PERCEIVED EMPLOYABILITY SKILLS OF GRADUATING STUDENTS FROM DIPLOMA IN CIVIL ENGINEERING: A SURVEY IN KATHMANDU VALLEY

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AN ABSTRACT

of the dissertation of *Sanjeeb Kumar Panthee* for the degree of *Master of Philosophy in Education (Development Studies)* presented on *15 January 2025* entitled *Perceived Employability Skills of Graduating Students from Diploma in Civil Engineering: A Survey in Kathmandu Valley.*

APPROVED BY

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Dissertation Supervisor

Perceived employability is an individual's perception regarding the possibility of getting and maintaining employment. Employability skills are all about what employers expect from the graduate. The Council for Technical Education and Vocational Training is the apex body in Nepal that conducts technical programs. The civil engineering diploma course started about two decades ago and the course duration is three years . A civil engineering diploma course is conducted through various CTEVT-affiliated institutions. In the last few years, the employment rate of civil engineering graduates has been on a declining trend. Shrinking opportunities for the graduate could be because of not having the appropriate skills demanded by the world of work. There are only a few studies that have focused on the employability skills of diploma-level students. Thus, this study had an objective to find the level of perceived employability skills of diploma- level civil engineering students in the Kathmandu Valley.

This study utilized a quantitative research approach with a survey design. Questionnaires from similar studies in Nepal and other countries were contextualized, remaining in the premises of Human Capital Theory. The survey was conducted among 294 diploma-level civil engineering students in the final semester of their studies and were the survey respondents. A t-test, ANOVA, and binary logistic

regression were used for data analysis. Reliability, validity, and ethical consideration were ensured.

The study revealed that among the three dimensions of employability skill, students had the lowest level of perceived employability skill in core skill followed by generic skill and personal attributes. The overall perceived employability skill of the respondent is at the presence level. A significant difference exists in perceived employability skills across ethnicity, surroundings, and locale. The finding also showed that students who graduated from a community school in the Secondary Education Examination had higher perceived employability skills than institutional schools. Similarly, students pursuing their diploma in a civil engineering course at a private institution had the lowest level of employability skills. The study also revealed a positive relationship between learning achievement and employability skills; however, the strength of the relationship is very weak. Similarly, types of schools (SEE and CTEVT) influenced perceived employability skills.

The findings of this study can be useful for all three stakeholders: students, employers, and institutions. Students can now focus on the core skill in which they have performed lowest, and the employer can now work closely with the academic institutions to develop the skills that students lack. Similarly, academic institutions can develop separate modules to train the students on the skills they lack. Furthermore, this study also paves the way for future researchers and policymakers to address employability skills through policy intervention and the appropriate course.

……. 15 January 2025

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सोध सार

विकास शिक्षामा दर्शनशास्त्रको स्नातकोत्तर डिग्रीको लागि सन्जीव कुमार पन्थीको शोध प्रबन्धको शिर्षक " सिभिल इञ्जिनियरिङ डिप्लोमाका स्नातक हुँदै गरेका विद्यार्थीहरूको अनुभूत गरिएको रोजगार सम्बन्धि सीपः काठमाडौं उपत्यकामा गरिएको एक सर्वेक्षण" २ माघ २०८१ मा प्रस्तुत गरिएको थियो ।

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प्रा. प्रकाशचन्द्र भट्टराई, पिएचडी

सोध निर्देशक

अनुभुत गरिएको रोजगारी भन्नाले रोजगारी पाउने र त्यसलाई कायम राख्ने भन्ने व्यक्तिगत धारणा हो । रोजगार सम्बन्धी सीपहरु भन्नाले रोजगारदाताले एउटा ग्राजुएटसंग कस्ता सीपहरू आशा गर्ने भन्ने हो । प्राविधिक शिक्षा तथा व्यवसायिक तालिम परिषद (सिटिईभिटी) नेपालमा प्राविधिक तथा व्यवसायिक शिक्षा प्रदान गर्न सर्वोच्च निकाय हो । सिटीईभीटीले करीब २० वर्ष पहिला सिभिल इन्जिनियरिङ्ग कोर्षको सुरुवात गरेको हो र यसको अवधि ३ बर्षको हुन्छ । यो कोर्ष सिटिईभिटी अन्तर्गतका विभिन्न संस्थाहरूबाट सन्चालन हुन्छ । विगत केही वर्षहरूमा सिभिल इन्जिनियरिङ्गको पढाई सम्पन्न गरेका विद्यार्थीको रोजगारी पाउने अवसर कम हुँदै गएको देखिन्छ । रोजगारीको दायरा साँघुरिदै जानुको मुख्य कारण यी ग्राजुएटमा हुनपर्ने बजार सुहाउँदो वा कामको बजारका लागी आवश्यक पर्ने सीप नभएर हुन सक्छ । डिप्लोमा तहका विद्यार्थीहरूमा हुनुपर्ने सीपका बारेमा केही अध्ययनहरू भएका छन । यो अध्ययनको मुख्य उद्धेश्य भनेको काठमाण्डौ उपत्यकामा डिप्लोमा सिभिल ईन्जिनियरिङ्ग अध्यनरत विद्यार्थीहरूको अनुभुत गरिएको सीप कुन स्तरमा छ भनेर परिक्षण थियो ।

यस अध्ययनका लागी परिणात्मक अनुसन्धानको विधिमा रहि सर्वेक्षण गरिएको थियो । नेपाल र अन्य देशहरूमा प्रयोग भएको प्रश्नावलीहरू मानव पुँजी सिद्धान्तको अवधारणामा रहि यस अध्ययनलाई सान्दर्भिक बनाईयो । यस अध्ययनको लागि डिप्लोमा ईन्जिनियरिङ्ग अन्तिम वर्षका २९४ विद्यार्थी बीच सर्वेक्षण गरीयो । डाटा विश्लेषणको लागी t-test/ANOVA/ Binary Logistic Regression को प्रयोग गरीयो । यो अध्ययनको विश्वसनियता, वैधता र सहभागीको स्विकृति पनि सुनिश्चित गरियो ।

यस अध्ययनले रोजागरी सम्बन्धि सीपका तीन मुख्य आयामहरू मध्ये व्यवसायिक सीप विद्यार्थीहरुमा सबैभन्दा कम तहमा र त्यसपछि सामान्य सीप र व्यक्तिगत विशेषताहरू सम्बन्धित सीप भएको पाईयो । समग्रमा सहभागीहरूको अनुभुत गरिएको सीप, अस्तित्वको तहमा पाइयो । जातीयता, परिवेश एवं बासस्थानको आधारमा अनुभुत रोजगारी सम्बन्धि सीपमा भिन्नता पाईयो । संस्थागत विद्यालयवाट भन्दा सामुदायिक विद्यालयबाट क्भ्भ् पास गर्ने विद्यार्थीहरूको रोजगारी सम्बन्धि सीप राम्रो पाईयो । त्यसैगरी अहिले अध्ययन गरिरहेका विभिन्न किसिमका सिटीइभीटी विद्यालय मध्ये संस्थागत स्कुलमा अध्यनरत

विद्यार्थीहरुको रोजगारी सम्बन्धि सीप सबै भन्दा कम पाईयो । यस अध्ययनले सिकाई उपलब्धि र रोजगार योग्यता बीचको सकारात्मक सम्बन्ध पनि प्रकट गरेको छ । त्यसैगरी विद्यालयको प्रकारले पनि रोजगारी सम्बन्धी सीपमा प्रभाव पारेको छ ।

यस अध्ययनको नतिजा विद्यार्थी, रोजगारदाता र शिक्षालयहरू लगायत अन्य सबै सरोकारवालाहरुलाई उपयोगी हुनसक्छ । विद्यार्थीहरुको व्यवसायिक सीप सम्वन्धि ज्ञान र सीपको तह कम भएकोले उप्रान्त त्यसमा ध्यान केन्द्रित गर्न सक्छन् र रोजगारदाताहरुले विद्यार्थीहरुको कमि भएका सीपहरु विकास गर्न शैक्षिक संस्थाहरूसँग मिलेर काम गर्न सक्छन् । त्यसैगरी शैक्षिक संस्थाहरुले विद्यार्थीकलाई उनिहरूमा कमी भएका सीपहरुको बारेमा छुट्टै मोडुलहरु तयार गरि तालिम सञ्चालन गर्न सक्छन् । त्यसबाहेक यो अध्ययनले अनुसन्धानकर्ता र नीति निर्माताहरुलाई रोजगारी सीप वृद्धि गर्ने उपयुक्त नीति र पाठ्यक्रम बनाउन मार्ग प्रशस्त गर्दछ ।

..... २ माघ २०८१

सन्जीव कुमार पन्थी

उपाधि उम्मेदवार

This dissertation entitled *Perceived Employability Skills of Graduating Students from Diploma in Civil Engineering: A Survey in Kathmandu Valley is* presented by *Sanjeeb Kumar Panthee* on *15 January 2025*.

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I understand and agree that my dissertation will become a part of the permanent collection of the Kathmandu University Library. My signature below approves the release of my dissertation to any reader upon request for scholarly purposes.

……. 15 January 2025

Sanjeeb Kumar Panthee

Degree Candidate

DECLARATION

I hereby declare that this dissertation is my original work, and it has not been submitted for candidature for any other degree at any other university.

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DEDICATION

This dissertation is dedicated to my wonderful family.

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I am indebted to my father, Shalik Ram Panthee, and mother, Yamuna Panthee, for being my source of inspiration. Similarly, I thank my wife, Dr. Leela Paudel Panthee, my beloved sister, Shila Panthee, my loving son, Oscar Panthee, and my cute daughter, Olive Panthee, for being close to me and strengthening my caliber to accomplish this work.

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Sanjeeb Kumar Panthee
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ABBREVIATIONS

TVET	Technical and Vocational Education and Training
ANOVA	Analysis of Variance
CTEVT	Council for Technical Education and Vocational Training
SEE	Secondary Education Examination
DCE	Diploma Civil Engineering
GPA	Grade Point Average
HCT	Human Capital Theory
KUSOED	Kathmandu University School of Education
OJT	On-the-job Training
SPSS	Statistical Package for Social Sciences
TECS	Technical Education in Community School
GAP	Graduate Acceleration Program
BSET	Balaju School of Engineering and Technology
HOD	Head of Department
ECA	Extra-Curricular Activates

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CHAPTER I
INTRODUCTION

I have worked in the Technical and Vocational Educational and Training (TVET) sector for over a decade. As a practitioner of TVET, I got to work with different stakeholders. Employers are the prominent stakeholders of the TVET system. Throughout my career, I have mostly connected those graduates to employers. In my interaction with employers, I often find employers not keen to hire Nepali TVET graduates. These employers always raise the issue of appropriate skills that a graduate possesses. In my recent interaction with one of the employers who runs a construction company seemed to be worried about the skills of the graduate as there is a high demand, but graduates do not possess the skills they are looking for. So, the employer has to look for skilled workers from neighboring countries (mostly from India), which increases the operation cost for the company. The employer I interacted with was particularly concerned about the TVET graduates who would spend three years at the Diploma level. Still, they lack the skills that they need to perform, and they do not seem to be professional. This was not the first time I had heard such things about the skills of TVET graduates. After hearing about the employer, I decided to investigate the problem and check the perceived employability skills of TVET graduates.

In Nepal, there are 34,368 schools, and among these, 26,454 are community (government) schools, whereas 6,760 are institutional (private) schools (Ministry of Finance [MOF], 2021-22). Community schools are government schools that run under the direct supervision of the government, whereas institutional schools are privately owned (Gautam, 2023). Students who complete the Secondary Education Examination (SEE) from community or institutional schools can enroll in the technical courses the Council for Technical Education and Vocational Training (CTEVT) offers. To produce the technical and skillful human resources required for the nation, in 1989, CTEVT was established (CTEVT, 2021). The CTEVT Act (amended in 1993) was passed, eventually establishing CTEVT (Bhattarai, 2015). Since its establishment, CTEVT has been managing the entire TVET system of Nepal (Paudel & Eberhardt, 2023). CTEVT runs 49 diploma-level courses (CTEVT, 2022), and 14 are related to engineering-related occupations. Diploma in Civil Engineering

(DCE) is one of them. It is a three-year program, and the course aims to produce middle-level technical personnel in civil engineering (CTEVT Curriculum, 2021). There are four types of CTEVT schools: constituent, partnership, technical education in community school (TECS), and private school (Shrestha, 2023). Constituent schools run under the direct management of the apex body CTEVT. Similarly, TECS schools are community schools that the school management committee and the apex body directly manage. CTEVT has formed partnerships with different organizations, mostly non-profit organizations, to conduct TVET courses, and such types of schools are regarded as partnership model schools. The fourth type of school is a private school affiliated with CTEVT. Though these schools are privately owned, they have to abide by the rules and regulations of CTEVT. No matter what type of school it is, the common goal is to make their graduates sellable in the job market by enhancing graduates' employability skills, and according to Sharma et al. (2023), if the employers find the graudates are equipped with necessary employability skills, transition for the students from university/college to industry becomes comfortable.

Different researchers and scholars have defined employability in various ways. Lee (2002) sees employability from an individual perspective, and according to Lee, it depends on how skills are acquired, utilized, presented, and applied in the workplace. At an individual level, employability can also be described as an integrated and multidimensional concept that helps to sustainable employment (Sharma & Bhattarai, 2022). On the othe hand, Tymon (2013) looks at employability from a triangular approach (Student, Institute, and Employer), which is similar to the approach of Rosenberg et al. (2012). Harvey (2001) looks at employability from the perspective of an institution and stresses that the quality provided by the institution is dependent on employability. Similarly, Shafie and Nayan (2010) view employability as an essential skill that helps to find, continue, and perform consistently on the job. However, Okolie et al. (2019) see the concept of employability from a slightly different approach, as the skills acquired by the student could be individual. However, employability skills are all about what employers expect from the graduate. Vargas et al. (2018) and Rothwell (2015) look at employability from the contextual view, and it has different meanings depending upon the context. Rothwell (2015) looks at employability from political, educational, and human resource perspectives. In recent times, employability has been commonly defined at individual level as an

individual's potential for employment in the labor market (Grosemans et al., 2023) and it is assessed in two ways personal strength or perceived employability skill.

Perceived employability is attaining sustainable employment appropriate to one's qualification level (Rothwell, 2015). Similarly, Fugate et al. (2004) define it as one's ability to identify and realize career opportunities; however, Rothwell and Arnold (2007) state that perceived employability is not only about individual attributes. Factors such as the current and predicted states of the labor market will likely affect perceived employability.

According to Vanhercke et al. (2014), perceived employability is an individual's perception of possible employment. Along the same line, Berntson et al. (2006) have also looked at perceived employability from the point of view of an individual when looking to find a new job. Unlike previous researchers, Alvarez et al. (2017) have defined perceived employability from personal and external points of view as personal and external factors determine it. Individual factors regarding perceived employability remain almost the same as other researchers. However, Alvarez et al. also emphasize the labor market situation where graduates study while defining perceived employability.

Employability skills have been classified differently depending on the researchers. Ismail and Mohammed (2015), Rasul and Puvanasvaran (2009); Archer and Davison (2008) and Kenayathulla et al. (2019), Australian Learning and Teaching Council (2011); Zaharim et al. (2010) have broadly categorized employability skill into three major parts: generic skill, core skill, and personal attributes. In various policy papers and reports, generic skills are considered essential for citizens of the twenty-first century (Strijbos et al., 2015). According to Tuononen et al. (2022), some generic skills, such as communication, problem-solving, collaboration, and critical thinking, are also cognitive and twenty-first-century. Similarly, Zaharim (2010) defines generic skills as using personal skills, a foundation to gain, maintain, and succeed in employment. Generic skills are important not only in the transition phase to work but also in later work life. Crawford et al. (2013) define generic skills as desirable for students and employers.

The term used in different countries to denote core skills varies; however, core skills are defined as occupational-specific skills, and the definition is the same in almost every nation (Brewer & Comyn, 2015). Good occupation-specific skills are insufficient to meet the labor market's demand (Gasior, 2013). Core skills are also

considered technical skills that equip students to perform specific tasks (International Labor Organization [ILO], 2015). The third type of skill is personal attributes. According to Mohammed and Ismail (2019), personal attributes include spirituality, morality, ethics, integrity and honesty. In addition, personal attributes include attitude skills and trait skills. In the employability skill framework designed by Zaharim et al. (2010), the personal attribute enables engineering-related work well and effectively with others on a job and in society. Comparing these three categories with the study of Thapa (2022), generic skill and personal attributes can be regarded as soft skill whereas core skill is closely related to hard skill. Similarly, the skills which Gautam (2016) has mentioned as types of soft skill are similar to generic skill and personal attributes of this study. Similalry, according to Joshi et al. (2024), schools and universities in Nepal are not helpful to develop soft skills as they emphasize hard skills above soft skills. Perceived employability skills combine and vary depending on race, ethnicity, and gender.

The level of employability skills is also closely associated with the demography of the graduates. Demographic variables such as age, gender, and geographical surroundings impact the employability skills of the graduate (Abd Majid et al., 2020). Female students are less likely to be highly employable than males (Qenani et al., 2014). Similarly, according to Blunt and Richards (1998), residential location also influences students' employability skills, and areas of location could be rural, urban, and semi-urban. Ethnicity is another factor that influences employability, and according to Castilla (2008), most of the social literature tends to see ethnical differences concerning occupational achievement.

Learning achievement is defined as students' knowledge, skills, and study habits in a course and how effectively they have applied this knowledge to their work (Pham & Huynh, 2017). Learning achievement results from a class exam (Magnus & Peresetsky, 2018). Similarly, as mentioned (Dangol & Shrestha, 2019), the learning achievement of this study refers to the sum of all learning achieved through the teaching and learning process. According to Steinmayr et al. (2015), learning achievement is closely related to academic achievement as it represents performance outcome, which indicates whether a person has accomplished specific goals in school, college, and university. Faisal et al. (2020) and Guskey (2013) have also used student grades to calculate learning achievement by the student. The final section of the study focuses on

finding the relationship between the student's academic achievement and employability skills.

Stating the Research Problem

There are a couple of policies on TVET, and the latest one is the TVET policy (2012), which was aimed at creating opportunities for employment through the TVET program by preparing capable and competitive human resources. However, this policy did not have much effect on creating employment opportunities as more and more people came to the labor market without having proper skills (Poudel, 2020). The National Education Policy, unveiled by the Government of Nepal in 2019, contains some sections on TVET. As this is the first educational policy after the promulgation of the Constitution, it mainly focuses on aligning the tasks with the constitutional mandate. Regarding TVET, the National Education Policy (2019) has broadly defined the roles and responsibilities of three tiers of government (Federal, Province, and Local). TVET Policy 2012 contributed major role for the development of TVET sector (Bhattarai, 2020). Creating employment opportunities was the top priority of TVET policy (2012); however, the National Education Policy (2019) did not put much emphasis on this issue. Similarly, other acts and policies related to TVET are the Nepal Employment Policy (2015), Labor Act (2017), and TSSP (2023), which focus on enhancing the quality of the TVET program, increasing the enrolment, and managing the sector, but the issue of increasing the employability skills of TVET graduates has not been in the priority at the policy level.

