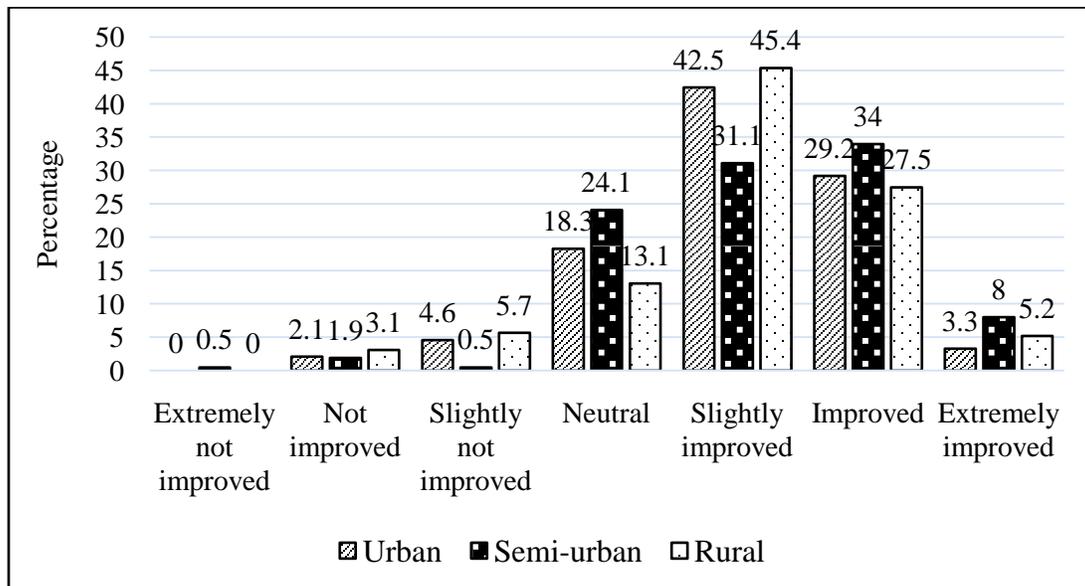


Fig 4.3.3: Improved learning outcomes

4.4. Benefits of blended learning in tertiary education

Blended learning has many benefits for the students as well to the faculty staff. For students they can learn the courses as per the pace of their learning, they have options for using different modalities for learning and students have ownership of their learning. Overall blended learning is supporting and strengthening student-centered learning where education sector is transitioning from teacher-centered learning or top-down approach in education sector. The table 4.4.1 explained that 34.6% of students from urban college slightly agree on different students learn different things in different ways. Regarding rural college, 38.9% of students moderately agree on different students learn different things in different ways. However, 61.8% of students from semi-urban college strongly agree that different students learn different things in different ways. Similarly, 41.3% and 40.6% of students from urban and rural colleges respectively slightly agree that learners can control the pace of their learning. However, 30.2% of students from semi-urban college strongly agree on learners can control the pace of their learning. Majority of the students of all the colleges agree that blended learning have benefited the students in terms of learning where the students can control the pace of their learning in different things in different ways to enhance the knowledge.

Table 4.4.1: Benefits of blended learning for the students

Benefits of blended learning	College	Agreeable (%)						
		Strongly not agree	Moderately not agree	Slightly not agree	Neutral	Slightly agree	Moderately agree	Strongly agree
Different people learn different things in different ways	Urban	0	0	2.5	7.5	34.6	33.8	21.7
	Semi-urban	0	0	0.5	5.2	14.2	18.4	61.8
	Rural	0	0.9	0.9	7.9	34.5	38.9	17
Learners can control the pace of their learning	Urban	0.4	1.7	7.9	15.4	41.3	25	8.3
	Semi-urban	0.5	0	4.2	9.9	25	30.2	30.2
	Rural	0	1.3	6.6	15.7	40.6	28.8	7

The table 4.4.2 figures out that 43.3% and 45% students from urban and rural college respectively have slightly agreed on students get to interact with professors and classmate face-to-face while 41.5% of students from semi-urban college strongly agree on having face-to-face interactive sessions with professors and the classmates. Similarly, with use of multiple modalities in blended learning students have found dramatical reinforcement in engagement, learning and

retention, where 44.6% and 44.1% of students from urban and rural college respectively have slightly agreed on it and 32.5% students from semi-urban college moderately agreed on engagement with use of multiple modalities. The results conclude that students from all the colleges are agreeing on benefits of blended learning like having face-to-face interactive with professors and friend and having dramatical reinforcement in engagement and learning with use of different modalities.