Students' interest in TVET courses is declining, which is linked with employment (CTEVT, 2021/22). The case study conducted by Baral (2023) proves that the employment rate of TVET graduates is decreasing yearly. Not only the formal TVET program but also the short-term TVET courses, which are claimed to be demand-based and create a high level of employment rate, are also not creating enough employment opportunities. Silwal and Bhatta (2017) reported that two of the Vocational Education and Training (VET) courses in which they conducted the study created about 80% of employment. However, the monthly income of these self-employed and employed graduates was less than half and, in some cases, less than one-third of the rate the government declared as the minimum salary.

Engineering graduates are the backbone of infrastructure development, and there is a high demand for such graduates (Paudel et al., 2020). However, a tracer study of TVET graduates by Acin (2016) and an impact assessment of TVET by

Central Department of Economics [CEDECON], (2022) shows that the employment rate of TVET graduates is low, and engineering graduates have the lowest employment rate. This is also reported in the study by Sharma (2023), as employers shared that they are hesitant to hire TVET graduates as they do not possess appropriate skills. Furthermore, TVET graduates lack core technical skills and cannot show simple skills such as communication and teamwork skills. Another recent study by Sharma and Bhattarai (2023) has also shown that the perceived employability skills of TVET students are at an average level, and civil engineering students have the lowest employability skills.

For engineering students, it is vital for a successful transition from study to industry, and the transition becomes comfortable to the students if employers see the graduates possess the required employability skills (Sharma et al., 2023). There is a dearth of studies regarding the perceived employability skills of TVET students in Nepal. The findings of this study indicate the level of perceived employability skills of Diploma in Civil Engineering graduates, which will be helpful for employers as they will be aware of what level of skills graduates bring with them. Similarly, looking at graduates' perceived employability skills, policymakers can bring this topic into policy-level discussion and suggest the apex body and concerned authorities accordingly. So, knowing the level of perceived employability skills is important for graduates and employers, TVET institutions, and policymakers. Further, this study will also be helpful to fill the void of research in the area of perceived employability skills among TVET graduates in Nepal.

Research Questions

1. What level of perceived employability skills do Diploma in Civil Engineering students have?
2. To what extent do demographic variables (gender, ethnicity, locale, and province), types of SEE Schools (Community/Institutional), and types of CTEVT Schools (Constituent/Affiliated/TECS/Partnership Model) differ across perceived employability skills?
3. To what extent does the relationship between learning achievement and perceived employability skills exist?
4. Do the demographic variables, type of school (Community/Institutional and Constituent/Affiliated/TECS/Partnership Model), and learning achievement predict the perceived employability skills of graduating students?

Hypotheses

Hypothesis 1:

There is a significant difference in perceived employability skills across students' gender, ethnicity, surroundings, and location.

Hypothesis 2:

Perceived employability skills differ across the type of SEE schools (Institutional and Community) and types of CTEVT Schools (Constituent, TECS, Partnership, and Private).

Hypothesis 3:

There is a significant relationship (associations) between learning achievement and perceived employability skills.

Hypothesis 4:

Demographic variables, type of school, and learning achievement significantly impact perceived employability skills.

Significance of Study

TVET stakeholders have been broadly categorized into three areas: TVET providers, Employers, and Local Representatives (Baral & Parajuli, 2024). Besides the three stakeholders mentioned above, TVET graduates are also important stakeholders of the TVET system (Adhikari et al., 2023). This study finds the level of perceived employability skills that students possess. Once the level of employability skill is known, it will help all the stakeholders (students, employers, and TVET institutions) to address the issue accordingly.

Suppose the overall employability skills of the student are found to be at a low level. In that case, there needs to be a revision in the design of TVET courses, which should focus more on developing employability skills. As this study also compares the perceived employability skills of students who represent community and institutional schools at their SEE level, it also helps to redesign and deliver skills at the secondary level. Knowing the difference in secondary level would also be helpful to policymakers in paying close attention while formulating the policy to enhance employability skills. Similarly, comparing the perceived employability skills among the students studying in different types of CTEVT Schools will help relocate the resources for the apex body CTEVT.

Employers are an important part of the TVET system, and the engagement of employers is essential for quality enhancement and ensuring demand-driven TVET

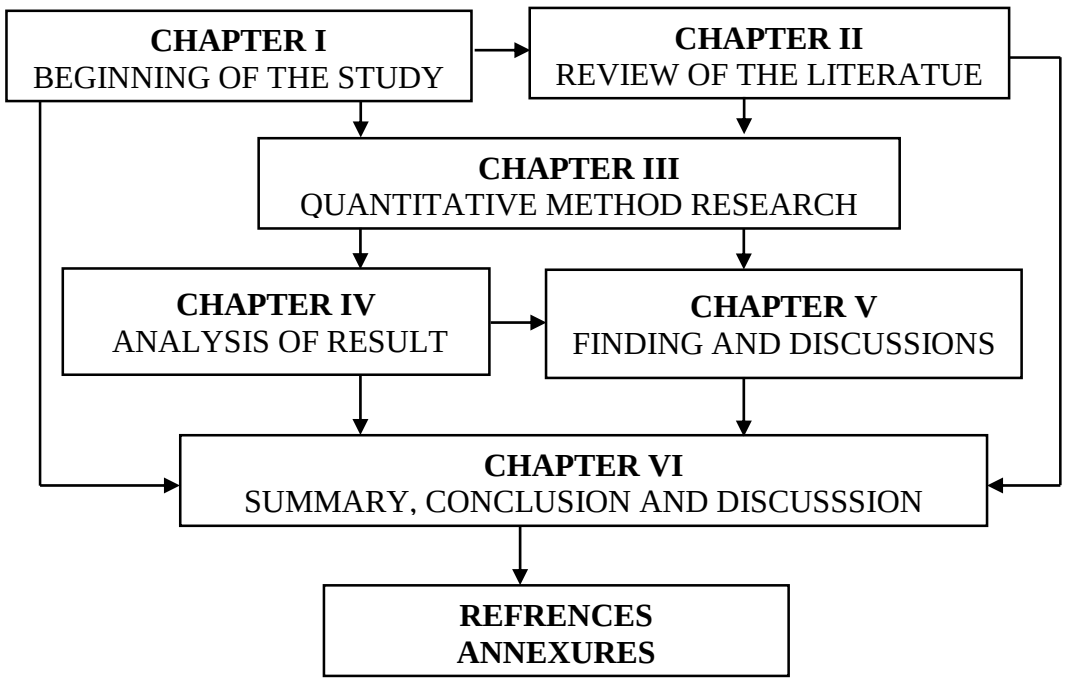
(Shrestha, 2021). TVET graduates are input for the industry. In the short run, if employers know what perceived employability a graduate possesses, they can train the fresh graduate accordingly. In the long run, employers can provide input to the apex body CTEVT while developing the curriculum and trying to solve the issue. The general understanding regarding employability skills is that they combine knowledge and core skills; however, this study has focused on two other important aspects: generic skills, personal attributes, and knowledge and occupation-related core skills. So, this study combines all these components (generic skill, core skill, and personal attributes) to give employability skills the complete meaning.

Summary

This study is divided into six chapters. Chapter I provides the introduction of the study along with general background on employability skills. Similarly, Chapter II presents the literature review and theoretical framework on which this study is based. Subsequently, in Chapter III, the detailed research methodology is explained. Similarly, Chapter IV introduces the themes and variables used in this study. Employability skill has been broadly categorized into three themes (generic skill, core skill, and personal attributes), and variables associated with each theme are also presented in Chapter IV. Chapter V presents the findings and discussion of the study. Finally, in Chapter VI, a summary, along with the conclusion and implication of the study, is presented. s

Figure 1

Structure of Thesis



CHAPTER II
LITERATURE REVIEW

Relevant literature is reviewed to understand the concept of employability skills in TVET. To be more precise, the literature review focuses on the global and national perspectives of employability skills among TVET students in different themes: interpersonal skills, general skills, learning skills, initiatives and enterprise skills, core skills, and personal attributes. To begin with, the current practices and types of employability skills in global and national contexts are reviewed. For theoretical referent, Human Capital Theory (HCT) is discussed to address the issues related to employability skills. The empirical review section covers the importance of employability skills and what they mean to employers.

Employability Skill

Employability is all about what employers expect from graduates who have just finished their courses, and in many countries, it is a point of debate on what sort of skill to look for in a fresh graduate (Okolie et al., 2019). Employability skill is a summary of non-technical skills. Bridgstock (2009) and the companies also favor competent graduates in technical and non-technical skills (Pitan, 2016). In developed countries where TVET creates high employment opportunities, employability remains one of the top priorities of educational institutions. Similarly, students are also concerned while selecting courses and institutions. Students enrolled in the TVET courses know the skills they need to perform when they graduate (Rae, 2007).

On the other hand, in least-developed countries like Ethiopia, collaboration between TEVT institutions and industry is necessary for improving employability skills (Singh & Tolessa, 2019). To increase employability skills and make graduates easily sellable in the world of work, education providers have designed several programs such as apprenticeships, on-the-job training, work placement, internships, and career counseling sessions. All these programs aim to give the graduates practical exposure and help them gain the skills needed to perform well on the job (Harvey, 2000). To address the issue of employability skills, Oliver (2015) has proposed a work-integrated learning model that clearly defines the skills that graduates need when they come to the world of work. Similarly, Deissinger and Gonon (2016)

emphasize the curriculum that educational institutions follow, and the curriculum needs to define what students should practice. Once graduates enter the world of work, employers will know what employability skills they can expect. The ever-increasing demand for skilled workers is creating pressure for TVET institutions to change their curriculum and have the generic skills and personal attributes skill in their curriculum that employers require.

A large variety of journals published around the globe related to employability skills were reviewed by Nugraha et al. (2020) to verify indicators of employability skills for TVET graduates. The review of more than 120 journals suggested that TVET graduates must have a social nature and interpersonal skills along with the core TVET skills to be successful in the field of expertise. The review also emphasized that having good communication skills helps coordinate and collaborate and helps the company grow. This literature review aligns with European, Asian, and African studies. In addition, Kenayathulla et al. (2019) research conducted among Five Hundred Chief Executive Officers (CEOs) in different parts of the world shows a similar result, as 75% of CEOs depended on people with soft/generic skills. In contrast, only 25% relied on technical skills for long-term job success.

In Nepal, some recent studies on employability skills show similar results to those in other parts of the globe. Parajuli et al. (2024) conducted a study on the skills gap in the construction industry of Nepal, which is the sector where the study's respondents will work after graduation. The research participants were employers and employees, and the result showed that most employees had lower levels of soft skills and technical and occupational-related skills. Sharma (2021) conducted a study on the level of perceived employability of engineering students in Kathmandu Valley, and the result revealed that perceived employability was at the level of emergence and presence only, which is not enough to secure employment. As perceived employability is not optimum, employers hesitate to hire civil engineering graduates. Similarly, Sharma and Bhattarai (2022) explored the self-perceived employability skill level of TVET students. The result showed that the level of perceived employability skills was near average. Students from the engineering sector had the lowest level of employability skills in the health, agriculture, and hospitality sectors.

Furthermore, Neupane and Pradhan (2014) performed a soft skills gap analysis in the CTEVT curriculum and suggested emphasizing hard and soft skills equally. While conducting gap analysis, technical skills were regarded as hard skills, whereas

soft skills were defined as non-technical skills. In their study, Neupane and Pradhan also revealed that the current curriculum of CTEVT lacks a major part of soft skills, which makes it hard to produce competent and confident TVET graduates.

The studies and findings above suggest that employability skills are at moderate and low levels. When a student enters the world of work, they need to have an adequate level of generic skills, personal attributes, and core skills to succeed in the world of work. In addition, as there is no separate curriculum, employability skills need to be taught to the students in vocational school, and it should be practiced in the industry as on-the-job training. As suggested by the articles presented above, finding the level of employability skills among TEVT graduates will help tackle this issue and take necessary action. If the level is low, policymakers will be concerned about incorporating such issues into the policy and curriculum. Similarly, the perceived employability skill differs depending on the type of school from where students graduated in SEE and are currently studying. In that case, the institutions should pay close attention to this issue and equip their students with skills demanded by the world of work or employers.

Perceived Employability and Demography

Perceived employability is built by personal strength and a structure of labor market opportunities and constraints (Rothwell et al., 2008). It concerns the individual's evaluation of this potential in the labor market in terms of the perceived range of available job (Forrier et al., 2018). An individual with a higher perceived employability will likely appraise a situation at work more favorably (Berntson & Marklund, 2007). Similarly, Vanhercke et al. (2014) define perceived employability as an individual's perceptions regarding the possibility of obtaining and maintaining employment. Rothwell et al. (2009) conducted a study to examine the self-perception of employability of business students at the post-graduate level using the self-employability matrix, which consisted of four elements: self-belief, university, field of study, and the state of the external labor market. The study revealed that for university students, self-perceived employability may have two components: internal/individual attributes and external components, such as the state of the labor market, demand for the course, and perceived strength of the university brand.

Jackson (2013) conducted a study among 1019 students in a business undergraduate program at Edith Cowan University to find the students' perceptions of the importance of employability skills, and the finding indicates that students value

skill development. For them, communication and working in a team are the most significant skills. Another researcher, Tymon (2013), conducted a study exploring the views of over 400 business studies, marketing, and human resource management undergraduate students in the UK regarding their perspective on employability, and the finding of the study suggests that views on perceived employability between students and other stakeholders are only aligned in limited areas. Furthermore, the result also showed a difference among students from the first year, second year, and final year regarding perceived employability skills. A similar study conducted in the UK by Tomlinson (2008) to find students' perceptions of the role of higher education credentials for graduate work and employability shows that academic qualifications are declining in students' employment outcomes. The research participant also shared that the degree is not enough to meet the demands of the changing labor market.

A study conducted by Abd Majid et al. (2020) regarding employability skills among students in Malaysia shows that there is no difference in employability skills based on gender; however, there is a difference in location. Students from rural and urban areas have different levels of employability skills. Similarly, Croucher et al. (2018) investigated how ethnicity, gender, and other characteristics affect low-paid workers' perception of their employability in London's labor market, and the findings suggest that ethnicity affects perceived employability. Varghese et al. (2009) studied the roles of ethnicity as a factor influencing employability among Latinos, and the result showed that the ethnicity of Latinos was the influential factor in hiring them into a job. The same study found that Latinos needed work experience and a high school education to find a job, whereas Anglo applicants only needed either. This also proves that ethnicity influences employability and the hiring process. Another study conducted by Abd Majid et al. (2020) regarding marketability and employability among institutions of higher learning students in Malaysia shows a difference in marketability and employability according to place of residence. Students living in the city demonstrated higher mean than students living in town, but the gender demographic variable did not influence employability.

Generic Skill

Several skills fall under the category of generic skills. Tuononen et al. (2022) reviewed the theoretical, methodological, and empirical viewpoints of 116 articles on generic skills, and the analysis revealed remarkable variations in concepts, research methods, and organization of generic skills. Some generic skills, such as

communication, problem-solving, critical thinking, and collaboration, are twenty-first-century (Hyytinen et al., 2019). Similarly, another study conducted by Kazilan et al. (2009) also reveals that the generic skill of the student was found to be at a moderate level, and employers suggested that TVET institutions provide generic skills before the student's graduation. Employers shared that they are willing to work with TVET institutions to improve the level of generic skills of the students. Among the three skills, generic skills (teamwork, informational skills) and personal attributes (ethical skills) were lower in comparison to the core skills of the student (Kenayathulla et al., 2019). A study codncuted by Pathak (2019) among Nepalese student in Finland showed that research participants agreed that communication skill and learning skill are the key areas that one should focus for better employament, and these two skills fall under the classification of generic skill for this study. Similarly, Nugraha et al. (2020) also suggest that social and interpersonal skills are similar to generic skills, and personal attributes are necessary for the TVET student to succeed in their expertise.

A cross-country study in some Asian Countries (Malaysia, Japan, Singapore, and Hong Kong) regarding the employability skills of engineering students expected by employers shows that employers regarded communication skills, problem-solving skills, and interpersonal skills as more important than core skills and employers view these common skills as a must to succeed in the job (Zaharim et al., 2009). Employers in India also shared a similar opinion as the employers of other Asian countries, who suggest that engineering graduates should be able to demonstrate some generic skills along with core skills, and they need to be aware of employability skills required by the global talent market (Mishra, 2016). Similarly, the leaders of industries in Malang, Indonesia, gave equal importance to generic/soft skills as much as core skills in a study conducted by Sudjimat (2017) to know the perception of industries about the employability skills that industry needs from vocational high school graduates. The industry leaders also suggested developing a curriculum of employment skills and an implementation guide for making it functional. Research participants also stressed the need to integrate generic skill content with the core skills in the curriculum, and they also classified employability skills into three dimensions: fundamental skills, personal management skills, and teamwork skills. European employers believed that some generic skills, such as communication and teamwork, are vital for students. A study by Succi and Canovi (2020) shows that 86% of European employers ranked

communication and teamwork skills at the top, which could be vital for graduates' employment.

Studies carried out in Malaysia among employers, students, and Malaysian TVET institutions reveal that 13 attributes of skill are important for employers and graduates who have a low skill level on such skill (Islam et al., 2013). A similar result was found among the graduates who graduated from another TVET institution, as these graduates had an average level of communication, management, and entrepreneurship skills (Kenayathulla, 2021). Similarly, Kazilan et al. (2009) also found that not only the graduates who completed their courses but also the students who were still in their courses were found to have a moderate level of employability skills.

Core Skill

Different terms are used to define core skills across the nations. It is defined as a necessary skill in the USA, whereas it is seen as a key competency in Australia. In ASEAN countries, core skills are also called employability skills (Brewer & Comyn, 2015). Even though the term is defined differently, core skills are occupation-related skills, and imparting such skills requires creative ways of delivering training that combines core and technical skills (Brewer, 2013). International Labour Organization (ILO) commissioned a study conducted (Brewer & Comyn, 2015) in six countries to assess the extent to which core skills have been integrated into the TVET system. Case studies reveal that in both developed and developing countries, much work needs to be done to integrate core skills into the TVET system that can enhance the employability of learners and job seekers.

Ministerial regulation of Indonesia grouped competencies in attitude, knowledge, and skills and defined these competencies for upper secondary education, including vocational training (Kurnia et al., 2014). Based on the curriculum framework, ministerial regulation splits attitudes into spiritual and social competencies, whereas knowledge and skill are core competencies. Further, TVET is concerned with acquiring knowledge and skills for the world of work (Hollander & Mar 2009). A scoping review was performed by Shahbazi and Ahmady (2022) to identify the key skills in technical and vocational education and training, and the review found that core skills are the main vocational skills which are knowledge related to discipline and principles of education, lifelong learning and familiarity with latest problems. The scoping review showed the importance of identifying and

incorporating key and core skills (hard and soft skills) into routine training programs, preparing individuals for future jobs, and assuring employer job retention and quality work.