Table 4.4.2: Benefits of blended learning

Benefits of blended learning	College	Agreeable (%)						
		Strongly not agree	Moderately not agree	Slightly not agree	Neutral	Slightly agree	Moderately agree	Strongly agree
Students get to interact with professors and classmates face-to-face	Urban	0.4	2.5	5	12.9	43.3	26.7	9.2
	Semi-urban	0.5	0	0.9	9.9	21.7	25.5	41.5
	Rural	0.4	1.7	3.9	13.1	45	28.4	7.4
Using multiple modalities dramatically reinforces engagement, learning and retention	Urban	0.8	3.3	4.2	13.3	44.6	25.4	8.3
	Semi-urban	0	0	1.4	12.3	28.8	32.5	25
	Rural	0.4	1.7	4.8	15.3	44.1	28.8	4.8

Blended learning is a student learning or self-learning approach which has control over the pace of self-learning. Therefore, students have ownership over their own learning. As per the figure 4.4.1 shows 42.9% of students from semi-urban college strongly agreed on having sense of ownership while self-learning. In rural college 41.5% students moderately agreed and 37.1% students of urban college slightly agreed on own or self-learning creates sense of ownership so that students could learn as per their convenient time and capacity to learn. Therefore, the results presented that all the students agreed on having ownership over own learning.

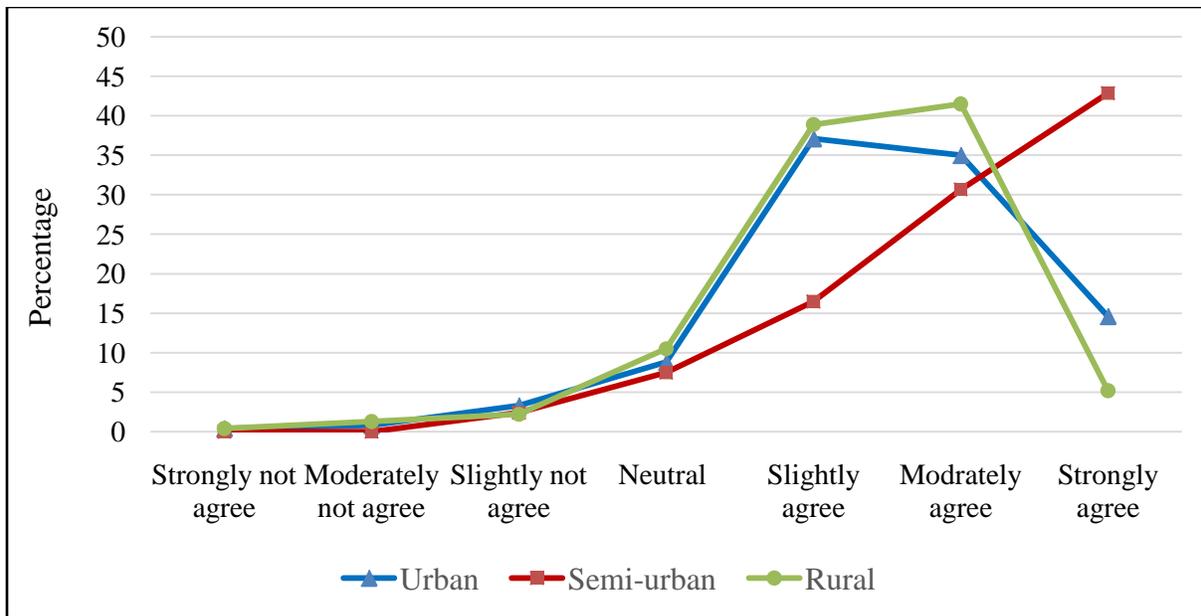


Fig 4.4.1: Ownership over own learning

4.5 Problems and challenges faced while engaging blended learning.

As saying goes “Every coin has two sides” the blended learning has its benefits as well some problems and challenges with usage of it. Blended learning approach becomes effective only when both the teachers and students actively involved in application. Most of the literature mentioned that teachers faced problems in assessment like quiz, assignments, and term exams and could not solve student problems in a timely manner. However, the table 4.5.1 explains that 37.5% and 39.3% of students from urban and rural college respectively are slightly not agreeable on the problems faced by the teacher during assessment time while 23.6% of students from semi-urban college slightly agreed on the problems faced by the teachers. Even 10.8% of students of from semi-urban college strongly agreed with the problems faced by the teachers during online assessments.

Similarly, in some literature mentioned that teachers are facing problems in giving peer tutors to the students in timely manner. However, according to table 4.5.1 states that in urban college 40.4% of students slightly not agree on issue of student not receiving peer tutors timely. Even 34.9% of students from rural college slightly not agreeable on it and 28.8% of semi-urban college students remain neutral regarding the issue of students receiving peer tutors on timely manner. The findings concluded that in teachers of the colleges in Bhutan are not facing problem

in providing timely peer tutors to the students and timely complete assessment of the students like quiz, assignments and term exams.

Table 4.5.1: Problems faced during blended learning

Problems and Challenges	Institution	Agreeableness (%)						
		Strongly not agree	Moderately not agree	Slightly not agree	Neutral	Slightly agree	Moderately agree	Strongly agree
Facing problems during the assessment time	Urban	3.8	27.1	37.5	15.8	8.8	5	2.1
	Semi-urban	1.9	10.4	13.2	23.1	23.6	17	10.8
	Rural	6.6	25.8	39.3	15.3	9.2	1.7	2.2
Problems not solved in a timely manner	Urban	2.9	26.7	40.4	17.9	6.3	3.8	2.1
	Semi-urban	2.8	8.5	16	28.8	20.8	15.1	8
	Rural	3.1	31	34.9	12.7	10.9	6.1	1.3

When students were asked on lack of learning materials while use of blended learning model in their respective colleges, 32.5% and 31.4% of students from urban and rural college respectively noting that they are slightly not agreeable on it, which clearly indicates that learning materials are not an issue in their colleges. While 21.7% of students from semi-urban remained neutral. In overall from the student's response, it can be concluded that the colleges have enough learning materials accessible to their students as shown in figure 4.5.1.

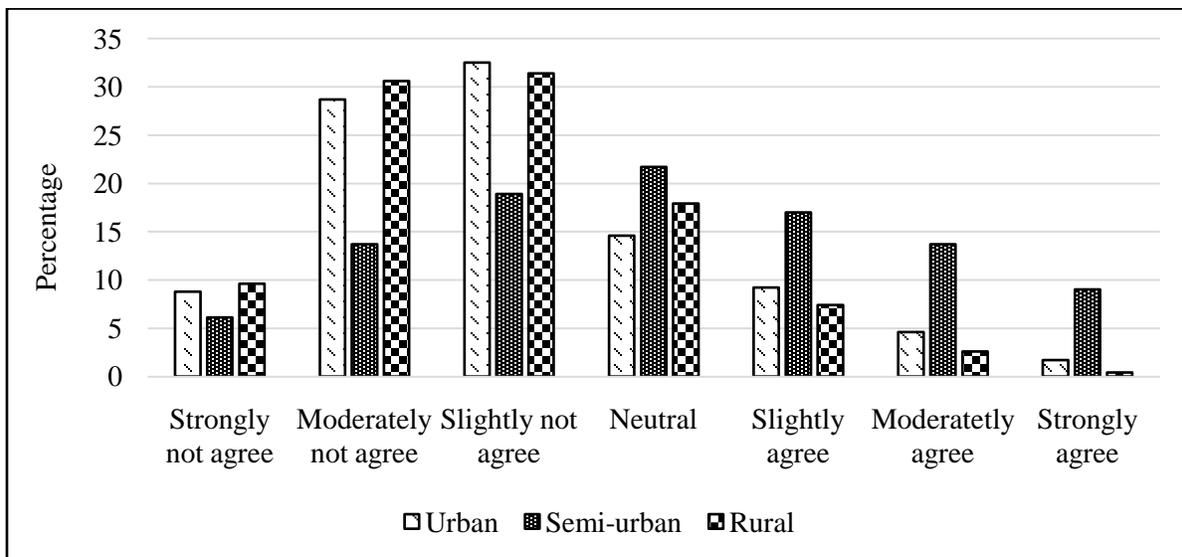


Figure 4.5.1: Lack of learning materials

Students were surveyed regarding the lack of learning software platforms and network issues in their respective colleges. As can be seen from the figure 5.4.2 that 38.8% and 37.6% of students from urban and rural college respectively are slightly not agreeable on the issue. Their college equipped with proper network connection and availability of online learning software. However, 25.9% of students from semi-urban college slightly agree on having issue on network connection problem and lacking online learning software platforms.