Personal Attributes

A systematic literature review of 75 articles was conducted by Van Laar et al. (2017) to see the relationship between 21st–century skills and digital skills. The review identified five contextual skills: ethical awareness, cultural awareness, flexibility, self-direction, and lifelong learning. These contextual skills are similar to the personal attributes skill proposed in the Malaysian Engineering Employability Skills (MEES) framework. The framework is comprised of personal attributes, personal skills, and knowledge (Zaharim et al., 2010), and these personal attributes have been identified as the ability needed to enable the engineer to work effectively. Similarly, another study was conducted by and Ismail (2019) to determine the types of personal attribute skills and their indicators and develop a conceptual model for the integration of personal attributes skills in Electrical Technology Education (ETE) of Nigerian Universities. Industry managers who were the study's research participants perceived two types of personal attributes: attitude skill and trait skill. The study found that some of the skills under attitude were commitment, honesty, responsibility, and enthusiasm, whereas trait skills consisted of ethical skills, punctuality, and well-dressing skills. In Malaysia, a case study was done on 45 managers of five different job positions who worked in six different industries, and the result of the case study showed that employers viewed personal traits like responsibility, attitude, and adaptability as the top qualities expected from the employees. Similarly, the study's findings suggested that personal quality is the most important factor for hiring graduates, followed by skills and qualities.

Community and Institutional School

In Nepal, community schools are four times higher than intuitional schools (MoF 2021-22). Community schools are also known as public schools, whereas institutional schools are privately owned. The Government of Nepal runs community schools, but the institutional schools must arrange resources for their operation. A comparative study was conducted by Kunwar (2021) between public and private secondary schools in Nepal to find out which school performed better academically. The study was conducted for three academic years in SEE, showing that the private schools outperformed public schools. The pass percentage of public schools was half

that of private schools. Another study was conducted by Thapa (2015) to compare the public and private school performance in Nepal about one and half decades ago to Kunwar (2021), and the findings were similar to Kunwar's study. Private school students performed better than public school students.

Sometimes, in both public and private institutions, other factors affect graduates' employability skills, and studies in two different continents, Australia and Africa, have shown similar results. In Australia, Andrewartha and Harvey (2017) conducted research on 37 public universities, and the research findings showed that student unions could be very helpful in increasing the employability of students. Student unions successfully linked students with different clubs and societies and gave students leadership opportunities, which ultimately helped to increase the student's employability skills. In contrast, a study conducted in one of the African countries, Kenya, in public TVET institutes by Anindo et al. (2016) revealed that training equipment influenced employable skills. As the training institutions had inadequate training equipment and lacked modern equipment to match the ones used by the industry, it directly impacted the graduates' employability skills.

Among the four types of CTEVT schools, constituent and TECS schools are fully public, whereas the partnership model is partially public, and affiliated schools are private schools. CTEVT started conducting diploma-level courses through these schools almost three decades ago, and 1106 institutes conducted courses (CTEVT, 2022). Constituent schools are run under the direct supervision of CTEVT, and there are 65 such constituent schools across the nation. Similarly, CTEVT, in partnership with other institutions, conducts the program, and such types of schools are regarded as partnership model schools, and there are 58 partnership model schools. 429 schools are affiliated with CTEVT, but these institutes are autonomous and are called private institutes. The TECS modality was established as an annex program, and in this modality, community schools run TVET formal courses (Tiwari, 2023), and among four types of schools, the TECS school number is the highest.

Learning Achievement

Student's educational achievement is related to the examination results (Shrestha, 2023). For this study, learning achievement is the average GPA of the student, also known as academic achievement. It broadly refers to communicative, mathematical, science, social science, and thinking skills and competencies (Lindholm-Leary & Borsato, 2006). However, some of these achievements are hard to

measure, so a standardized achievement test is used to measure academic achievement. In the context of TVET, learning achievement is measured by the student's competency and skills acquired through the course (Lui & Clayton, 2016). A systematic review was conducted to see the assessment approaches and learning outcomes in Technical and Vocational education by Yusop et al. (2022), reviewing 29 relevant studies published between 2015 and 2021. The result shows that competency-based assessment is the most widely used approach, followed by performance-based and formative assessments. Competence is used to assess student's learning results.

Policy on Employability

The government of the United Kingdom started formulating policies regarding employability in 2002, and the first step was establishing an Employability Coordination Team (ESECT) to enhance employment opportunities for students and promote a learning environment related to employability (Belt et al., 2010). In a recent strategy, Welsh Higher Education Strategy, cited by Gummett (2015), employability is an important aspect of higher education. Similarly, in Scotland, a designated government agency has supported colleges and higher education institutions to develop their students' employability skills for over two decades. In the same report, it has been mentioned that the Graduate Acceleration Programme (GAP) was designed in Northern Ireland to increase the employability skills of youths who were struggling to find employment.

In developed countries like Germany, a dual VET system (Combination of work-based learning and institution-based training), which is regulated by employers and trade unions, is fully functional and fulfills the needs of employers (Hall & Soskice, 2001). Working in industry as a course requirement of the dual VET system has allowed the students to acquire employability/market-sellable skills. To address the issue of employability skills among graduates, South Africa has included specific skills that are helpful for the development of graduates and economic prosperity through its National Qualifications Framework (Harvey & Bowers-Brown, 2004). Similarly, Spronken-Smith et al. (2015) state that in New Zealand, the National Qualifications Framework is revised to increase graduates' employability skills after consulting with the stakeholders.

A study conducted by Gill (2018) in Australia regarding building employability skills for students suggests establishing a network of students and employers to identify the gaps in the students about to finish their studies and enter

into professional work. The gap and issues of the student can be discussed in a common forum, and it will help to make a transition plan for the students with the employers. It will help soothe the students' anxiety and help employers clearly explain what employability skills they expect from the fresh graduate. Similarly, as per Sheldon and Thornthwaite (2005), the Australian Employer Association has been demanding a change in Australia's VET policy and has suggested putting more emphasis on employability skills.

Another similar study in the UK by Kornelakis and Petrakaki (2020) suggests that small-group teaching can respond to the industry's perspective on employability skills. Employers in the UK are normally satisfied with a graduate's basic employability skill; however, students cannot perform well in complex tasks associated with the employability skill, and that's where small-group teaching activities can be applied.

Looking at the policies regarding employability skills worldwide, it can be seen that countries where these policies have been implemented and are fully functional have supported TVET graduates in finding employment. So, these policies have a positive impact on a graduate's career.

The latest policy on TVET is incorporated in the National Education Policy (2019). The Labour Act (2017) has mentioned the training and apprenticeship program. Other areas of TVET have still not been touched upon. In contrast, the National Education Policy has some sections related to TVET. It mainly focuses on defining the roles and responsibilities of the three tiers of the government, and TVET is the priority of all governments. Before federalism, all the TVET institutions were under the umbrella of the federal agency. In the changed context, local and provincial governments also need to be oriented on the quality of TVET courses so the graduates will be sellable in the job market. As per Poudel (2020), prior policies on TVET (2007, 2012) could not address the issue of employability as migrant workers continue to suffer and cannot find skilled work in the destination countries.

On the one hand, sixteen ministries allocate budgets in the name of skilling people (Lamsal & Bajracharya, 2022). On the other hand, employers cannot find graduates with the right skills to match the labor market demand. Although there are various options for getting the skill, most graduates fail to convince employers of their competency in the occupation they are trained in as they do not have the employability skills that the industry demands.

There is a dearth of studies conducted regarding the employability skills of Nepali TVET students/graduates. As per the Ministry of Labour, Employment and Social Security (MoLESS) (2015), competency acquired by graduates in universities will help them become skilled workers, ultimately driving the country's economy. However, without proper employability skills, an employer will hardly hire the graduate, and even if they are hired, productivity and efficiency might not be high enough. A study by Sharma (2021) to find the employability level of engineering students suggests that there needs to be a strong collaboration between institutions and employers to define the employability skills required by the industry, which should be incorporated into the curriculum. Such skills are to be developed by the students before they are graduated. Having a separate TVET policy will help look at the issues of TVET stakeholders (TVET Institutions, students, and employers) closely. The low employment rate of TVET graduates is affecting all the stakeholders. So, the TVET policy incorporates all necessary skills for the student to be employable through the curriculum. In addition, through the policy, employers will have meaningful participation in the curriculum design/revision process. If all those necessary skills are incorporated into the curriculum, students can equip themselves with the employability skills that the job market demands. Once TVET graduates are better employable, TVET will attract more people.

Theoretical Perspective on Employability Skill

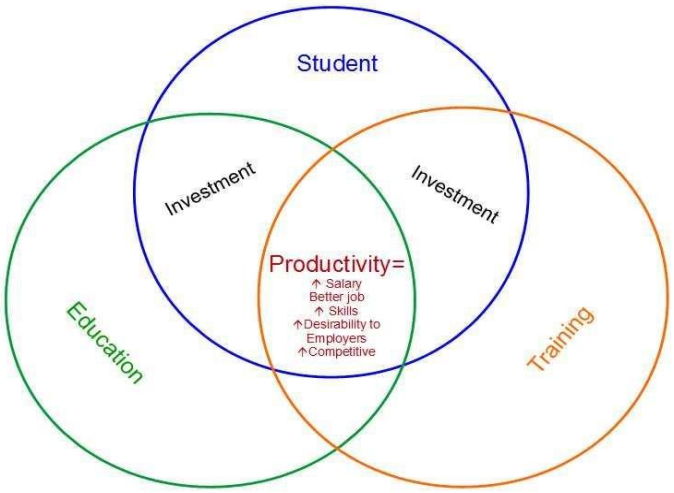
Employers always argue that academic institutions should teach their students the proper skills that are necessary to succeed in the world of work; however, before making institutions accountable to equip their graduates with such skills, there is a basic thing that needs to be discussed (Robinson & Graton, 2008). Apart from core skills, what skills do graduates need to have to give the best result in the workplace, and how are they performing such skills? In addition, the skills can be embedded in the curriculum so that the graduate performs better in the workplace.

This study is based on human capital theory (HCT), as shown in Figure 1, and was formulated by Becker (1964). The basic concept of HCT is that the investment in education and training is also considered an investment in human resources. Investing in human capital is one of the prerequisites to achieve sustainable development (Dhakal, 2017). If we look at HCT from graduates' perspective, investment in increasing employability skills (generic skills, core skills, and personal attributes) will make these graduates better sellable in the job market. In addition, skilled human

resources are the capital of any nation and can be used for development (Nafukho et al., 2004). Similarly, Knight and Yorke (2003) suggest that investment in skilling graduates ultimately increases human capital.

Figure 2

Human Capital Theory



(Becker, 2009)

As stated in HCT, academic institutions need to invest in building labs and workshops and buy tools and equipment to provide the students an opportunity to sharpen their skills. One of the major components of employability is core skills. A graduate must have core skills at an optimum level to secure employment immediately after graduation. Students must be exposed to practicals, and institutions must invest and prepare their lab workshops accordingly (Wanjala et al., 2020). Similarly, institutions also need to invest in extracurricular activities such as sports and tournaments, as these events are vital to enhancing two other components of employability skills: generic skills and personal attributes. Most institutions spend their resources on developing the students' core skills; however, generic skills and personal attributes also play an important role along with core skills to find a job when students finish their studies. Along the same line, Thapa and Singh (2019) also argue that investment in enhancing employability skills not only helps a graduate to find a job but also supports them in doing things correctly, which in turn increases productivity.

In this way, the quality of students/graduates is improved through investment in employability skills, which can be seen as human capital development. Furthermore, it implants both employability and technical skills in graduates. Similarly, Oviawe et al. (2017) conducted a study to see how employability skills are affected by the knowledge gap in Technical and Vocational Education and Training, and the researchers used HCT and argued that investing human capital via TVET can boost employability and support economic expansion. Similarly, a report published by Education International Research on TVET as a framework for social justice by Moodie et al. (2019) states that TVET and most postsecondary education are shaped by human capital theory, which posits that education develops skills and helps generate economic values. Such developed skills will help make students suitable for work (Marimuthu et al., 2009). In every organization, human capital is kept at the organization's center while performing any activity that ultimately determines the success of an individual and a nation.

Research Gap

The construction sector plays an important role in employment generation, and TVET courses relating to the construction sector are key to skill acquisition and solving the issue of skill crunch (Parajuli et al., 2024). A literature review on the perceived employability skills of TVET graduates shows that students' skills are at an emerging level. A study by Sharma and Bhattarai (2023) on the perceived employability level of TVET students suggested that TVET students have an average level of employability skills. Another study by Sharma (2023) regarding the employability of engineering graduates shows that engineering graduates possessed average employability skills. Sh et al. (2023) analyzed the impact of employability skills on the employee performance of business graduates and highlighted the importance of employability skills. Sharma and Bhattarai (2022) explored the role of vocational teachers in enhancing the employability skills of vocational graduates. Khanal (2024) explored perceived employability variations in the faculty of Education, and the study revealed that distinct levels of employability existed across competencies. Gurung et al. (2023) explored graduates' perceptions of employability, and the findings suggest that graduates increasingly see the need to develop strong academic and employability skills. A tracer study of the graduates of Diploma and TSLC programs under CTEVT conducted by Acin (2016) shows that the overall graduate employment rate is around 50%, and diploma civil engineering graduates'

employment rate is only 30%. Baral (2023) conducted a study on students' attraction toward pre-diploma and diploma-level engineering programs, and the trend analysis shows that the enrolment of CTEVT engineering programs is decreasing trend. However, to my knowledge, no study has been done regarding the perceived employability skills of engineering students. As the employment rate of engineering graduates is at the lowest level, I tried to find the level of perceived employability skill of the diploma engineering student.

An analysis of the academic performance of public and private schools using the SEE examination, formerly known as the school leaving certificate, by Thapa (2015) shows that private schools performed better than public schools. Kapri et al. (2023) tested the differences in labor market outcomes for individuals educated in public and private schools, and the findings revealed that private education displayed a lower rate of labor force participation. Kunwar (2021) compares the academic performance of public and private schools, and the result shows that private schools performed better than public schools. Public institutions' graduation rates are lower than private institutions (Paudyal, 2016). The students who graduated from SEE are either from public schools, community schools, or private schools (institutional Schools). No study conducted in the past shows the difference in employability skills of TVET graduates from public or institutional schools in SEE. TVET graduates choose one of the four types of CTEVT schools (Constituent, Partnerships, TECS, and Private Schools) for regular TVET courses (Shrestha, 2023). As no study has been conducted to check the level and difference in perceived employability of students studying in different types of CTEVT Schools, I tried to see the difference through this study.

Shrestha (2023) explored the factors affecting students' educational achievement in the diploma-level engineering programs of CTEVT. Learning style significantly influences students' academic learning (JilardiDamavandi et al., 2011). Academic achievement is a key determinant of any adolescent's future educational and occupational success (Flashman, 2012). Academic achievement is calculated using a standardized test (Lindholm-Leary & Borsato, 2006); however, in TVET, learning achievement is measured by competency and skill (Lui & Clayton, 2016). A couple of research studies have been carried out to check the learning achievement of TVET graduates. However, threre are very limited studies have bee carried out to see the relationship between learning achievement and perceived employability skills. So,

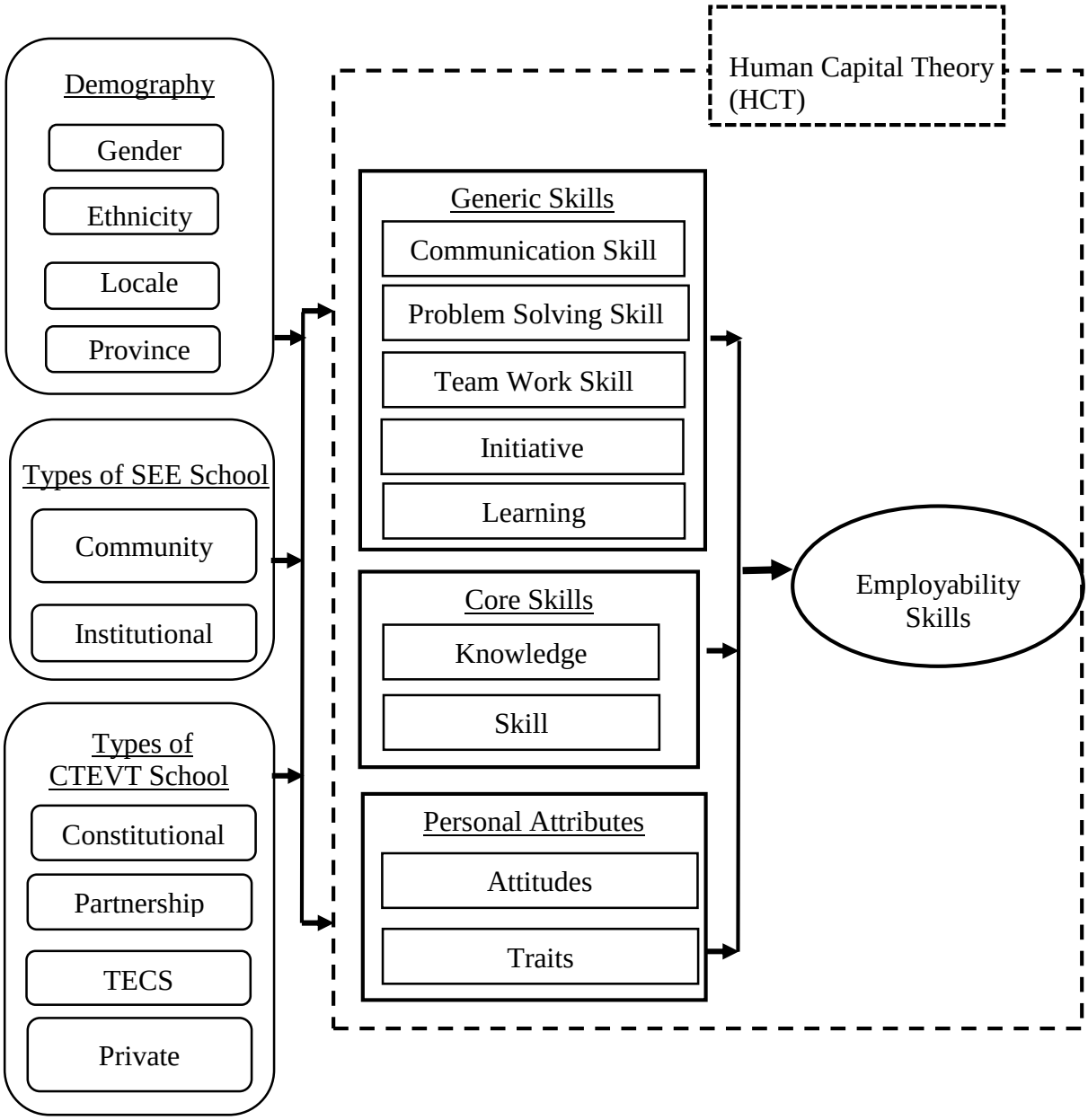
in this study, I tried to see the correlation between learning achievement and employability skills of TVET students in the final year of their studies.

Conceptual Framework

The employability skill of a graduate is the combination of generic skills, core skills, and personal attributes. Generic skills are categorized under five different dimensions. For each generic skill, there are indicators to measure the skill acquired by the students. Under the theme of core skills, knowledge and skills acquired by TVET student during their course is evaluated. Similarly, the student's general attitude is also observed during the course period.

Figure 3

Conceptual Framework



As Helyer and Lee (2014) suggest, TVET institutions must work closely with the industries/employers to build a strong link among them. Involving industries/employers in the curriculum design phase will help to include the indicator of employability skills and personal attributes required by TVET students to perform well in the world of work.