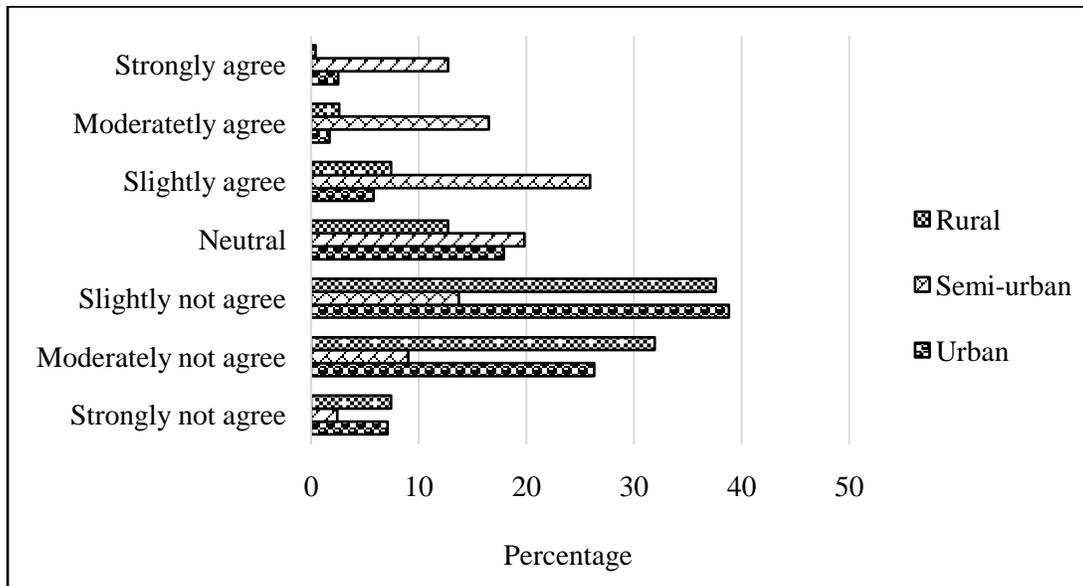


Figure 5.4.2: Lack of learning software platforms and network

The table 4.5.2 interprets the result of students surveyed on challenges faced by students during adoption of blended learning model in their learning process. The students (27.8%) of semi-urban college slightly agreed on having difficulty in engaging in discussion during class hours and similar express on time management where 26.4% of students slightly agree on having difficulty in time management. In contrary, 39.6% and 43.2% students from urban and rural college respectively slightly not agree on having difficulty while engaging in discussion. And even the students do not have difficulty in time management where 38.3% and 35.4% of students from urban and rural college respectively backed statement.

Table 4.5.2: Challenges in blended learning

Problems and Challenges	Institution	Agreeableness (%)						
		Strongly not agree	Moderately not agree	Slightly not agree	Neutral	Slightly agree	Moderately agree	Strongly agree
Difficulty in engaging in discussion	Urban	3.3	25.4	39.6	14.6	9.6	5	2.5
	Semi-urban	2.4	12.3	13.2	20.3	27.8	15.1	9
	Rural	5.2	18.8	43.2	18.8	8.3	4.4	1.3
Difficulty in time management	Urban	3.8	30	38.3	10.4	10.8	2.9	3.8
	Semi-urban	3.3	8	16.5	18.9	26.4	15.6	11.3
	Rural	4.8	34.9	35.4	14.8	5.7	3.5	0.9

4.6. Way forward for making blended learning model more effective in colleges.

To make blended learning model more effective and convenient learning platform many components have to be considered. The results of figure 4.6.1 interprets that 42.5% of students from semi-urban college strongly agree on need of good communication skills for a teacher to convey required information to the students and similar applies to the students. Similarly, 44.1% and 40% of students from urban and rural college respectively moderately agree on the said statement. The responses from the students of three colleges concluded that teachers especially should have good communication skills to disseminate knowledge and impart skills to the students and even students should have communication skills to interact with the respective teachers if not required information will be missed due to communication gap.

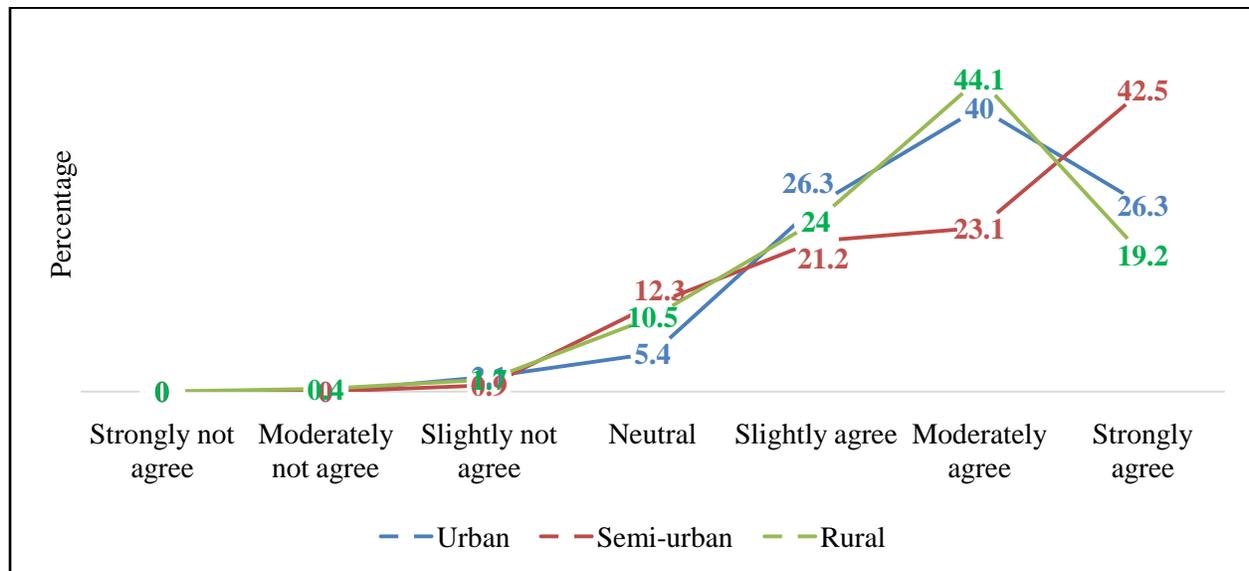


Fig 4.6.1: Good communication

To provide education to the students through blended learning model, the teachers should have good knowledge on computer (information and communication technology) or basic skills on usage of software or online tools like google meet, zoom, social medias, etc. The responses from the students presented in the figure 4.6.2 explained that 48.1% of students from semi-urban college strongly agreed on need of well-trained teacher to teach students through online platforms without disturbances. The statement is backed by the other two colleges where 43.3% and 39.7% of students from urban and rural college respectively. The results concluded that the teachers should be well-trained on using various online softwares and platforms to disseminate knowledge to the students properly.

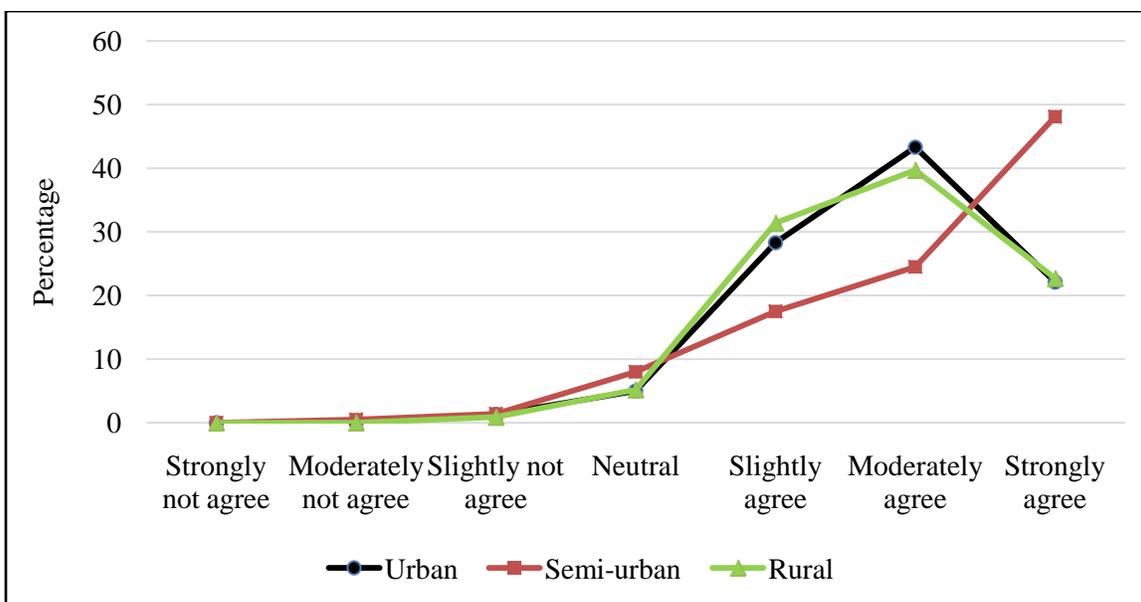


Fig 4.6.2: A well-trained teacher

To make blended learning approach more effective and convenient in tertiary education system many components have to be considered. Few recommendations presented in the table 4.6.1 described that 36.8% of students from semi-urban college strongly agree on need of comprehensive learning management system in the college. Similarly, 38.7% of students of semi-urban college strongly agree to have well-designed course outline and additionally, 43.3% of students strongly agree on need of clear learning objectives to have effective blended learning session. Even the students of urban (56.7%) and rural (63.3%) college moderately agreed on need of a comprehensive learning management system. The recommendation of requirement of well-designed course outline to have efficient blended learning platform is moderately agreed by

42.9% and 40.8% of students from urban and rural college respectively. Similarly, 40.8% and 45.4% of students from urban and rural college respectively moderately agreed on need of clear learning objectives to have proper directions for the students. Therefore, the findings concluded that to make students convenient on use of blended learning and have clear directions of how to go about, the course outline should be properly designed with clear and defined objectives in learning management system in their respective colleges.

Table 4.6.1: Way forward to make blended learning model more effective

Way out	Institution	Agreeableness (%)						
		Strongly not agree	Moderately not agree	Slightly not agree	Neutral	Slightly agree	Moderately agree	Strongly agree
Need a comprehensive Learning Management System	Urban	0	0	0	2.9	22.9	56.7	17.5
	Semi-urban	0	0	0.5	9.4	21.2	32.1	36.8
	Rural	0.4	0	0	1.7	18.8	63.3	15.7
Well-designed course outline	Urban	0	0	0.8	5.4	37.1	42.9	13.8
	Semi-urban	0.5	0	0.5	9.4	19.8	31.1	38.7
	Rural	0	0	0.9	6.6	31	51.1	10.5
Clear learning objectives	Urban	0.8	0	0.8	7.5	36.7	40.8	13.3
	Semi-urban	0	0	0.9	10.8	13.7	21.1	43.4
	Rural	0	0.4	0	5.2	34.9	45.4	14

The survey conducted on students of three colleges on recommendation of various modalities like with use of video presentation, group discussion to make more interactive, providing enough learning materials and resources, and several feedback sessions regarding quizzes and assignments to make blended learning more effective in education system. The figure 4.6.3 shares the results of students who have agreed upon need of increase in frequency of interaction in various means. The urban college student with 37.5% moderately agreed on having frequent interaction, 39.3% of students from rural college slightly agreed while 33.5% of students from semi-urban students strongly agreed with the recommendation. Therefore, the results shows that different approaches should be implemented to make the online classes more interactive and efficient for both the students and the faculty staff.