Chapter Summary

This chapter presented the concept of employability skills in the global and Nepali contexts. To link it with the theory, human capital theory is closely related to employability skills, emphasizing imparting knowledge and skills to the learners to

increase productivity ultimately. The conceptual framework presented in this chapter provided the variables of employability skills under different themes. In the empirical review section, different scholars stressed the importance of employability skills. They suggested coordinating between TVET institutions and employers to include the components of employability skills in the curriculum.

The enrollment capacity of TVET institutions is on the rise every year, whereas the number of students who get enrolled is declining. On the other hand, the employment rate of TVET graduates is only around 50%. In this scenario, the student who aims to be linked to the world of work through TVET courses might not have adequate employability skills. Among three types of employability skills: Generic skills, core skills, and personal attributes, the students might have developed core skills; however, they might not possess other types of skills that are essential to finding a job. This study focuses on finding the level of employability skills among the students.

CHAPTER III
RESEARCH METHODOLOGY

In this chapter, I have explained my research journey to understand the level of employability skills of diploma-level engineering students. This chapter outlines how this research has been carried out to produce the result. This chapter starts with a research paradigm derived from the philosophical consideration of post-positivism. In the design section, I have used the survey method contextualizing the questionnaire to find the students' perceived employability skills. The study area, population, sampling techniques, and sample size are discussed in the research design, using Cochran's formula. Sequentially, this chapter has discussed the data collection tools and techniques. Then, different statistical analyses are discussed for the research questions I have set. After that, I discussed the reliability and validity of my survey. At the end of this chapter, I discussed my ethical considerations for this study.

Research Paradigm and Design

The research paradigm is a key principle and hypothetical structure that guides understanding the world's reality and learning (Rehman & Alharthi, 2016). For me, the research paradigm guides me in the process of this study. In my understanding, post-positivism uses scientific methodologies and discovers the nature of reality, and it also sets my philosophical consideration (Tuli, 2010), and this study follows a post-positivist paradigm. It assumes a researcher can be independent and accept the social reality, which can be measured despite being difficult to assess. It advocates objective reality by recognizing the possible effects of biases generated from prior knowledge and values, believes in the idea of a single truth, and emphasizes the importance of multiple measures, observations, and errors (Creswell, 2012). As a practitioner of TVET, interacting with stakeholders and reviewing the literature, I understand that employability combines generic skills, core skills, and personal attributes. The perceived employability skill level can be measured and generalized. The level of perceived employability skill in different themes (general, core, and personal Attributes) impacts the graduates' employment opportunities.

In considering post-positivist philosophy, it is necessary to discuss ontological, epistemological, and methodological positions, and for me, ontological positioning helps to orientate thinking on the research problem (Kivunja & Kuyini,

2017). In this context, the researcher’s ontological position in the study is that the present context of employability of diploma-level engineering students could be expressed objectively to examine the research problem in my way. Single and objective reality is the researcher's belief, and the reality is out there, which is getable from the research participants. It will be helpful to draw the reality and conclusion. In this study, I did not influence the respondents with prior knowledge of the research topic. The students' employability skills were recorded objectively, and it was considered true.

Epistemology denotes the theory of knowledge: nature, source, and scope of knowledge (Ramiz, 2016) The source of knowledge for this research is facts, findings, and the relationship between variables. The researcher followed the survey method and distributed questionnaires on employability skills to final-year engineering students. Whatever result came from the analysis is the knowledge for this research, and as stated by Kivunja & Kuvivi (2017), to bring out the knowledge of engineering students in our social scenario, epistemology in this study was crucial.

The axiology of quantitative research is value-free, and there is no value to the respondents (Bahm, 1993). The respondents expressed their understanding regarding employability skills through the survey, and I played the role of facilitator whenever needed. As a researcher, I found the respondents' values, beliefs, and thoughts secondary to mine, as my main focus was on the survey results. All the emphasis was on the research questionnaires.

In my understanding, ontology and epistemology guide research methodology. Research design comprises a plan for data collection, analysis, and control of the external influences procedure (Flick, 2011). With the philosophical consideration I assumed, Graffin (2021) has suggested that quantitative methods can be mostly used. The survey method helped me research quantitative methods, a non-experimental design. I studied a sample to generalize the population’s trends, attitudes, or options (Creswell, 2009). I used a survey approach for the data collection to check the level of employability skills of diploma-level civil engineering students. With the literature review, I identified different types of employability skills. I contextualized the questionnaires and visited different CTEVT-affiliated schools to collect the data from final-year diploma-level civil engineering students.

Study Area, Population, and Sample

Once I was clear about my research paradigm, I designed the strategy to identify the sample for my study. At first, I identified the study area and population for my study. In this study, the total group of people creating a universe for generalizing was population (Guthrie, 2010; Muijs, 2010). There are a couple of reasons why the area of study was chosen as the Kathmandu Valley, and the first reason was that the students would represent all seven provinces. It would provide diversity in terms of geography, ethnicity, and locale. The second reason was that there are all four types of CTEVT Schools in the Kathmandu Valley, whereas, in other districts, it is highly unlikely that all these four types of schools would be found within one district. Students from the faculty of civil engineering who were in the final year (final semester) of their study were chosen for this study. The reason behind choosing students from the civil engineering faculty is that there are a lot of construction works going on around the nation, such as road and bridge hydropower construction, and the demand is high for civil engineering graduates not only at the national level but also in international level (Sharma, 2023). Similarly, the final-year students were selected as they were about to finalize their academic degrees and prepare to enter the labor market.

As a complete census was impracticable and costly (Cochran, 2009), the researcher worked with a sample drawn representing the population with careful supervision. While selecting the sample, the researcher followed "three stages of sampling procedure" (Bhattacherjee, 2012). In the first stage, the population of the study was defined. I checked the CTEVT website and found that the total number of students studying for their diploma in engineering (all faculty) in four different types of CTEVT schools was 2496. Four CTEVT constituent schools in the Kathmandu Valley offer diploma-level programs; among four, only two institutes run courses on civil engineering. Similarly, partnership model schools are the same in number as constituents, and two offer courses in civil engineering. The number of TECS schools is 13; 9 conduct the civil engineering diploma course, whereas the number of private schools is 66. Still, only 10 institutes conduct courses on diplomas in civil engineering. In total, 23 institutes are running diploma civil engineering courses. Each institution has a capacity of 48 students that they can enroll in. The enrollment capacity of the constituent school is 96, and the same is the capacity of the partnership model school. Similarly, TECS School's enrollment capacity is 480, and the private

school's enrollment capacity is 432 (CTEVT, 2022). Once I knew the number of students, I contacted the respective institutes through the contact number listed on CTEVT's website. I learned that the number of students in the faculty of civil engineering in their final year was 1104, and this was the study population.

After knowing the population size, the sample size was calculated. The sample size was obtained through sampling, which is the technique of collecting the true size of the sample (Guthrie, 2010). Hence, to draw the sample size popularly adopted, Yamane's formula (Yamane, 1967, as cited in Subedi, 2017) was used, which is given below:

$$n = {}^{N}/_{1 + Ne^2}$$

Where,

n = sample size,

N = total population

e = the acceptable standard error (usually 95 percent confidence level)

$$n = {}^{1104}/_{1 + 1104(0.05)^2}$$

Hence, putting all the values, the sample size was 293.6 or 294 by rounding. I used a proportionate random sampling method to select the 294 samples from the population of 1104. The constituent and partnership model consisted of 8% each of the population, and TECS and private institutes comprised 44 and 40 percent of the population. Using proportionate random sampling from the constituent and partnership model, 26 samples were calculated. Similarly, 127 and 115 samples were calculated using the same method from TECS and Private Institute. In the selection, proportionate random sampling was used to select the ratio of students of different CTEVT constituent schools (Gravetter & Forzano, 2006). Proportionate random sampling guaranteed the sample's composition, and further liner systematic sampling guaranteed the fair selection process as it was easy to handle (Thompson, 2012). From the sample size of 294, the corresponding number of samples was identified for each CTEVT school, and the sampling framework is attached in annex 4. The final number from each type of school is also presented in Table 1.

Table 1

Population and Sample

Types of CTEVT School	Population	Sample
Constituent School	96	26
Partnership School	96	26
TECS School	480	127
Private School	432	115

After calculating the sample size, I used the lottery method to select the college. Once colleges were selected, I contacted the CTEVT Schools and requested the students' names. The students' names from different types of CTEVT Schools were organized according to the type of school. Then, I went to the school, followed the lottery method, and collected the information. I visited the second type of CTEVT School, and I continued this process unit I collected the required amount of data. In this way, I collected 324 data. I have shown the collection process of 324 forms from each type of CTEVT school in Annex 4. Later, when I checked out the form, I found out that some students did not complete it. So, those 10 forms were replaced from the respective types of schools, and the final number of students was 294 for the study.

Scale Construction

The Diploma Civil Engineering program aims to produce middle-level technical personnel with sound academic knowledge and technical skills that can be applied in real-life situations (CTEVT, 2021). Among the three components of perceived employability skill, core skill is obtained through classroom knowledge and practical. In contrast, generic skill is developed through group assignments, project work, and other group-related activities. Similarly, skills related to personal attributes are learned at home and in society. So, while constructing the scale, the perceived skill of students on those components was regarded as the perceived employability skill of the students.

A survey questionnaire is the scale of this survey. While constructing the scale, different steps were followed: 1) Contextualization of questionnaire from a recent study on employability skills of engineering students in Nepal 2) Literature Review 3) Interview with TVET Stakeholder 4) Focus group discussion with TVET instructors, current and recent graduates of diploma engineering.

A recent study by Sharma (2021) regarding the “Level of perceived employability of engineering students in Kathmandu Valley” is closely related to this study. So, this researcher used the questionnaires developed by Amrita Sharma for her study as a reference to finalize the draft questionnaires. Before referring to Sharma’s questionnaires, the reliability and validity of the questionnaires used in the researcher’s study were checked. After checking the scale construction validity in Sharma’s original study, this researcher used the questionnaires for further processing. Similarly, the respondents of the study conducted by Sharma (2021) were from the Bachelor of Engineering stream, which is 4 years long compared to the study that the researcher conducted, which is 3 years and is an intermediate-level course.

Furthermore, the minimum eligibility requirement to be enrolled in a Bachelor of Engineering course is either completion of a Diploma in Engineering or a certificate level in science; however, the requirement for the diploma level is the completion of SEE only. So, looking at the time respondents have spent in their academic field, the enrolment requirement for the course, and the degree level, the questionnaires developed by Sharma (2021) needed to be contextualized. The study conducted by Sharma (2021) consisted of a total of 56 questions.

In the first phase, the questionnaires were arranged according to the theme of this study. The next step was to look for the relevancy of the questions. Some of the questions related to project management, entrepreneurship, and internship were unrelated to this study.

As mentioned above, looking at the level of the student, it was perfect to ask these questions to bachelor-level students, but for diploma-level students, it would be hard for them to answer a question. Another reason to exclude some questionnaires from Sharma’s study is supported by the study conducted by Davidson et al. (2024), where undergraduate students in engineering and agriculture showed relatively low confidence in project management. A similar result was seen in entrepreneurship in the study by Hosho et al. (2013). In addition, some other broader questions, such as the status of engineering education in Nepal, following the role model and stress management, were also not considered for this study. The questions related to the topics mentioned above were not considered in the first draft of the questionnaire. Before the start of the process, consent was obtained from Amrita Shamra to contextualize her questionnaire. (Email from Amrita Sharma is attached in annex: 1)

Literature regarding employability skills from different countries was reviewed. As mentioned, employability skills have been broadly categorized into three themes: generic skills, core skills, and personal attributes. Literature regarding these three themes was reviewed. Practical framework of employability skills presented by Zaharim et al. (2010), employability skills framework developed by Department of Education of Victoria, Australia (2006), a study conducted by Zaharim et al. (2009) regarding the engineering employability skills required by employers in Asia (Malaysia, Japan, Singapore, Hong Kong), report by McLeish (2002) regarding the employability skills for the Australian small and medium-sized enterprises were reviewed to contextualize the questionnaire of Sharma (2021). Similarly, while reviewing the literature for the core skill, which consists of knowledge and skill, the researcher went through the CTEVT curriculum for a diploma in civil engineering (2013, revised 2021). Similarly, research conducted by Curtis and McKenzie (2002) and the Employability skill framework developed by the Department of Education Victoria (2006) were also reviewed for personal attributes part in the scale construction of this study.

Questionnaires related to generic skills were mainly reviewed from international literature as there is a dearth of studies conducted at the national level. In contrast, core skills questionnaires were compared and analyzed based on the diploma level civil engineering (2021) curriculum. Similarly, the third part of the questionnaire is closely related to the employability skill framework developed by the Department of Education Victoria. After reviewing national and international literature, the questionnaires of Sharma (2021) were contextualized (Authorization is attached in Annex:1). The first draft of the contextualized list of questionnaires consisted of 81 items.

The draft of the construct was discussed with 3 TVET stakeholders. The stakeholders represented TVET institution, employer, and student. The discussion was held individually at their workplace/learning place, and a drafted construct was shared. Stakeholder provided suggestions on all three themes. The suggestion of student was particular important as the construct would be asked to them. As suggested by the student, some of the variables under the theme of Generic skills were merged which was also confirmed by two other stakeholders. Initially, this theme had eight variables, and after consulting TVET experts, it was reduced to five to avoid redundancy. As suggested by the experts, professionalism, self-awareness, and

planning were merged with other variables. Similarly, the questionnaires under the theme of personal attributes were also rearranged under two variables: attitudes and traits.

A focus discussion was held with TVET instructors, recent graduates, and current students. The researcher chose to conduct the focus group discussion at Balaju School of Engineering and Technology (BSET) as BSET is one of the oldest schools of CTEVT and the center of excellence. Participants of the focus group discussion provided their feedback mainly on the core skill part of the questionnaire. Recent graduates and current students were found to be a little confused about the knowledge part of the questionnaire and suggested the researcher use simple language in the questionnaire. Similarly, TVET instructors suggested refining the questionnaire about applying technical skills in real-life situations. As the diploma civil engineering curriculum (2013, Revised 2021) aims to produce middle-level technical personnel in civil engineering, the instructors suggested simplifying the questionnaire, especially in the skill part, to match the objectives of the curriculum.

After going through four stages, the construct was prepared with three themes. Under the theme of generic skills, there were 21 items, whereas in the theme of core skills, there were 10 items. Similarly, there were 11 items under the theme of personal attributes. The English version of the questionnaire was then converted into Nepali with the help of a language expert. I checked the translated Nepali questionnaire with the recent graduates with diplomas in civil engineering studies. These graduates confirmed no difference in understanding in the Nepali questionnaire as in the English version. Questionnaires were divided into two parts after the Nepali and English versions were finalized. Questionnaires related to the demographic information were kept in part A, whereas questionnaires related to employability skills were added in part B. The demographic information part had nine questions, whereas part B, related to employability skills, had 42 items. As defined by DeVellis (2017), the six-point Likert scale is mainly used for measuring attitudes, opinions, and beliefs with no neutrality option, and the Likert scale for this study was as follows: 1= “strongly disagree,” 2= “disagree,” 3= “slightly disagree,” 4= “slightly agree, 5= “agree” and 6= “strongly agree.” The Likert scale of 6 points tends to give a high-reliability value (Chomeya, 2010). Employability skill, its themes, and the elements of each theme are presented in the following table.

Table 2

Themes and Elements of Employability Skill

Employability skill Themes	Elements
Generic Skills	Communication Skill, Problem Solving Skill, Teamwork Skill, Initiative, Learning
Core Skills	Knowledge, Skill
Personal Attributes	Attitudes, Traits

After the scale was constructed, the questionnaire was piloted among 30 students, about 10% of this study's total sample (294). Pilot testing helps achieve the questionnaires' reliability, validity, and practicability. Pilot testing is an important tool that helps evaluate each item individually to check internal consistency. This is done before planning the final data collection (De Vaus, 2002). After following the necessary administrative procedure, I conducted the pilot testing in one of the schools of CTEVT. The researcher himself was involved in the pilot test, so it would be easy to accommodate the changes in the questionnaires if the students had any difficulty understanding the meaning of the questionnaires. One of the instructors also helped me clarify the research's purpose to the students. The average time for students to complete the survey form was 18 minutes, ranging from 16 to 20 minutes. The respondents raised their hands in unclear questionnaires, such as the type of CTEVT school they were currently enrolled in and question no. 9 of section A regarding the average percentage they had secured. The researcher explained the unclear points, and the students completed the survey forms. At last, when they were asked if anything was unclear to them and needed to be changed, their suggestion was to keep it as it was. The data collected from 30 respondents from the pilot study was entered into SPSS version 25, and the Cronbach alpha coefficient was calculated. This chapter’s reliability and validity section explains the pilot testing result.

Data Collection & Analysis Process

After the scale was constructed, the researcher started the data collection process. I got all the schools' contact information from the CTEVT website. After that, the school principals were contacted, and I explained the purpose of the research over the phone. In most schools, the principals provided the name and contact number of the Head of Department (HoD) of civil engineering as the research was mainly focused on this department. After booking the time with the HoDs, the researcher

prepared a time slot for the schools to collect the data. I reached out to the school at the agreed time. The HoDs called one of the instructors from their department, and I went to the classroom along with the instructor. Before starting the survey, the study's objectives were explained to the students, and the researcher requested students to spend time doing the survey. I also requested them to study the questionnaire thoroughly and carefully check the options before choosing them. The average time to complete the survey form was about 16 minutes, similar to the average time spent on pilot testing. After the survey, I thanked the respondents for their time and effort in completing it. The same process was carried out while surveying all the schools.

Once the data collection was over, the process of analyzing the data began. The data was uploaded in the SPSS 25 version. Descriptive and inferential statistics were used to analyze the data. While inserting the data in SPSS, I found some respondents had ticked in multiple places in the same questionnaires, and some had left some questionnaires unticked. So, the missing and unticked forms were replaced by the extra sample.

The first research question was about the level of employability skills of the students. The mean of each variable was calculated to calculate employability skills. Once the variable's mean was calculated, each theme's mean (generic skills, core skills, and personal attributes) was also calculated. Employability skill is the combination of all these skills, and the mean of each theme was calculated, which gave the overall employability skills of the students. Before moving to the second research question related to inferential statistical analysis, some pre-conditions need to be met. So, the researcher checked the normality of data using the Shapiro-Wilk test and the Kurtosis and Skewness test (Elaboration is in Chapter IV). Similarly, a six-point Likert scale was used, so the second condition regarding data needed to be either interval or ratio scale also met.

Once both conditions were met, the second research question was analyzed, and it was related to the employability skills of the students across demography (gender, ethnicity, province, and locality), types of SEE schools, and types of CTEVT Schools. As there were two groups in gender, locale, and SEE school type, a t-test was used to see whether there was a difference in students' employability skills across these two groups. Similarly, an ANOVA test was conducted to check the difference in students' employability skills across ethnicity, province, and types of CTEVT Schools (Constituent, Partnership Model, TECS, and Affiliated). Before the ANOVA test, the

equal variance assumption was tested with Levine's test, and after satisfying the equal variance assumption, the ANOVA test was conducted.