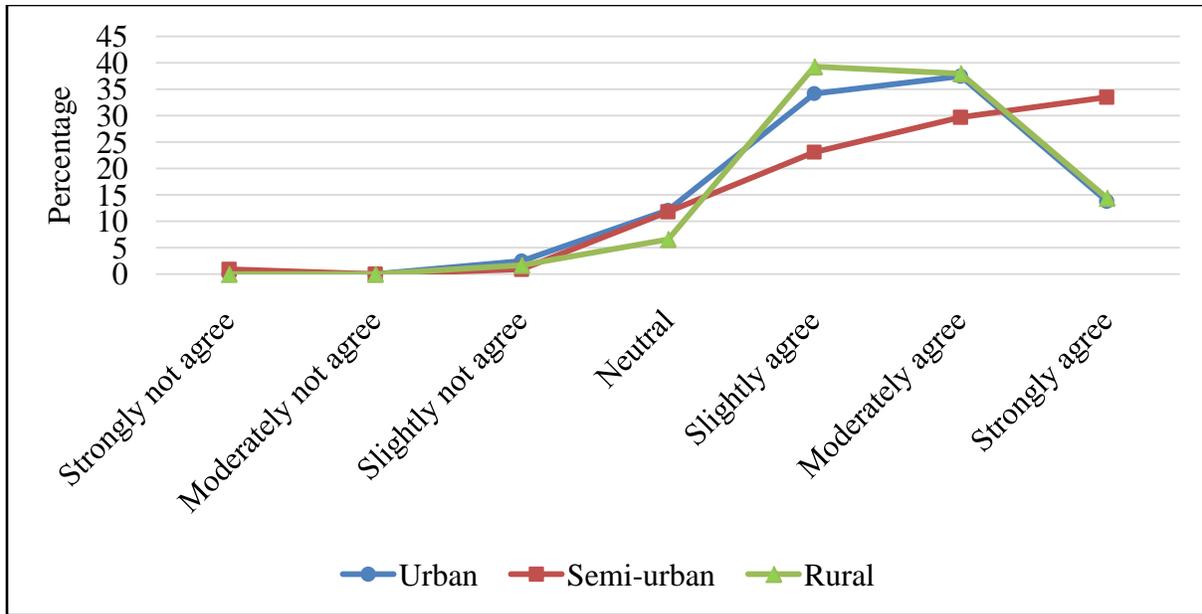


Figure 4.6.3: Increase the frequency of interaction

The results of figure 4.6.4 interprets that 49.2% and 44.1% of students from urban and rural college respectively have moderately agreed on importance of educational institution on promoting and implementing the blended learning approach in education system. similarly, 44.8% of students from semi-urban college strongly agree on the statement. The administration of the institutions should play important role to adapt, improve and implement blended learning model in education system in Bhutan.