The third research question explored whether there was a relationship between learning achievement and employability skills. To calculate the learning achievement, the student's results from the previous semester were asked in the survey form. Out of 5 semesters, students had their results only up to the third semester, which was in percentage. So, the mean percentage of three semesters was calculated, and the Pearson Correlation Coefficient was used to check the relation between learning achievement and employability skills. The final research question was about the impact of independent variables (gender, ethnicity, locale, surroundings, types of school, and learning achievement on perceived employability skills (dependent variable), and binary logistic regression was conducted to see the impact of an independent variable on a dependent variable. A multi-collinearity test was conducted to meet the assumption of binary logistic regression. Research questions, along with the statistical tools used, are presented in the following Table.

Table 3

Research Questions and Related Statistical Tools

S.N.	Research Question	Statistical Tool to Be Used
1	What level of perceived employability skills do diploma in civil engineering students have?	Descriptive statistics, Mean Value
2.	To what extent do demographic variables (Gender, Ethnicity, Locale and Province), type of SEE School (Community/Institutional) and type of CTEVT School (Constituent/Affiliated/TECS/Partnership Model) differ across perceived employability skills?	T-test/ANOVA
3.	To what extent does the relationship between learning achievement and perceived employability skills exist?	Pearson Correlations

4.	Do the demographic variables, type of school, and learning achievement predict the level of perceived employability skills of graduating students?	Logistic Regression

Reliability and Validity

This study ensured the reliability and validity of the data. The researcher used a pilot test of the collected data to do so. For reliability, Cronbach's Alpha coefficient was conducted. This test ensures all the factors are internally consistent (Cohen, 2007).

Cronbach alpha with a value greater than 0.7 is suggested for reliable or internal consistency (Saunders et al., 2016). The value of Cronbach's alpha for overall items for this study was 0.96, which was greater than 0.7, and the value satisfied the reliability condition. Similarly, the reliability test for all other themes was calculated, and Cronbach's alpha value for all other themes was between 0.75 and 0.918. The result of Cronbach's alpha test is shown in Table 4.

Table 4

Cronbach's Alpha Test

Themes	Dimensions	Items	Cronbach's Alpha Coefficient
Generic Skill	Communication Skill	3	0.754
	Problem- Solving Skill	4	0.798
	Team Work Skill	5	0.806
	Initiative	4	0.802
	Learning	5	0.862
Core Skill	Knowledge	5	0.862
	Skill	5	0.818
Personal Attributes	Attitudes	6	0.918
	Traits	5	0.880

Table 4 shows that Cronbach alpha value in three themes (generic skill, core skill, and personal attributes) and nine dimensions (communication skill, problem-solving skill, teamwork skill, initiative, learning, knowledge, skill, attitudes, and traits) is above 0.7. So, the level of reliability was acceptable for all the themes and dimensions.

After testing the reliability, the next step was to ensure the validity of this study. Validity for this research was concerned with how accurately questionnaires were asked during research and whether these questionnaires appropriately reflect the research question's answer (Creswell, 2003). The validity of a construct can be estimated based on three main types of evidence (Cohen et al., 2007), and the validity considered in this study were content validity, construct validity, and criterion validity.

Content validity for this research was ensured by covering the different themes of perceived employability skills from the questionnaires developed to measure the employability skills of engineering students in various countries. The questionnaires developed related to three different themes of employability skills were contextualized. Similarly, a literature review was also conducted. Discussions with TVET instructors, recent graduates, and TVET experts also ensured the questionnaire extensively covered the content of perceived employability skills of engineering students to measure the statement of questionnaires correctly.

Construct validity assures how well the concept is designed to measure the construct (Bryman, 2016). Similarly, the construct validity is assured with the study variables, which were determined based on the adopted theory (Yorke, 2006). For this study, construct validity was ensured by considering the correlation coefficient Peter (1981) suggested as an indicator for assessing construct validity. As the literature explains, a correlation range is from 0.2 to 0.82. In this study, there was sufficient factor loading above 0.3 for each item, with most items above 0.5. It was further assured that there was no cross-loading of the factors.

Furthermore, the criterion validity of this study was ensured by comparing it with similar kinds of studies in the field of employability skills (Kerlinger, 2008). The result of this study was compared and contrasted with other similar types of study (Kazilan et al., 2009; Nugraha et al., 2020; Sharma, 2021), and more comparison is presented in the findings section of this study. After comparison, it was found that the nature of the result was similar. Generic, core, and personal attributes are common in all the studies, and engineering students had different levels of employability skills in different criteria. In this way, the validity of the criteria was ensured.

Ethical Considerations

Guthrie (2010) proposed that this study followed the guidelines of ethical consideration, showing a high level of professionality, privacy, and social

accountability regarding the respondents' privacy and maintaining integrity. In addition, this study followed the ethical guidelines of the School of Education, Kathmandu University, and the researcher was mainly guided by two ethical aspects: duty to carry out professional as well as academic career and carrying out the research activities independently to ensure the quality of the study (Pandit, 2017).

This study followed the ethics and ethical guidelines suggested by Gallardo (2012) for conducting research ethically, which considers research participants independent and capable of making decisions independently. Participants were given sufficient information and treated autonomously. In the same way, this researcher made the participants aware of the risks and benefits of the research. This researcher did not do any activity that could harm the respondents, and the researcher also explained to the participants that the research outcome would positively impact the participants and benefit them. In addition, race, ethnicity, and gender were taken very seriously while conducting the research.

At the start of the survey, all the information, objectives, and purpose of the research were explained to the research participants, which helped to build rapport. The researcher requested the participants to sign the consent paper; however, it was not made compulsory. This researcher also assured that the names and addresses of the respondents would not be published or disclosed, which provided them the confidence to tick in the appropriate options in the survey. Similarly, it was also assured that the data provided by the respondents would not be reported individually or personally. It was also shared with the respondents that no cost or any other financial benefit would be provided to them for taking part in the survey.

This researcher also agreed with the principle that the study results provide common benefits to all the stakeholders (Cohen et al., 2007) as it would be available to the public with copyright and would not be limited to the personal benefit of the researcher. At the end of the survey, the researcher took some time to thank the respondents, instructor, and college administration for their contribution and support while conducting the survey.

Chapter Summary

At the start of the chapter, this researcher presented the philosophical foundation for this study, which was guided by post-positivism. This study's epistemology, ontology, and axiology are also explained in the following sections. Similarly, this study's quantitative methodology and the survey approach were

discussed. After that, the study area, population, and sample size were presented. The study area for this study was Kathmandu Valley. The population for this study was calculated based on the number of CTEVT-affiliated institutions offering diploma-level civil engineering courses in the valley, and the sample size was calculated using a standard formula. After that, the scale construction process was elaborated. This study used a literature review, expert consultation, group discussion, and contextualized questionnaires to form the construct for this study. The data analysis procedure and tools used to analyze the data were presented in the subsequent section. Then, the reliability of the study was discussed. This researcher used pilot testing to ensure the reliability and the value of Cronbach's alpha was at an acceptable range, and it assured the reliability of the study. Similarly, three types of validity, content validity, construct validity, and criteria validity, were tested, and all these tests ensured the validity of this test. Finally, at the end of the chapter, ethical considerations for this study were presented.

CHAPTER IV
PERCEIVED EMPLOYABILITY SKILLS OF GRADUATING STUDENT ACROSS DEMOGRAPHY AND TYPE OF SCHOOL

This chapter begins by describing the demographic variables such as gender, ethnicity, geographical locations, province, type of school education in SEE, and type of CTEVT schools students are currently studying. After demographic variables, each theme's perceived employability skills level is calculated. The mean of each employability skill theme is the student's perceived employability skill level. The perceived employability skill of the student is compared across the demographic variables using descriptive and inferential statistics. The relation between learning achievement and perceived employability skills is also calculated along with logistic regression towards the end of the chapter.

Statistical Analysis Procedure

Both the descriptive and inferential statistical analyses were performed. Initially, descriptive statistics was applied to analyze the seven background variables (Gender, Ethnicity, Province, Geographical Location, Local Surroundings, Types of SEE Schools attended, and Types of CTEVT Schools currently studying) consisting of frequencies within each of their attributes. Descriptive statistics were then computed for four variables (Generic Skill, Core Skill, Personal Attributes, and Perceived Employability Skill), consisting of frequencies, mean, and standard deviations. To know whether there exists a significant difference between mean scores of perceived employability skill, a t-test (for two independent groups) or ANOVA (for more than two independent groups) was performed in each outcome variable, and the output is presented along with the mean and standard deviation of their outcome variables. Pearson correlation test was also conducted to check the relation between learning achievement and perceived employability skills.

Inferential statistics was performed using a two-tailed test and an alpha level 0.05 unless otherwise noted. The hypothesis in the current study is related to the differences between groups (i.e., defined by gender, ethnicity, province, geographical location, local surroundings, types of SEE schools attended, and types of CTEVT Schools currently studying) on perceived employability and the relation between learning achievement and perceived employability skill. The use of a parametric test

(t-test or one-way ANOVA) needs some assumptions to be fulfilled; it must be shown that a) random independent sampling from the k populations, b) the dependent variable is distributed normally, and c) equal variance across groups is present (Hecke, 2010). The normality assumption was tested by Shapiro-Wilk Statistics (SW) at a 0.01 significance level. The equal variance assumption was tested using Levine's test of equality of variance. Failure to satisfy Levine's test resulted in using the Welch and Brown-Forsythe Test. All these conditions mentioned above are explained separately in the inferential statistics section. This study consists of the following hypotheses: the elaboration of the hypothesis from Chapter I.

H1: There is a significant difference across genders in perceived employability skills.

H2: There is a significant difference across ethnicity of students on perceived employability skills.

H3: There is a significant difference across locale of the students on perceived employability skills.

H4: There is a significant difference across SEE school type on perceived employability skills.

H5: There is a significant difference across types of CTEVT Schools on perceived employability skills.

H6: There is a significant relationship between learning achievement and perceived employability skills.

H7: There is a significant impact of demographic variables on perceived employability skills.

H8: There is a significant impact of the type of SEE school on perceived employability skills.

H9: There is a significant impact of the type of CTEVT School on perceived employability skills.

H10: There is a significant impact of learning achievement on perceived employability skills.

Frequencies of Background Variables

This part of the study provides the demographic variables of diploma-level engineering students. Gender, ethnicity, province, geographical location, local surroundings, background of SEE, and type of CTEVT school have been discussed. The number of those background variables is calculated in Table 5.

Table 5

Frequencies of Background Variables

Category		Frequency	Percent
Gender			
	Male	247	84.0
	Female	47	16.0
	Total	294	100.0
Ethnicity			
	Brahmin	51	17.3
	Chhetri	110	37.4
	Newar	27	9.2
	Janjati	53	18.0
	Dalit	15	5.1
	Madhesi	32	10.9
	Others	6	2.0
	Total	294	100.0
Province			
	Koshi	21	7.1
	Madhesh	56	19.0
	Bagmati	91	31.0
	Gandaki	19	6.5
	Lumbini	14	4.8
	Karnali	46	15.6
	Sudur Paschim	47	16.0
	Total	294	100.0
Geographical Location			
	Himal	54	18.4
	Pahad	160	54.4
	Tarai	80	27.2
	Total	294	100
Local Surrounding			
	Urban	77	26.2
	Rural	217	73.8
	Total	294	100.0

Table 5 indicates that the sample for this study was heavily dominated by 247 male (84%) respondents, and only about one-fifth of the respondents were 47 female (16%), and there were no respondents in the other category. Regarding ethnicity, the highest number of respondents were from the Chhetris (110) community, and the number of Janajati respondents was about half of Chhetri (53). The number of

Brahmin respondents was almost similar to Janajati (51). The number of respondents from the Madheshi community (32) was about one-third of Chhetri, closely followed by Newar (27) respondents. Dalit respondents (15) were almost half of Madheshi respondents, and the lowest number of respondents (6) was from another category.

The respondents' residences were categorized under their provinces and locale (urban and rural). Similarly, the respondents' residences were categorized according to geographical location (Himal, Pahad, and Tarai). A majority of the respondents were from Bagmati Province (91), followed by Madhesh Province (56). There was not much difference in the number of respondents from Sudur Paschim Province and Karnali Province (47) and (46) respectively. The number of respondents from Koshi Province (21) was almost half of the Karnali province, whereas the number of respondents from Gandaki Province (19) was almost similar in number to Koshi Province. The lowest number (14) of respondents was from Lumbini Province. The table also shows the locale of the respondents. About two-thirds of the respondents (73.8%) were from rural areas, and about one-fourth (26.2%) were from urban areas. In addition, more than half of the respondents (54.4%) were from the Pahad region, whereas respondents from Terai (27.2%) were half from Pahad. Similarly, respondents who represented the Himal region (18.4%) represented one-third of the Pahad region.

Types of Schools

The types of schools from where the respondents completed their SEE and CTVET Schools. Respondents are either graduated from the community (government) or institutional (private) school. Similarly, the types of CTEVT Schools where respondents are currently studying (constituent, partnership, TECS, and Private) are also calculated in the following Table 6.

Table 6

Types of School

School Type	Frequency	Percent
Types of SEE School		
Community (Government)	201	68.4
Institutional (Private)	93	31.6
Total	294	100.0
Types of CTEVT School		
Constituent	26	8.8
Partnership	26	8.8
TECS	127	43.2
Private	115	39.2
Total	294	100.0

As shown in Table 6, the respondents who completed their SEE from community schools are more than two-thirds of the respondents (201) compared to the respondents from institutional schools (93). Similarly, a majority of the respondents are currently studying in TECS Schools (127), followed by private schools (115). Respondents studying in constituent and partnership schools are similar in number (26).

Perceived Employability Skill Level

In this section, the level of perceived employability skills of the respondents is calculated. The mean value of each variable was calculated under three themes (generic, core, and personal attributes) of employability skills, and the overall value of perceived employability skills was calculated. Similarly, depending on the mean score, the competency level of the respondents was also arranged. The competency level presented in Table 7 was categorized according to skill: traces, emergence, presence, consolidation, and optimization level.

Table 7

Perceived Employability Competency Level

Themes	Mean	Std. Deviation	Competency
Generic Skill	4.48	0.83	Emergence
Communication Skill	4.52	0.96	Presence
Problem Solving Skill	4.50	0.93	Presence
Teamwork Skill	4.58	0.91	Presence
Initiative Skill	4.30	1.00	Emergence
Learning Skill	4.51	1.05	Presence
Core Skill	4.38	0.88	Emergence
Knowledge	4.30	0.92	Emergence
Skill	4.47	0.96	Presence
Personal Attributes	4.71	0.98	Presence
Attitudes	4.77	1.03	Presence
Traits	4.64	1.05	Presence
Perceived Employability	4.52	0.80	Presence

1.0 to 3.5= Traces; 3.6 to 4.4= Emergence; 4.5 to 4.8 = Presence; 4.9 to 5.5= Consolidation; 5.6 to 6.0= Optimization (Langlois & Lapointe, 2010)

Table 7 indicates that the overall perceived employability level of the respondent is at presence level (M=4.52). Among the three themes of employability skill, the generic and core skills of the respondent are at the emergence level (M=4.48 & M=4.38), whereas personal attributes are at the presence level (M=4.71). Within generic skill, there are five variables, and the skill of the respondent is at presence level in four skill types: communication, problem-solving, teamwork, and learning skill (M= 4.52, M=4.50, M=4.58, and M=4.51), whereas skill regarding initiative is at emergence level (M=4.30). Similarly, the second theme of employability is core skills, which have two variables: knowledge and skill. Knowledge of the respondent is at the emergence level (M=4.30), and the respondents' skill is at the presence level (M=4.47). The third theme of employability skill is personal attributes, and the employability skill level of the respondent on both the variables (attitudes and traits) is at presence level (M=4.77 and M=4.64). Table 8 shows the frequency of the competency level of the respondents.

Table 8

Frequency of Perceived Employability Skill Competency Level

Competency Level	Frequency	Percent
Traces	37	12.6
Emergence	74	25.2
Presence	41	13.9
Consolidation	90	30.6
Optimization	52	17.7
Total	294	100

Table 8 shows that the largest number of respondents have their perceived employability skills at the consolidation level (N=90), followed by the emergence level (N=74). Similarly, the respondents who perceived employability skill level at the highest (optimization level) were 52. There was not much difference in the number of respondents with the perceived employability skill level at presence and traces (N=41 and N=37). The scale was divided into three parts to understand better the respondents' perceived employability level (Rahman et al., 2023). Respondents who perceived employability between 1-1.99 were termed low, 2-3.99 as medium, and 4 to 6 as high, as presented in Table 9.

Table 9

Perceived Employability Level

Themes	Frequency	Percent	Level
Generic Skill	2	0.7	Low
	51	17.3	Medium
	241	82.0	High
Total	294	100.0	
Core Skill	4	1.4	Low
	73	24.8	Medium
	217	73.8	High
Total	294	100.0	
Personal Attributes	6	2.0	Low
	45	15.3	Medium
	243	82.7	High
Total	294	100.0	
Perceived Employability Skill	2	0.7	Low
	48	16.3	Medium
	244	83.0	High
Total	294	100.0	

Table 9 shows the level of the perceived employability skills of the respondents and their frequencies. Most respondents (N=244) had a high level of perceived employability (N=244) followed by a medium level (N=48). Only a few respondents (N=2) had low perceived employability skills. The result was the same in other themes of employability skills (generic, core, and personal attributes). The number of respondents with low perceived employability skills was very small in all the themes.

Condition to Use Inferential Statistics

Inferential statistics was performed to test the study's hypothesis using a two-tailed test and an alpha level of 0.05. To find out the differences in employability skills, a parametric test (t-test and one-way ANOVA) was performed. Similarly, the Pearson correlation test was conducted to see the relationship between the learning outcome and employability skills. There are certain assumptions to be met when conducting these tests. According to Weiss (1994), the first condition to satisfy is the

sample must be chosen randomly, the second condition is data must be continuous/quantitative, the third is data should follow a normal distribution, and the last assumption is that there should be equal variance.

Among the assumptions mentioned above, the first condition regarding the random selection of the sample was met. As discussed in Chapter III, 294 samples were selected randomly using the lottery method. The second assumption is about the continuous data. In the study, a six-point Likert scale was used. Therefore, it was continuous and quantitative (Weiss, 1994), which satisfies the second assumption. Likewise, Shapiro-Wilk statistics was used to verify the third assumption about normality. The result of the test has been presented in Table 10.

Table 10

Shapiro-Wilk Normality Test

Themes	Shapiro-Wilk		
	Statistic	Df	Sig.
Generic Skill	.943	294	<.001
Core Skill	.956	294	<.001
Personal Attribute	.911	294	<.001
Perceived Employability Skill	.940	294	<.001

The significance value (p-value) must be greater than 0.05 to have data normality. From Table 10, all dimensions were statistically significant ($p<0.05$). According to the Shapiro-Wilk normality test, no indicators were above 0.000, so it was not a normal distribution. However, the statistic values were close to one (1), and it could be considered a normal distribution. This researcher further adopted popular statistical measurement to ensure the normal distribution of data. For this purpose, Kurtosis and Skewness were used to test the normality of data, as presented in Table 11.

Table 11

Normality Test across Skewness and Kurtosis of Perceived Employability

Themes	N	Skewness	Kurtosis
Generic Skill	294	-1.001	1.251
Core Skill	294	-.832	.745
Personal Attribute	294	-1.133	1.091
Perceived Employability Skill	294	-1.016	1.290

From the results in Table 11, the value of Skewness is between -.832 and -1.133; Kurtosis is between 0.745 and 1.251. The values were obtained between -2 and +2. The skewness and kurtosis values between -2 and +2 are acceptable to prove the normal distribution of the data (George and Mallery, 2019). Thus, the above values fall in the range to satisfy the normality assumption. The last assumption is about the variance. The equal variance assumptions were tested using Levine's test. In Table 12, the variance of each dimension of perceived employability skill (generic, core, personal attributes) was examined as a function of ethnicity, province, geography, and types of CTEVT Schools.

Table 12

Levene's Equal Variance Test

Comparison		Levene's Statistic	Df	Sig.
Ethnicity				
	Generic	1.306	6	.254
	Core	1.047	6	.395
	Personal Attributes	1.047	6	.395
	Perceived Employability	1.164	6	.326
Province				
	Generic	1.700	6	.121
	Core	1.131	6	.344
	Personal Attributes	1.131	6	.345
	Perceived Employability	1.471	6	.188
Geography				
	Generic	2.895		.057
	Core	2.913	2	.056
	Personal Attributes	2.913	2	.056
	Perceived Employability	2.965	2	.053
Types of CTEVT School				
	Generic	5.778	3	.001
	Core	4.866	3	.003
	Personal Attributes	4.866	3	.003
	Perceived Employability	5.487	3	.001

In Table 12, all themes of employability skill satisfy the assumption of homogeneity of variances ($p>0.05$); however, employability skill in relation to types of CTEVT schools does not satisfy the assumptions. To adjust the violation of homogeneity of variances, a more robust test Brown-Forsythe and Welch tests were performed. These tests are also useful in checking if the groups are of similar size (Field, 2017). The result of the Welch and Brown-Forsythe Test is presented in Table 13.

Table 13

Welch and Brown-Forsythe Test

Employability Skills	Statistic	Df	Sig.
Welch	18.247	3	<.001
Brown-Forsythe	12.369	3	<.001

Table 13 shows that the value of both Welch and Brown-Forsythe tests is significant. So, it satisfied the assumption of equal variance. All the assumptions regarding the use of inferential statistics were satisfied. Inferential statistics is used in the following section.

Gender and Perceived Employability Skill

A t-test was conducted to explore the potential relationship between gender and different themes of perceived employability skills (generic skills, core skills, and personal attributes). The results are presented in Table 14.

Table 14

Gender and Perceived Employability

Themes	Gender	N	Mean	SD	t value	Sig.
Generic Skill	Male	247	4.48	.83	0.11	.910
	Female	47	4.47	.83		
Core Skill	Male	247	4.41	.90	0.98	.324
	Female	47	4.27	.79		
Personal Attribute	Male	247	4.71	1	-.03	.976
	Female	47	4.71	.93		
Perceived Employability Skills	Male	247	4.53	.80	0.39	.697
	Female	47	4.48	.79		

P<0.05(two-tailed)

As presented in Table 14, the mean value of the perceived employability skill of male respondents is better than females expect in the case of personal attributes. The generic skill of female respondents (4.47) is lower than male respondents (4.48). Similarly, in core skill, the mean value of the female respondents is (4.27) lower than that of the male (4.41). In both cases, the result shows that (t=0.11, p=0.910 and t=0.98, p=0.324), there are no statistical differences in the generic skill and core skill of the respondents' gender.

The mean value of personal attributes of males and females is the same (4.71); however, there is no significant difference in personal attributes on gender (t=-.03, p=0.976). Similarly, the mean value of male respondents' overall perceived employability skill (4.53) is higher than that of female respondents (4.48). However, the result shows that (t=0.39, t=0.697) there is no statistical difference in the perceived employability skill of the respondents' gender.

Locale and Perceived Employability Skill

The data concerning this relationship was analyzed to explore the potential relationship between respondents' locale and perceived employability skills. The respondents were asked to categorize their locale as urban or rural during data collection. The responses to these surroundings were analyzed in relation to generic skills, core skills, personal attributes, and perceived employability skills (Table 15).

Table 15

Locale and Perceived Employability

Themes	Locale	N	Mean	SD	t-value	Sig.
Generic Skill	Urban	77	4.32	.73	-1.98	**.048**
	Rural	217	4.54	.86		
Core Skill	Urban	77	4.32	.87	-.74	.455
	Rural	217	4.41	.89		
Personal Attributes	Urban	77	4.54	.96	-1.79	.073
	Rural	217	4.77	.99		
Perceived Employability Skill	Urban	77	4.36	.75	-1.69	.090
	Rural	217	4.57	.81		

P<0.05(two-tailed)

As shown in Table 15, the statistical tests were employed to examine whether or not the locale of the respondent affects the level of perceived employability skill. Descriptive statistics (mean and standard deviation) and a t-test were employed. Respondents' mean score of generic skill (4.54) from rural areas is higher than that of urban areas (4.32). Similarly, generic skill (t=-1.98, p=0.048) indicates a significant difference in the generic skill of respondents from urban and rural areas. This implied that respondents from urban areas have a low level of generic skill compared to rural areas.

Additionally, a G* Power analysis was conducted to understand the power achieved, and the result showed that the power was 0.54, which is not medium power. Strong power can only be said if the result is more than 0.80 (Faul et al., 2007). This shows that although the locale of respondents mattered to generic skill, it was not strong.

In the same line, the mean score of a core skill (rural=4.41, urban=4.32), personal attributes (rural=4.77, urban=4.54), and perceived employability skill (rural=4.57, urban=4.36) is higher for the respondents from rural areas compared to urban areas. However, the result shows no significant difference in the respondents' core skill (t=-.74, p=.455), personal attributes (t=-1.79, p=.073), and perceived employability skills from urban and rural areas.

SEE School Type and Perceived Employability

Respondents graduated either from institutional (private) or community (government) schools in SEE, and the type of school may relate to their employability skills. An independent t-test was conducted to explore the relationship presented in Table 16. The alpha value of .05 was utilized.

Table 16

School Types and Perceived Employability Skills

Themes of Employability	Type of SEE School	N	Mean	SD	t-value	Sig.
Generic Skill	Institutional	93	4.18	.90	4.31	**<0.001**
	Community	201	4.62	.77		
Core Skill	Institutional	93	4.12	1.01	3.50	**0.001**
	Community	201	4.51	.79		
Personal Attributes	Institutional	93	4.38	1.10	3.96	**<0.001**
	Community	201	4.86	.89		
Perceived Employability Skills	Institutional	93	4.23	.93	4.42	**<0.001**
	Community	201	4.66	.69		

P<0.05(two-tailed)

The mean value of Table 16 indicates that respondents from community schools have better perceived employability skills than those from institutional schools. The mean value of generic skill (4.62) of the respondents from community schools is higher than that of institutional schools (4.18). The result shows that (t=4.31, p=0.00) there is a statistical difference in the generic skill of respondents from institutional and community schools. Similarly, the core skill and personal attributes mean (4.51 and 4.86) of the respondents from community schools is higher than respondents from institutional schools (4.12 and 4.38), and there was a significant difference in core skill and personal attributes between community and institutional school respondents (t=3.50, p-0.001 and t=3.96, p=0.000).

Community school respondents' mean value of perceived employability skills (4.66) is also higher than that of institutional school respondents (4.23). The result (t=4.42, p=0.00) also showed a significant difference in the perceived employability skills of institutional and community school respondents. The G*Power analysis was also calculated, and the result also shows that the power of generic skill, core skill, personal attributes, and perceived employability skill was above 0.95, which is very strong (Faul et al., 2007). It shows that types of SEE schools make a strong difference in perceived employability skills.

Ethnicity and Perceived Employability

To explore the potential relationship between the ethnicity of the respondents and different themes of employability skill (generic skill, core skill, personal attributes, and perceived employability skill), the data concerning this relationship was analyzed. The ethnicity of the respondents was categorized into seven types (Brahmin, Chhetri, Newar, Janjati, Dalit, Madheshi, and Others), and one-way ANOVA was performed. The result is presented in Table 17.

Table 17

Ethnicity and Perceived Employability

Themes	Ethnicity	N	Mean	SD	F	Sig.
Generic Skill	Bramhin	51	4.36	0.91	2.12	0.051
	Chhetri	110	4.60	0.78		
	Newar	27	4.13	0.95		
	Janjati	53	4.38	0.76		
	Dalit	15	4.72	0.91		
	Madheshi	32	4.52	0.80		
	Others	6	4.98	0.61		
Core Skill	Bramhin	51	4.31	1.11	1.40	0.213
	Chhetri	110	4.46	0.80		
	Newar	27	4.11	0.86		
	Janjati	53	4.25	0.80		
	Dalit	15	4.72	0.74		
	Madheshi	32	4.84	0.98		
	Others	6	4.78	0.39		
Personal Attributes	Bramhin	51	4.51	1.14	2.31	**0.034**
	Chhetri	110	4.77	0.93		
	Newar	27	4.45	1.15		
	Janjati	53	4.58	0.96		
	Dalit	15	5.05	0.72		
	Madheshi	32	4.92	0.82		
	Others	6	5.16	0.21		
Perceived Employability Skill	Bramhin	51	4.39	0.95	2.30	**0.034**
	Chhetri	110	4.61	0.74		
	Newar	27	4.23	0.93		
	Janjati	53	4.40	0.70		
	Dalit	15	4.83	0.71		
	Madheshi	32	4.64	0.79		
	Others	6	5.12	0.29		

Table 17 shows that only personal attributes (F=2.31, p=0.034) and perceived employability skills (F=2.30, p=0.034) were significant across the ethnicity. This means there is a significant difference in perceived employability across ethnicity.

The result also shows that the ethnicity of the respondents did not make any difference to the generic and core skills. In both types (personal attributes and perceived employability skills), respondents who were in the other category had the highest mean (5.12 and 5.16), followed by Dalit respondents (4.83 and 5.05). There was little difference in the respondents' mean scores from the Madheshi and Chhetri categories. Similarly, Janajati and Brahmin respondents had almost the same mean score. The respondents from the Newar ethnic group had the lowest mean scores (4.23 and 4.45) in personal attributes and perceived employability skills. To understand the strength, G* Power analysis was also conducted, and the result shows that the power was 0.65 (medium) for personal attributes and 0.95 (strong) for perceived employability skills (Faul et al., 2007). This shows that the difference in personal attributes across ethnicity is medium, whereas it is strong in the case of perceived employability skills.

To examine which ethnic groups differ from each other in terms of employability skills, Post Hoc Test was conducted (result is attached in annex: 4). Perceived employability skill is the mean of three themes (generic skill, core skill and personal attributes) of employability skill and the Post Hoc result of overall perceived employability skill ($p=0.035$) shows that there is a significant mean difference between Brahmin ($M=4.39$) and other ethnicities ($M=5.12$). Similarly, respondents from the Chhetri ($M=4.61$) and Newar ($M=4.23$) ethnic groups also had a significant mean difference ($p=0.028$). The above result also shows that there is a significant difference ($p=0.049$) in perceived employability skills between Newar ($M=4.23$) and Dalit ($M=4.83$). The mean difference was also significant ($p=0.049$) between Newar and Madheshi ($M=4.23$ and $M=4.64$). The respondents from other ($M=5.12$) ethnic group categories also had a significant mean difference from the respondents from Janajati and Newar ($M=4.40$ and $M=4.23$) ethnic groups ($p=0.036$ and $p=0.014$).

Province and Perceived Employability

There can be a relationship between the province respondents represent and employability skills (generic skill, core skill, personal attributes, and perceived employability skill). Data analysis was conducted to explore whether there is a difference, and the results are presented in Table 18.

Table 18

Province and Perceived Employability

Themes	Province	N	Mean	SD	F	Sig.
Generic Skill	Koshi	21	4.37	0.75	3.69	**0.002**
	Madhesh	56	4.67	0.80		
	Bagmati	91	4.42	0.78		
	Gandaki	19	3.86	1.03		
	Lumbini	14	4.21	0.90		
	Karnali	46	4.76	0.61		
	Sudur Paschim	47	4.48	0.95		
Core Skill	Koshi	21	4.24	0.72	3.09	**0.011**
	Madhesh	56	4.59	0.83		
	Bagmati	91	4.28	0.90		
	Gandaki	19	3.80	0.88		
	Lumbini	14	4.26	0.75		
	Karnali	46	4.65	0.66		
	Sudur Paschim	47	4.42	1.08		
Personal Attributes	Koshi	21	4.59	0.86	2.31	**0.011**
	Madhesh	56	4.95	0.78		
	Bagmati	91	4.51	1.10		
	Gandaki	19	4.24	1.22		
	Lumbini	14	4.63	1.05		
	Karnali	46	5.04	0.70		
	Sudur Paschim	47	4.75	1.02		
Perceived Employability Skill	Koshi	21	4.40	0.64	3.92	**0.001**
	Madhesh	56	4.74	0.68		
	Bagmati	91	4.40	0.82		
	Gandaki	19	3.97	0.90		
	Lumbini	14	4.36	0.86		
	Karnali	46	4.82	0.57		
	Sudur Paschim	47	4.55	0.93		

In Table 18, statistical analysis was performed to explore the differences in employability skills across the residence provinces. The result shows that there is a significant difference in the generic skill (F=3.69, p=0.002), core skill (F=3.09,

p=0.011), personal attributes (F=2.31, p=0.011), and perceived employability skill (F=3.92, p=0.001) scores of respondents across provinces. This means there is a difference in the employability skills of respondents across the provinces, and the G* Power analysis result (0.9) also shows a strong difference in the themes of employability skills across provinces (Faul et al., 2007).

To examine which province differs from each other in terms of overall perceived employability skill, Post Hoc Test was conducted (result is attached in annex: 5), and the result showed that there is a significant (p=0.045) mean difference between the respondents of Koshi (4.40) and Karnali (4.82) province. Similarly, there was also a significant (p=0.013) mean difference between the respondents from Madhesh (4.74) with Bagmati province (4.40) and Gandaki (3.97) province (p=0.000). The test result also shows that there is a significant (p=0.027) mean difference between the respondents of Bagmati and Gandaki provinces (4.40 and 3.97), and the same was true for Bagmati (4.40) and Karnali (4.82) province (p=0.004). Respondents from Gandaki province (3.97) also had a significant mean difference from the respondents from Karnali (4.82) province (p=0.000) and Sudur Paschim (4.55) province (p=0.007).

Types of CTEVT School and Perceived Employability

To explore whether or not there is a difference in the perceived employability of the respondents and the school they are currently studying (Types of CTEVT School), respondents were asked to categorize the type of school while filling out the questionnaire. Descriptive statistics and ANOVA were conducted in data analysis, and the result is presented in Table 19.

Table 19

Types of CTEVT School and Perceived Employability

Themes of Employability	Types of CTEVT School	N	Mean	SD	F	Sig.
Generic Skill	Constituent	26	4.36	0.87	11.12	**<0.001**
	Partnership	26	5.17	0.37		
	TECS	127	4.59	0.67		
	Private	115	4.24	0.95		
Core Skill	Constituent	26	4.16	1.03	6.02	**0.001**
	Partnership	26	4.93	0.71		
	TECS	127	4.48	0.78		
	Private	115	4.21	0.94		
Personal Attributes	Constituent	26	4.38	1.13	10.69	**<0.001**
	Partnership	26	4.62	0.47		
	TECS	127	5.40	0.79		
	Private	115	4.88	1.10		
Perceived Employability Skill	Constituent	26	4.38	0.89	11.55	**<0.001**
	Partnership	26	5.17	0.45		
	TECS	127	4.65	0.64		
	Private	115	4.28	0.89		

Table 19 shows that there is a significant difference in generic skill (F=11.12, P <0.001), core skill (F=6.02, P<0.001), personal attributes (F=10.69), P<0.001), and perceived employability skill (F=11.55, P<0.001) among the respondents from different types of CTEVT Schools. The value of G* Power (0.9) also shows a strong difference in themes of employability skill across types of CTEVT Schools (Faul et al., 2007). To check whether there is a difference in mean among four types of CTEVT Schools, a Post Hoc test was conducted (test result is attached in annex 6), and the overall result of perceived employability skill shows that there is a significant (p=0.00) mean difference in perceived employability between the respondents from constituent school (4.38) and partnership school (5.17). Similarly, respondents from partnership (5.17) schools had a significant mean difference (p=0.002) with TECS school (4.65) respondents and private (4.28) school respondents (p=0.00). The result (p=0.00) also shows a significant mean difference in perceived employability between the TECS school (4.65) respondents and private school respondents (4.28).

Relationship between Learning Achievement and Perceived Employability

The duration of the diploma level civil engineering course is 3 years (Six semesters), and respondents were in the final semester of their studies when this survey was conducted. Although they had given exams for 5 semesters, the result was published for 3 semesters only. So, the mean percentage of results in three semesters is the learning achievement of this study. Table 20 shows the relation between three different types of skills (generic skill, core skill, and personal attributes) and learning achievement, and it also shows the relationship between perceived employability skill and learning achievement. The Pearson correlation coefficient was calculated to see the relationship between these variables.

Table 20

Pearson Correlation Test

Variables	Mean	SD	1	2	3	4
1. Learning Outcome	71.13	6.60				
2. Generic Skill	4.49	0.84	.118*			
3. Core Skill	4.39	0.89	0.076	0.687		
4. Personal Attributes	4.71	0.99	0.034	0.716	0.662	
5. Perceived Employability Skills	4.53	0.81	0.083	0.892	0.877	0.901

* P<0.05; (2-tailed); N=294

Table 20 shows the relationship between the employability skills of respondents and the learning achievement with three themes of employability skill (generic skill, core skill, and personal attributes). The Pearson correlation coefficient (r = 0.118) is highest for generic skills, followed by core skills (r = 0.076) and personal attributes (r = 0.034). In all three themes of employability skill, there is a positive relation between the skill and learning achievement; however, the strength of a relationship is moderate between generic skill and learning achievement, whereas it has a negligible relationship with core skill and personal attributes (Schober et al., 2018). Overall, the Pearson correlation coefficient (r=0.083) shows a very weak relationship between the respondents' perceived employability skills and learning achievement.

The result (p=0.042) also shows a significant relationship between generic skills and learning achievement. However, the relationship between learning

achievement with core skills, personal attributes, and perceived employability is insignificant (p=0.191, p=0.559, p=0.155).

Statistical Analysis Procedure: Logistic Regression

Binary logistic regression ensures a good estimation of the influence of the independent variable on the dependent variable. A multi-collinearity test was performed to perform binary logistic regression as it provides a reliable and unbiased model, as shown in Table 21.

Table 21

Collinearity Statistics

Variables	Tolerance	VIF
Ethnicity	0.845	1.183
Province	0.807	1.239
Locale	0.849	1.178
SEE School	0.842	1.188
CTEVT School	0.993	1.007
Learning Achievement	0.979	1.021

From Table 21, the variables' tolerances are closer to 1, and the Variance Inflation Factor (VIF) is also less than 3. This indicates that there is no multi-collinearity problem when fitting the logit model.