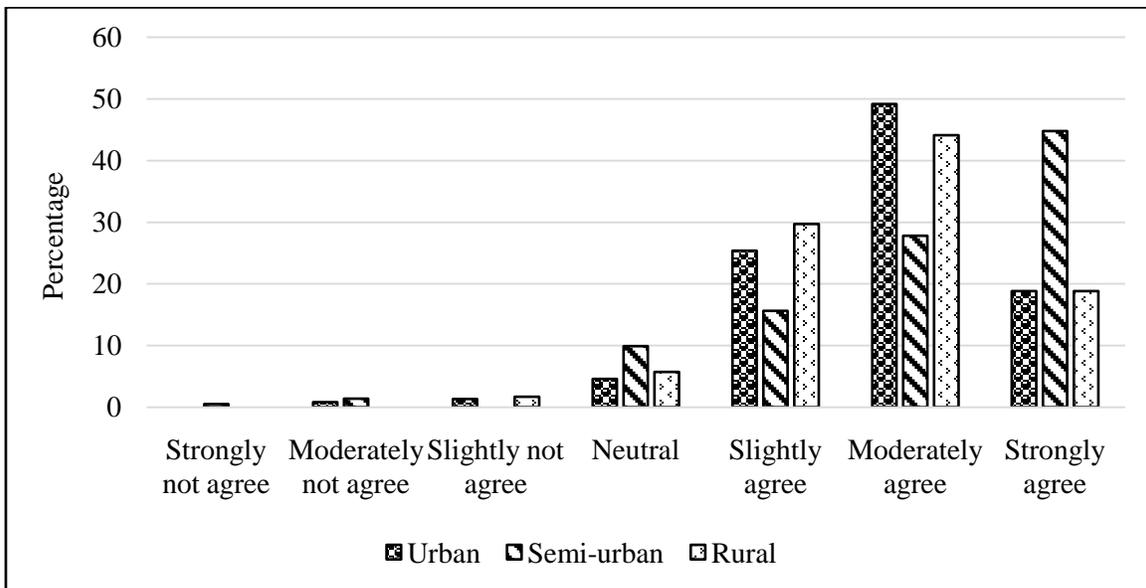


Fig 4.6.4: Positive role of educational institution

The equal responsibility lies on the policy makers to understand the importance of blended learning model in this Information and communication technology (ICT) world, where all rely on ICT facilities and online platforms. Even education learning can be done through various online platforms like google meet, zoom, social medias, and etc. The figure 4.6.5 explains the finding of survey where 45.8% of students from semi-urban college strongly agree on support from the government and even 42.9% and 42.8% of students from urban and rural college respectively moderately agree on the statement. So, the results conclude that to make blended learning approach more effective and convenient in future the government or policy makers should strongly support as one of the alternative education tools other than traditional learning face-to-face method.

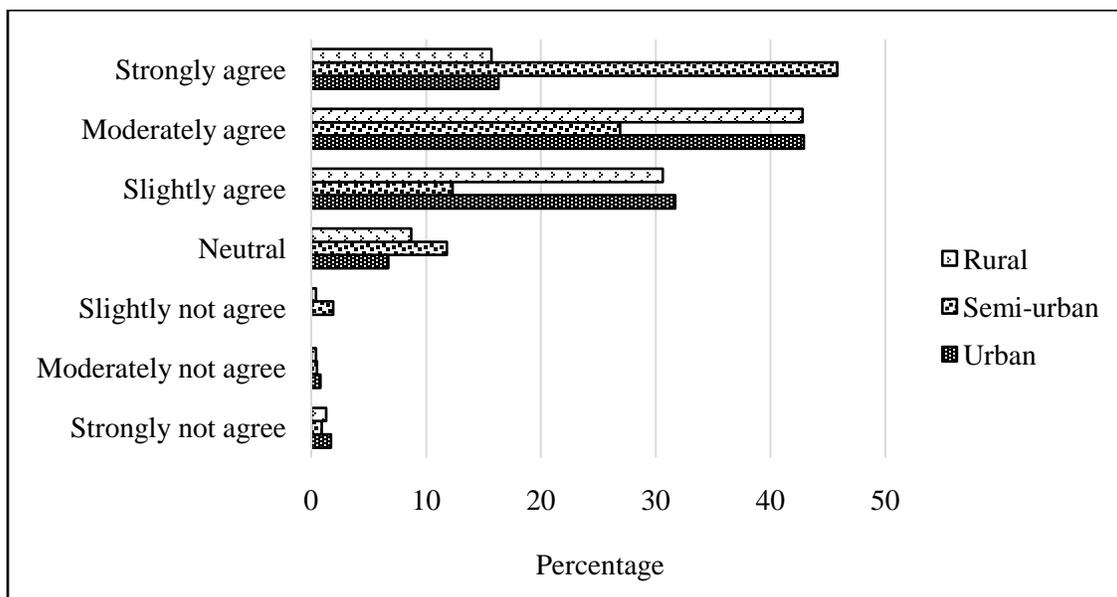


Fig 4.6.5: Effective support from the Government

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. INTRODUCTION

Blended learning, a pedagogical approach that combines traditional face-to-face instruction with online learning components, has gained significant attention in recent years. Its potential to enhance student engagement, foster personalized learning experiences, and promote flexible learning environments has led to its widespread adoption in educational settings. This chapter delves into a detailed discussion of the findings and outcomes of the study on blended learning, aiming to shed light on its effectiveness and implications for educational practice. The primary objectives of the study were to assess experience and effectiveness of blended learning approach in tertiary education via students' perspective in urban, semi-urban and rural areas and exploring its challenges faced by the students. To achieve this, quantitative research with structured questionnaire used for the survey targeting 916 students from the colleges of urban, semi-urban, and rural areas. Overall, this discussion chapter serves as a platform to delve deeper into the study's findings, connect them to the broader context of blended learning research, and strive to advance the understanding of the benefits, challenges, and future directions of blended learning in educational settings.

5.2. Discussions and Conclusion

One of the primary objectives of the studies is to assess the experience and effectiveness of blended learning approach in tertiary education in Bhutan. The introduction of blended learning approach is new to the tertiary education system in Bhutan, blended learning initiated after COVID-19 pandemic where there was nationwide lockdown which hampers the education sector the most and deprived students for physically attend the classes. More than 60% of the respondents from three colleges have agreed on experiencing the use of blended learning approach or tool in their college and found very effective and satisfying because the ministry of Education has launched iSherig Master Plan (2014-2018) to adopt E-learning in education system to make effective teaching and learning environment among educators and learners (Ministry of Education, 2015).