After testing multi-collinearity, I used a binary logistic model to see the impact of independent variables (ethnicity, province, surrounding, SEE School, CTEVT School types, and learning achievement) on a dependent variable (perceived employability skill). The dependent variable was coded “0” for low and “1” for emerging employability skills. The logistic regression equation model:

$$\ln\{\frac{p}{1-p}\} = a + \beta X \text{ (Here, } \beta X = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots)$$

Where P is the probability of low perceived employability; (1-P) is the probability of emerging perceived employability. βX = the coefficient of the variables ethnicity, province, surrounding, SEE School, CTEVT School types, and learning achievement.

The Hosmer and Lemeshow test was performed to see if the model adequately describes the data. The significance value obtained from the Hosmer and Lemeshow test is 0.088. If the significance value from the Hosmer and Lemeshow test is greater than 0.05, then the model fits and explains or describes the data adequately (Archer &

Lemeshow, 2006). Thus, the model used for binary logistic regression in this model is fit.

Independent variables (province, CTEVT School types, and ethnicity) were re-categorized to fulfill the requirement to perform binary logistic regression. For provinces, there were two categories: 0 for others and 1 = Bagmati. Similarly, in ethnicity, zero was categorized as others, and 1 as Brahmin, and in types of CTEVT School, 0 was coded as other and 1 for private school. After that, binary logistic regression was performed using six independent variables (ethnicity, province, surroundings, types of SEE schools, types of CTEVT School, and learning achievement) and one dichotomous dependent variable (perceived employability skill), presented in Table 22. The result of binary logistic regression has been presented with regression coefficient (β), Standard Error (S.E.), Odd ratio for each variable, and their significance.

Table 22

Coefficients of Logistic Regression for Having Low or Emerging Employability Skill

Variables		B	S.E.	Sig.	Odd Ratio
Locale					
	Urban				
	Rural	-.991	.663	.135	.371
SEE School					
	Community				
	Institutional	-1.798	.598	**.003**	.166
Ethnicity					
	Others				
	Brahmin	-.720	.600	.230	.487
Province					
	Others				
	Bagmati	-.620	.581	.287	.538
CTEVT School					
	Others				
	Private	-1.191	.573	**.038**	.304
Learning Outcome		.044	.043	.303	1.045

Nagelkerke R Square=0.186

Table 22 shows the influence of the independent variable (ethnicity, province, locale, SEE School, CTEVT School types, and learning achievement) on a dependent variable (perceived employability). The result shows that the type of SEE school (OR=0.166, p=0.003) and type of CTEVT school (OR=0.304, p=0.038) significantly impact perceived employability. This means respondents from private schools are

likely to have low perceived employability skills (B=.720). Similarly, respondents studying in private type CTEVT schools are likely to have low perceived employability skills (B=-1.191). Other variables, such as ethnicity, province, surroundings, and learning outcome (p=.230, p=.287, p=.135, p=.303), did not significantly impact perceived employability. The result also shows that independent variables explain an 18.6% variance in employability skills.

Chapter Summary

Three is a significant difference in the respondents' perceived employability skill level across demographic variables (ethnicity, province, surrounding). Similarly, there is also a significant difference in the employability skills of the respondents who have completed their SEE from community and institutional schools. Students who graduated from community schools have a higher level of perceived employability than those from institutional schools. Similarly, there is a significant difference in students' perceived employability skills in different CTEVT Schools (Constituent, TECS, Partnership, and Private). Students studying in the partnership model have the highest employability skills, and those from private institutions have the lowest employability skills. The result also shows no relation between the learning outcome of the student and perceived employability skills. Among many variables, the types of schools (SEE/CTEVT) are the only ones that impact perceived employability skills.

CHAPTER V
FINDINGS AND DISCUSSIONS

The findings of perceived employability skills of the diploma level civil engineering students in response to the research questions are presented in this chapter. The essence of the findings has been further discussed in three parts. In the first part, the level of perceived employability skill is discussed, followed by a difference in employability skill depending upon demographic variables (gender, ethnicity, surroundings, and locality), type of schools from where students have completed their SEE, and type of CTEVT Schools where they are currently studying. In the third part, the relation between learning achievement and level of employability skills is also discussed. The findings of this study are concluded with the impact of an independent variable on a dependent variable.

Major Findings of the Study

Among three themes of perceived employability skill, this study shows that personal attributes are at the presence level, and the other two skills, generic skill, and core skill, are at the emergence level. The overall perceived employability skill is at the presence level. Similarly, generic skill comprises five components (communication, problem-solving, teamwork, initiative, and learning), and the study shows that respondents' initiation-taking skills are at the emergence level. In contrast, other skills are at the presence level. In the second theme, there are two components: knowledge and skill. Respondents' knowledge is at the emergence level, whereas their skills are at the presence level. The third theme of employability skills is personal attributes, which consist of two components (attitudes and traits). The study shows that the respondents' skills are at the presence level in both components. In addition, when the perceived employability skill level was categorized as high, medium, and low, most of the respondents' skill level was at a high level. In contrast, the nominal student had their skill at a low level.

This study also shows that male respondents had better-perceived employability skills than females. Similarly, the respondents' surroundings were categorized into two areas: rural and urban, and the result shows that respondents from rural areas had better-perceived employability skills, and the same was true in all other themes of perceived employability. The respondents for this study represent all

the provinces of Nepal, and the result shows a difference in perceived employability depending upon the province. Similarly, the difference in perceived employability was also seen across the ethnicity of the respondents.

Respondents had completed their Secondary Education Examination (SEE) either from community schools (government) or from institutional schools (private), and the result shows that perceived employability skills were higher among community school respondents than in institutional schools. Similarly, among the four types of CTEVT Schools (Constituent, Partnership Model, TECS, and Affiliated) where the respondents are currently studying, the perceived employability skills of respondents from private schools are the lowest. In contrast, the students from the partnership model have the highest perceived employability skills, followed by TECS Schools and constituent schools. In both cases (types of SEE school and types of CTEVT school), one common thing that this study shows is that the students from private institutions had lower levels of perceived employability skills. The study also reveals a very weak relation between the students' achievements (academic achievement) and perceived employability skill level. Among various independent variables, the type of school (SEE/CTEVT) school significantly impacted perceived employability skills.

Discussions of Findings

This section begins with a discussion regarding the perceived employability skills of respondents. Three themes of perceived employability are discussed, along with the variables of each theme. Perceived employability skill across demographic variables is also checked. The second part discusses the difference in perceived employability skills according to types of schools. Finally, towards the end of the chapter, the relation between academic achievement and perceived employability and the impact of an independent variable on perceived employability is calculated.

According to Human Capital Theory (HCT), investment in education and training enhances the skills and knowledge that can be used to enhance productivity and growth. Investment in increasing the employability skills of TVET graduates helps them be employable and increases productivity. In this study, generic and personal attributes skills are at the presence level; however, core skills are at the emergence level. So, as described by HCT, investment in developing better core skills ultimately increases employability skills and helps respondents to be at the consolidation/optimization level. Once respondents reach that level, it will be very

easy for them to find employment opportunities immediately after they finish their course.

Level of Perceived Employability Skill

Generic skill is a broader term, and many skills fall under this category; however, this study covered the most important dimensions of generic skills: communication skills, teamwork skills, problem-solving skills, learning, and initiation, which are mentioned in different literature. A study by Sharma and Bhattarai (2023) regarding the self-perceived employability skills of TVET students in four sectors (Engineering, Agriculture, Hospitality, and Health Sector) revealed that the students in the engineering sector had the least self-perceived employability. Another study by Sharma (2021) to find the perceived employability of engineering students in Kathmandu Valley showed that employability skills are at the emergency level. Both the studies conducted in Nepal have shown that the students have almost the same level of perceived employability skills, which is in line with the result of this study. Not only in a technical stream but also in a non-technical stream, a study conducted by Khanal (2024) revealed that the perceived employability among education students is at the presence and consolidation level, which is in line with the result of this study.

At the international level as well, the result has been the same. A study conducted in Nigeria by Ismail and Mohammed (2015) showed that employability skills are not incorporated into the curriculum, and the result is that Nigerian TVET graduates are not equipped with the employability skills needed by Nigerian industries. Similarly, employers in Uganda rated the employability skills of TVET graduates as average; however, there were negative perceptions from the employers towards the graduates in some of the components of employability skills (Kintu et al., 2019). Another study carried out by Kazilan et al. (2009) among students pursuing education in the certificate of skills in five areas of specialization who were in the final year of their studies at technical and vocational training centers in Malaysia showed that the employability skills among the students were at an average level. Kenayathulla (2021) conducted another study to check whether Malaysian TVET graduates are ready for the future, and the study participants were employers instead of students. Employers evaluated graduates' employability skills, and the result showed that students' personal qualities were highest, followed by other skills such as

basic skills, thinking skills, and resource management skills. System and technology skills were found to be weak.

Gowsalya and Kumar (2015) reviewed the existing employability skill literature in India, and the result is in line with the studies mentioned in the previous paragraph. The status of the respondents requires improvement, and the literature review points out that the Indian educational governance needs urgent reform to increase graduates' employability skills. A survey conducted in Australia by Jackson (2013) to see student perceptions of the importance of employability skills showed that students place significant value on employability skill development in the programs they are currently undertaking, which is the same in most of the national and international literature along with this study. Similarly, another study on employability skill readiness among business students by Tanius and Susah (2015) showed that students from a business study in Malaysia had similar employability levels to those of the respondents of this study. Respondents claimed they are ready for employment skills, and the mean score from both countries verifies it. However, once these graduates are exposed to the world of work, the self-rated survey score cannot be verified. A study conducted by Niu et al. (2022) in the USA also showed that the perceived employability skill of international students is at the same level as the respondents from this study; however, the study in the USA used a 5-point Likert to capture the response of the respondents.

On the contrary, a study conducted by Hendrawan and Daryanto (2019) regarding industry perspective and achievement of students' employability revealed that attitude seems to be less than the managerial skill of the students. Compared to my study, some of the components of attitude are similar to the theme of personal attributes, and the industry respondents have given low scores in the attitude aspect of employability. In the same way, Succi and Canovi (2020) compared the perceptions of employability among students and employers. The result revealed that companies consider soft skills more important than students/graduates. Among 20 soft skills listed in the paper, HR managers ranked being professionally ethical as the top skill graduates need to have. Raty et al. (2020) surveyed to examine perceived employability among Finnish university students, and the result showed that two-thirds of the participants had confidence that it is possible to get a job after graduation in their field. TVET engineering students from South Africa had a similar opinion to

the Finnish students, as students perceived unemployment as a function of the scarcity of jobs rather than the lack of employability skills they possess.

In the national context, the findings of this study are closely related to the study conducted by Sharma and Bhattarai (2023), Sharma (2021) Sharma (2023), and Khanal (2024). The first two researchers explored the perceived employability skill of students from engineering faculty, but their level (Diploma and Bachelor level) was different; however, the level of perceived employability skill was the same. Similarly, the same level of perceived employability skill was also seen in students from non-technical backgrounds. So, the students, whether from technical or non-technical backgrounds, are not confident regarding their acquired skills. This finding suggests that all the components of employability skills play an important role in developing the skills demanded by the labor market. The findings from the study of Parajuli et al. (2024) in one of the provinces of Nepal shows that very little budget is allocated for long TVET program compared to short term training, and it might be linked to the practical exposure of the student which is related to the core skill.

A study carried out by Ismail and Mohammed (2015) and Kintu et al. (2019) in two African Nations, Nigeria, and Uganda, showed the hesitancy of employers to hire TVET graduates as employers rated the employability skills of graduates as average. In Nepal, we also have a similar perception from employers, which has been elaborated on in the introduction session of this study. Silwal and Bhatta (2017) also emphasize on linking academic courses/training to employment through market study and revising the curriculum. In the Asian context (Malaysia and India), Kazilan et al. (2009) and Kenayathulla (2021) conducted studies to see the readiness of Malaysian TVET graduates for the labor market, and the results showed that employers found that in some of the skills graduates' performance was weak. To tackle this issue, Gowsalya and Kumar (2015) in India have recommended urgent reform in educational governance, and the same sort of reform is needed to revive the TVET sector of Nepal as it is losing the interest of graduates and employers, which is not a good sign for a country that is eyeing towards the journey of being developed nation. Another continent, Australia, where TVET is thriving and creates an employment rate of about ninety percent, showed a difference in perception, as Jackson (2013) mentioned among the graduates. Australian TVET graduates are so concerned that they value employability skill development and prepare themselves for the labor

market accordingly. The same level of consciousness is needed in Nepali TVET graduates.

Looking at the students' low level of perceived employability skills, one question arises, and Tymon (2013) has tried to delve into it by asking: Are higher education institutions the best place to develop employability? According to Wilton (2011), there is an expectation from the government and employers that higher education institutions should prepare graduates for the world of work. Graduates also recognize that higher education institutions are trying to support the employability agenda; however, the expectation that higher education institutes should develop employability is not universally shared. On the other side, various researchers hold the view that employability can easily be developed outside the formal curriculum by emphasizing employment-based training (Andrews & Higson, 2008; Ng & Feldman, 2009; Rae, 2007; Yorke, 2004). However, according to Jackson (2010), employers are increasingly reluctant to invest in developing the transferable skills of graduates because of economic pressure and lack of commitment from the graduates and employees.

In all the studies presented above, graduates and employers have regarded personal attributes as top employability skills, and perceived employability skills were found to be at the highest level. In some studies that classify employability skills, slightly different terms denote personal attributes, core skills, and generic skills; however, the components/dimensions under these themes were almost similar. The core employability skill of diploma-level engineering students is in the emerging level, and the two skills, generic and personal attributes, are in the presence level. As Diploma Civil Engineering curriculum provides the limted opportunies for the students in OJT, internship during the course work, it has impacted the level of perceived employability of the student as well.

Dimensions under the theme of personal attributes are honesty, responsibility, ethics, and sensitivity, and the students start learning these skills from an early age, starting in their own homes. Parents are the first teachers to teach them these skills. So, students are learning about these skills from a very early age to the time they are enrolled in a diploma civil engineering course. Their current study is also helping them to enhance their skills, which is also reflected in the level of perceived employability skills. Similarly, in the second theme, generic skill, there are five dimensions: communication skill, problem-solving skill, teamwork skill, and

initiation and learning, which are mostly learned at school and continuously evolve throughout the career. As technical courses are heavily focused on the practical rather than the theoretical part, the diploma engineering course has also contributed to evolving employability skills under the theme of generic skills. The third theme is core skills, which is related to the knowledge and skills of the students that they have acquired in the last three years of their study. As students are still learning, their confidence in core skills is low. Overall, the employability skill of the student is at the presence level.

Demography and Perceived Employability

Demographic variables for this study are gender, ethnicity, surroundings, and locality. Male respondents have shown better-perceived employability skills than females. This result is similar to the study conducted by Dominic and Fulgence (2019), where males have shown a higher level of competency than females. In line with the above studies, Wickramasinghe and Perera (2010) also suggested that employability skills could be influenced by gender. In contrast, a study by Abd Majid et al. (2020) in Malaysia showed that females had better self-perceived employability than males. Ethnicity is another demographic variable that was considered to check the difference in perceived employability skills, and the result showed that there was a significant difference in perceived employability skills among different ethnicity groups of respondents. A study conducted in the UK by Croucher et al. (2018) and Rafferty (2012) showed a difference in finding employment opportunities within ethnic groups. A similar result was found in the USA, where ethnicity played a major role in hiring decisions (Varghese et al., 2009). No research has been done in Nepal to see the difference in perceived employability skills among different ethnicities.

Respondents in this study who are from rural areas have shown better perceived employability skills than those from urban areas. Similar results were found in the North and South of the UK (Green & Livanos, 2015) and in the South and North of Italy, where terrestrial differentiation affected training, employment, and labor market outcomes (Meliciani & Radicchio, 2011). In contrast, a study conducted by Abd Majid et al. (2020) among Malaysian students showed that students from urban areas showed better employability skills than students from rural areas. Similarly, another study conducted in Malaysia by Syed Kamarudin et al. (2017) revealed that students from city areas had better employability skills than those from town areas. A possible reason for the high employability skills of students from urban

areas is because of access to resources, different learning environments, and seeing the world of work more closely compared to rural students. On the other hand, for this study, students from rural areas have more perceived employability skills, which might be why our social structure and cultural norms are closely related to generic skills and personal attributes.

The studies presented above have shown mixed results depending on the country, social structure, access to resources, and exposure to the labor market. In some parts of the globe, men showed better employability skills, whereas the opposite was true in other parts. In most developed countries where men and women get the same level of opportunity, gender does not make much difference in having a certain level of employability skills. However, ethnicity made a difference in employability skills in almost all the studies presented above. The belief system, way of upbringing, and culture are different as per ethnicity, impacting generic skills and personal attributes. In countries like Nepal, where ethnic groups and cultures are diverse, it is also reflected in this study's result.

Types of School and Perceived Employability

In this study, the perceived employability of students has been looked at from the perspective of the school (Community and Institutional) from where they have completed their Secondary Education Exam (SEE) and the type of CTEVT School (Partnership, Constituent, TECS, and Private) where they are currently studying. Community schools are those that the government runs, whereas institutional schools are privately owned. Similarly, in the context of CTEVT, four types of schools can be divided into two categories. CTEVT directly manages constituent schools, whereas, in the partnership model, staff members are hired by CTEVT, and the province government and CTEVT also provide some resources. Similarly, TECS schools run technical education in community schools, and the government directly runs these schools. So, for analysis and discussion, the types of CTEVT Schools are divided into two parts: government-affiliated (Constituent, Partnership, and TECS) and privately owned. The following section discusses students' employability skills from institutional/community/government-affiliated institutions and privately owned institutions.

Remadevi and Kumar (2018) conducted a study regarding the employability skills of graduating engineers based on different types of schooling they have received in India, and the result revealed that students from government schools had better

problem-solving skills and technical skills than students from private schools. Similarly, another study in Sri Lanka, conducted by Ambepitiya (2016) on the employability of graduates from two public and private institutes, showed that academic knowledge and soft practical and technical skill development are the major factors that prepare an undergraduate for future employment. In addition, a majority of graduates were satisfied with the knowledge acquired from public universities, whereas many graduates from private universities were not satisfied with the acquired knowledge. Similarly, the knowledge provided by the university was categorized into four major areas: satisfaction with the acquired knowledge, use of acquired knowledge in employment, satisfaction with the gained knowledge, job-specific skills, and employment and its relevance to the degrees. In all the categories, the satisfaction level of students from public universities was higher than that of private universities. The findings from both of these studies align with this study as the level of employability skills of the students from government institutes is higher than that of the students from privately owned institutes.

Similarly, the technical skill and knowledge, which have been categorized in the theme core skill in this study, were also found to be low in the graduates from private institutes in both the studies from India and Sri Lanka, and the same is true in Nepal as well. Malaysia's employers also preferred hiring graduates from public universities (Singh & Singh, 2008). Similarly, a tracer study conducted by Cruz and Cruz (2023) among graduates from public universities in the Philippines showed that students had instilled the necessary skills needed for the job. Another study by Abdul Karim et al. (2012) on private and public university students' soft skills in higher education institutions (HEI) in Malaysia revealed that public HEIs have better soft skills than private universities.