With improvement of Information and Communication Technology (ICT) facilities in the education sector, there is less issues of internet network disruption especially in tertiary education level. Therefore, the students could attend online classes or lectures on time. They can have effective online discussion regarding the subjects or other activities on assignment and quizzes. Students are advocated with training on conducting quizzes and term exams online and assignments submissions through online. The respondents found blended learning model as one of the convenient and effective tools for learning due to availability of online learning materials like e-book, e-library, online platforms for discussion like google meet, zoom, and various social media apps. To sustain the usage of blended learning approach in education system both students and faculty staff are made familiarized on available blended learning education tools to have effective learning process. The faculty staff are confident enough to convey or impart education to the students with use of various means of technologies and even students are more interested to learn through the use of different online platforms which would enhance their ICT literacy level which is necessary in this digitalization world to get the jobs. Therefore, the learning outcomes of the students have improved with the use of blended learning approach for irrespective of the location of the colleges; urban, semi-urban, and rural.

More than 65% of the students found effective and convenient in use of blended learning approach for leaning purposes as it has many benefits for them like students can control the pace of their learning and learn different things in different ways as per their choice or interest in the subject. Now education sector is transitioning to student-centered learning from teacher-centered learning which is practiced in traditional learning method. Now students can learn with their own interest or self-learning which assigned ownership over their own learning. This self-learning ownership will enhance the mentality of the students, could do any activities or task own their own and improve the leadership quality the students which will immensely benefit in future. There is no enforcement from the teacher side so, the students can learn as per their learning capacity. Students could meet their respective teachers or professors through online platforms for discussions and even with their friends. This online meeting platform will give enough time for the students to use for other beneficial purposes otherwise they had to be in the classroom every day.

The other objective of the study was to assess the challenges faced by the students with use of blended learning model. As saying goes “Every coin has two sides” the blended learning has its benefits as well some problems and challenges with usage of it. Blended learning approach becomes effective only when both the teachers and students actively involved in application. Most of the literature mentioned that teachers faced problems in assessment like quiz, assignments, and term exams and could not solve student problems in a timely manner. More than 50% of respondents from semi-urban college mentioned that they faced problems especially in time management to attend the online classes, discussion and to appear quizzes. Though the college have good ICT facilities provided students faced difficulties. Since the college selected for the study in semi-urban region is science-oriented college most of the courses are related to technical science where students have to do practical session in the field as well in the lab so, this would have made the students to have tough time for them to manage the time efficiently. The students with the courses related to agricultural, forestry, food technology and animal sciences would have faced problems to have online classes and quizzes. In general, more than 50% of students from semi-urban college are satisfied with components of blended learning model and found effective where as 50% of students too faced problems and challenges while using the blended learning approach in their learning period. In order to assist them in successfully overcoming each of these issues, more research is required to pinpoint the major difficulties they now encounter. For the blended learning paradigm to be deemed effective, it is vital to comprehend how students learn best and how technology can help that. However, more than 60% students from urban and rural colleges found very effective and beneficial of learning through blended learning approach.

In conclusion, blended learning has emerged as a valuable educational approach from the perspective of students. Throughout this discussion, we have explored the various advantages and challenges associated with this learning model. One of the significant benefits of blended learning is its ability to promote personalized and self-paced learning. Students have the flexibility to access course materials online and engage in interactive activities that cater to their individual needs and learning styles. This not only enhances their understanding of the subject matter but also fosters a sense of ownership and responsibility for their education.

Moreover, blended learning facilitates a collaborative and interactive learning environment. Students have the opportunity to engage in discussions, share ideas, and collaborate with their peers, both in-person and online. This social aspect of learning promotes teamwork, critical thinking, and communication skills, preparing students for the demands of the modern workforce. However, it is important to acknowledge the challenges that students have encounter in a blended learning setting. Technical issues such as unreliable internet connections or difficulties navigating online platforms, can hinder the learning experience. Additionally, some students have struggle with self-discipline and time management when it comes to completing online assignments and staying motivated.

Therefore, blended learning offers students a multitude of benefits, including personalized learning, collaboration, and increased engagement. Although challenges may arise, the positive impact of blended learning on student's education and overall growth is evident. By harnessing the power of technology and combining it with traditional classroom settings, blended learning has the potential to revolutionize education and empower students to become lifelong learners.

5.3. Recommendations

To harness the power of technology and revolutionize the education system with the enhancement of blended learning model to empower students to become lifelong learners, the following recommendations are necessary to put in place:

- To make students and faculty staff convenient on use of blended learning and have clear directions of how to go about, the course outline should be properly designed with clear and defined objectives in learning management system.
- The faculty staff should be well-trained on using various online softwares and platforms with good communication skills to disseminate knowledge and information to the students properly.
- The university must take into concern the multiple variables of blended learning management and experience, for example, teachers' and students' social, cultural and economic backgrounds, age range, access to technological infrastructure, the technology readiness on the part of the universities and the associated issues, time and hours.

- To make blended learning approach more effective and convenient in future the government or policy makers should strongly support as one of the alternative education tools other than traditional learning face-to-face method

Further research may be conducted to examine or assess the effectiveness of this blended learning model in faculty staff's perspective and even to other college contexts.

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