In the same way, a comparative study of employability in higher education was conducted in Indonesia by Kadiyono and Putri (2022), and about two hundred final-year students from public and private universities were randomly selected. The result showed that the overall employability skills of students from public universities are higher than those of private universities. Kadiyono and Putrid divided employability skills into five dimensions, and students from public universities had better employability skills in career development learning, experience, degree subject knowledge, and emotional intelligence. In contrast, students from private universities had better generic skills than public university students. Another study conducted by

Krahn et al. (2002) at sixty Alberta high schools in Canada among high school students regarding the acquisition of employability skills in high school courses, formal-work experience programs, paid part-time employment, and volunteer work showed that high school taught them some of the vital skills such as people's skills which are also called social skills, work attitude and behaviors, and basic academic skills. However, the high school did not provide the students with job-search skills, knowledge about the workplace, practical experience, and specific technical experience. Let's compare this Canadian study with this research. One common thing we can find is whether it is a public or privately owned institution. The students had low employability skills in core technical skills. In the same study, when the high school seniors were asked about the most important things employers look at while hiring high school graduates, the majority of the respondents regarded work attitudes/behaviors as the top priority of the employers. Among the different themes of perceived employability skills of diploma-level civil engineering students, personal attributes closely related to work attitude/behavior are higher among the students. The mean employability skill acquisition among Malaysian community college students was found to be 3.63 in a study conducted by Omar et al. (2012), and the comparison of mean employability between studies in Malaysia and this study showed that Nepali students' perceived mean employability score is higher. The reason the mean score of Malaysian students was lower could be because of having exposure to the world of work. In contrast, Nepali students are not exposed to working conditions yet, and they rated themselves higher on the survey.

On the other hand, a study conducted by Arrazola et al. (2023) regarding a comparative study of the employability of public and private university graduates in Spain showed no large difference in employability between the graduates of public and private universities. Similarly, Saher (2019) compared the self-perceived employability among the university graduating students enrolled in the final year/semester from public and private universities in Punjab, India, and the result revealed that the perceived employability of the students from private universities was higher than the student of the public universities. The findings from both studies by Saher and Arrazola are not similar to the findings of this study, which show that students from public institutions had higher perceived employability than students from private institutions. One of the reasons could be that participants in the studies from India and Italy were bachelor-level students who had already completed high

school and had already spent four years in their studies. In contrast, the participants from Nepal had only completed their grade 10 and enrolled at the diploma level. In addition, the governing system of private and public institutes and the exposure provided to the study might also impact the students' perceived employability.

In this study, students who completed their secondary education examination (SEE) from community and institutional schools are regarded as public and private institutes, respectively. Similarly, when comparing this study with other studies, students currently studying in four types of CTEVT schools are regrouped into two types: public and private. Constituent, partnership, and TECS Schools are grouped as community schools, as these schools are under the direct supervision of CTEVT. The perceived employability level of students from public schools is higher than that of private schools. Among the three themes of employability skills, students from private institutes have lower employability skills than students from public institutes.

Learning Achievement and Perceived Employability Skill

Learning achievement in this study is the students' Grade Point Average (GPA). Although the students were studying in their final semester (six semesters), their results were published up to the third semester only. So, the learning achievement, also known as the student's academic performance, is the average GPA of three semesters. The result showed a very weak relationship between learning achievement and the perceived employability skills of the students. This result is in line with the study conducted by Joutei et al. (2021), which revealed that GPA has minimal influence on employability and suggests that students need to have soft skills as much as hard skills.

Similarly, Hoyt (1965) conducted a study to find the relation between college grades and adult achievements. Hoyt reviewed forty-six studies on the relationship in his study, divided into eight categories. Among these categories, one of the categories of the study was in engineering, which was related to this study. Hoyt reviewed studies in engineeting, and four out of the five studies used salary as a criterion for employability and the studies mentioned above could not establish a relationship between college grades and employability. Even though Hoyt’s study was done more than a half-century ago, some other literature he reviewed was from a century ago. It is remarkable to see the scenarios are still the same. Literature from the modern day has also supported Hoyt's results. Similarly, after three decades of a study conducted by Hoyt, another person named Bretz Jr (1989) also performed a meta-analysis to

review a large number of research on this topic, and while conducting a meta-analysis, some of the reviews were extracted from Hoyt's article. The overall meta-analysis showed no relationship between college GPA and job success.

Comparing the research that was done in the past to this study, it can be seen that there are a number of reasons why GPA itself cannot help predict employment. In most cases, GPA only refers to academic excellence related to knowledge and skills acquired from the study. The course structure and content may vary depending on the type of course, instructors, and objectives, which might be another reason why GPA might not exactly reflect the employability skill of the student. Similarly, employability skills combine core, soft, and personal attributes, but the GPA only considers core skills. So, high academic achievement does not guarantee graduates' employment as the employer always looks for additional skills.

Another study conducted by Pinto and Ramalheira (2017) in Portugal also showed a positive relationship between academic performance (GPA) and perceived employability, and the result confirmed that academic performance combined with participation in extracurricular activities had a positive impact on perceived employability. Skills that graduates will develop while participating in extracurricular activities are similar to those listed in this study's generic skills and personal attributes section. Study in Portugal and this study has taken knowledge and skill as the factors to determine academic performance. In technical education and general education, having some generic skills plays a bigger role in finding employment. A similar study in Portugal by Ramalheira (2015) for business job applications showed a positive correlation between high GPA and employability. Students who participate in extracurricular activities (ECAs) and have high GPAs are more employable. Furthermore, ECA is beneficial in terms of personal organization, time management skills, and learning skills, which are covered in the generic skills section of this study.

There is no universal set of standards on how academic performance is calculated; however, many researchers believe that academic performance is the sum of learning results, behaviors, and attitudes of students during the period of study, mainly including students' behavioral performance and objective achievement (Choi, 2005; Poropat, 2009; Stajkovic et al., 2018). A study conducted by Li et al. (2022) in China among final-year undergraduate students from different faculties showed that academic performance positively impacted employability, which is in line with this study. One notable difference between these studies conducted in Nepal by this

researcher and in China is that the strength of the relation was high in China. In contrast, it was negligible for the case of Nepal, and the difference in strength could be because of the level of undergraduate degree vs diploma level. Similarly, Tentama and Abdillah (2019) conducted a study in Indonesia among 85 students of class XI in a vocational high school from three different classes. The result of the regression analysis, a zero-order correlation was obtained between academic achievements and employability with a score of 0.367. This finding means there is a positive relationship between academic achievements and employability skills, and comparing the result with this study has the same result. There is a positive relationship between these two variables (achievement and employability); however, the strength of the relation is weak. In addition, the correlation value seems to be higher in the study conducted in Indonesia than in this study. However, in both cases, t variables have little or no relatives.

In this way, the result of this study is similar to previous studies conducted by various researchers from the 19th century to the modern age, which shows that there is little/no relationship between academic achievement and employability skills. One interesting pattern that can be seen in the available literature is that the relationship between achievement and employability skills remains the same, even compared to 100 years ago and today. Globally, there has been a big shift in the educational system compared to the last 40-50 years; however, the education institutions and system have been unchanged/little changed regarding the relation between achievement and employability skills. In some studies, employability is calculated using different measures, such as referring to the employers' and students' perspectives. In contrast, perceived employability combines generic, core, and personal skills in this study. Likewise, almost all the researchers used the grade points obtained by the student as academic achievement. The relation between employability skills and academic achievement is positive in almost all the studies presented above; however, the strength of the relationship ranges from none to weak.

Impact on Perceived Employability Skill

The result of logistic regression in this study claimed that only the type of school (SEE/CTEVT) significantly impacts having low or emerging levels of perceived employability skills. Other independent variables, such as ethnicity, locale, province, type of CTVET school, and learning achievement, have an insignificant impact on the dependent variable (perceived employability skill). As the result of

logistic regression shows that students who have graduated in SEE from private school and students who are currently studying in private type CTEVT schools are likely to have low perceived employability skills, the result is in line with the study of Singh and Singh (2008) in Malaysia where employers preferred to hire graduates from public university. Similarly, Soon et al. (2009) suggested that public university graduates have better skill gains, whereas private university graduates have higher salaries.

In contrast, Kashefpakdel et al. (2018) did not find any significant effect of school types on employability skills; however, school teachers who were involved in the survey highlighted that young people developed employability skills through extra-curricular activities. Private school students have low perceived employability skills because they do not get enough opportunities to participate in extracurricular activities (ECA). Involvement in extracurricular activities (ECA) increases generic and personal attributes, which is similar to the finding of Ribeiro et al. (2024), which showed that ECAs positively impact academic success and employment. Similarly, Mefteh (2021) also found a positive correlation between the acquisition of soft skills and participation in ECA.

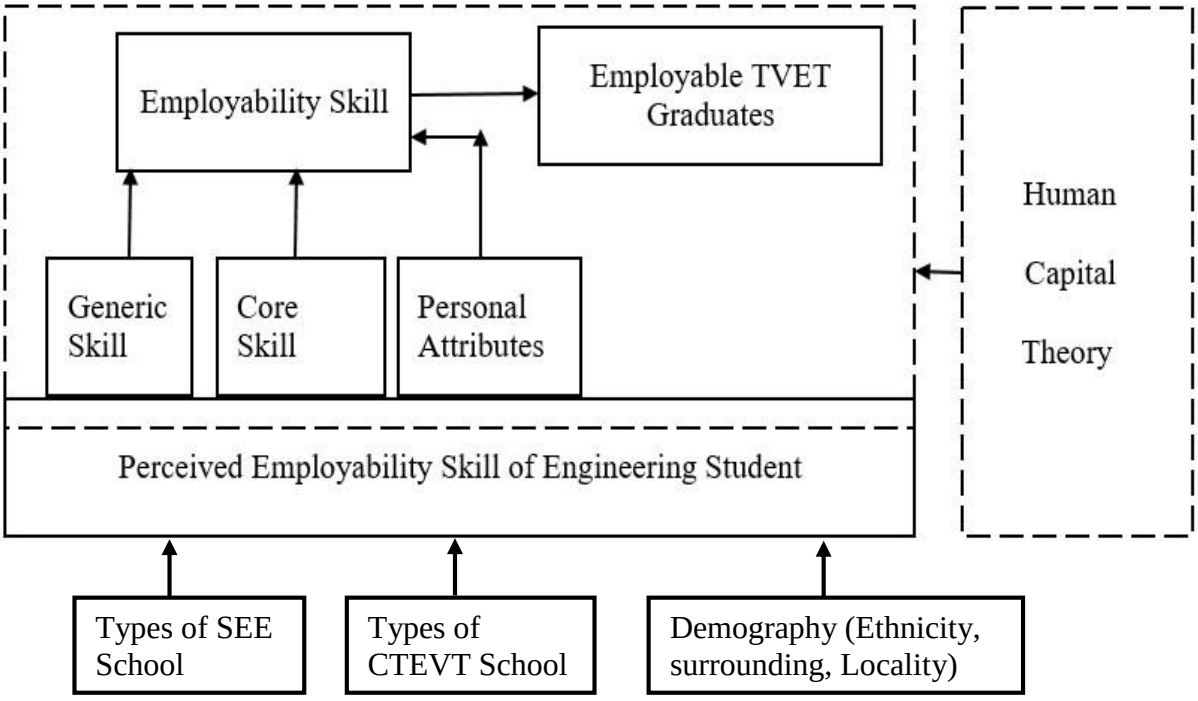
Based on the discussion and findings, the researcher developed a model to describe the perceived employability skill. This model is based on human capital theory and is directly related to the knowledge, skills, and other qualities an individual possesses that could contribute to increasing productivity. The perceived employability of an individual is the combination of generic skills, core skills, and personal attributes. Through the discussion, employers rank personal attributes (attitudes and traits) as the top priority, followed by generic skills and core skills. For a graduate to be able to find employment, all these skills need to be demonstrated to the employers. According to Thapa and Singh (2019), human capital is supported at different levels, and at an individual level, it supports knowledge, skill, and motives. This knowledge, skill, and one's ability can enhance
productivity.

The model, presented in Figure No. 4, shows that the combination of three skills determines perceived employability skills. Only once graduates are competent in those three skills are they sellable in the job market. As human capital theory suggests, investment to acquire better employability skills not only increases the

chance of a graduate to get employment but also increases productivity, which ultimately helps to increase the growth of a nation.

Figure 4

Model of Perceived Employability Skill



Chapter Summary

The results of the main finding were discussed in the first section of the chapter. Overall, the perceived employability skill of diploma level civil engineering students is at the presence level. However, among the three themes of employability skills, students' core skills are at the emergence level. Personal attributes seem to be highest among the students, followed by generic and core skills. Similarly, students who have completed SEE from community schools have higher levels of employability skills than the students from institutional schools. Among different types of CTEVT Schools, students from partnership model schools have the highest employability skills, followed by TECS Schools and CTEVT constituent schools. Students from private institutes have the lowest employability skills when compared to the four types of schools. The findings also show no relation between academic achievements and the employability skills of a student. In the end, a model was developed to explain how combining generic skills, core skills, and personal attributes helps make a TVET graduate employable.

CHAPTER VI
CONCLUDING THE STUDY

The chapter begins with the synopsis and concludes with the inferences of the study. After that, the study's implications for policymakers, students, academic institutions, employers, and future researchers are specified. Finally, this study is concluded with the researcher's view.

Synopsis of the Study

Technical Education and Vocational Training (TVET) produces skilled workers who can enhance productivity and increase economic growth. In 2021, Nepal qualified to graduate from the category of least developed countries and is eyeing to graduate into an upper-middle income country before 2030. In this context, the human resource that the TVET sector produces is vital to achieve this goal. Infrastructure development is one of the key indicators of development contributing to the national economy, and diploma civil engineering graduates have a huge role to play by contributing their knowledge and skill in construction, such as roads, bridges, buildings, etc. We often hear from employers that they need skilled human resources in the construction sector; however, the recent tracer study and impact study conducted by CTEVT shows that the employment rate of TVET graduates is decreasing, and civil engineering graduates have the lowest employment rate. The graduates from CTEVT institutes are output for the TVET system, whereas they become input for the industry. TVET institutions represent the supply side, whereas industry is the demand side. So, this study was initiated to see the problem from the supply side. If civil engineering graduates struggle to find employment, the major question is whether these graduates have the appropriate skills that the industry demands. Are these graduates confident in the skills that they have acquired? The major focus of this study was to find the level of perceived employability skills of diploma-level engineering students in their final semester of the course. Only a few studies were conducted in Nepal to find diploma-level students' perceived employability skill level. In this context, this study was initiated to check the perceived employability skills of the students working in the construction sector once they finish their studies. The study was based on the following research questions: 1. What level of perceived employability skills do diplomas in civil engineering students

have? 2. To what extent do demographic variables (Gender, Ethnicity, Surrounding, and Location), type of SEE School (Community/Institutional), and type of CTEVT School (Constituent/Affiliated/TECS/Partnership Model) differ across perceived employability skills? 3. To what extent does the relationship between learning achievement and perceived employability skills exist? 4. Do demographic variables, type of school (SEE and CTEVT), and learning achievement predict the level of perceived employability skills of graduating students? Students studying in the final semester in different types of CTEVT Schools participated in the survey to answer the above questions.

Employability skills help people find, maintain, and grow a career. They are broadly categorized into generic skills, core skills, and personal attributes. Perceived employability is the perception of an individual of obtaining and maintaining employment. This study focused on finding the level of perceived employability skills of engineering students studying in their course's final semester. Human Capital Theory (HCT) was used to understand how investment in education and training helps develop knowledge and skills, and later, it can be used to increase productivity.

This study followed the post-positivist approach, using a survey method to collect the data. The questionnaires were developed based on a literature review and diploma-level civil engineering curriculum, contextualizing the questionnaires used in similar studies in Nepal and other countries. In addition, consultations with TVET experts (TVET instructors, employers, and past graduates) working in the field of TVET were held to contextualize questionnaires. Similarly, focus group discussions with recent graduates, the civil engineering department head of the TVET institution, and civil engineering instructors were also held to seek suggestions and check whether the drafted questionnaire was meaningful to the students. The questionnaires were on a 6-point Likert scale, and a survey was conducted among the final year (final semester) diploma level civil engineering students. Proportionate random sampling was used for the sample size. After calculating the sample size, reliability, validity, and practicability of the developed questionnaire were also ensured. One of the CTEVT-affiliated institutes was selected for pilot testing. The Cronbach’s alpha value was acceptable, which satisfied the reliability test. The survey was conducted with 324 students, and the required sample size was 294. Incomplete surveys were replaced with the extra sample. While conducting this study, ethical consideration was also assured.

The perceived employability of the student was calculated using three themes (generic skill, core skill, and personal attributes). Similarly, a t-test was applied to see whether there was a difference in students' employability skill level across gender, surroundings, and type of schools from where the students had completed SEE. Similarly, an ANOVA test was also conducted to see whether there was a difference in the level of perceived employability skill across ethnicity, locale, province, and type of CTVET Schools where they are currently studying. The association between learning achievements and employability skills was also checked using Pearson Correlation. At last, binary logistic regression was performed to check the impact of the independent variables (ethnicity, surroundings, province, type of school, and learning achievement) on the dependent variable (perceived employability skill).

The study shows that the perceived employability skill of diploma civil engineering students is at the presence level. There was a difference in the perceived employability skill of respondents across different demographic variables (ethnicity, locale, surroundings). In addition, students who had completed SEE from community schools had better levels of employability skills than the students from institutional schools. Similarly, students currently studying in public institutes showed better levels of perceived employability skills than those from private institutes. Furthermore, there was a very weak relation between academic achievements and the perceived employability skill of the student. The result also revealed that only the type of school (SEE and CTEVT) impacted the student's perceived employability skills.

Conclusion

The level of perceived employability skills among diploma level civil engineering students is at a presence level, and it is not enough to secure employment immediately after graduation. Core skills are at the lowest level among the three themes of employability skills whereas personal attributes are at highest level and it might be because of our social structure. Honesty, positivity, sensitivity, and ethics are some elements of personal attributes, and students learn these skills at home and in institutions as well. Similarly, in the theme of generic skill, most of the dimensions are developed during course study. Engagement of students in practical work, project work, and field experiments help students to develop some of the generic skills such as problem-solving skills, communication skills, teamwork skills, and taking the initiative.

Students studying in community schools have better perceived employability skills than students from institutional schools. Extra-curricular activities, which have a great role in developing some of the skills such as generic and personal attributes, are conducted regularly in community schools, which might be the reason for the high employability skill level of students from community schools. Similarly, students currently studying in different types of CTEVT Schools (Constituent, Partnership, TECS, and Private), the level of perceived employability skill is the lowest among the students from the private school.

Furthermore, there is a weak relation between the learning achievement of the student and the level of perceived employability skill. Similarly, the type of SEE school and CTEVT school impacts the perceived employability skill of the student. As suggested by Human Capital, investment in education and training helps to increase productivity, and low levels of employability in core skills can be enhanced by providing more practical exposure to the students. Students equipped with better employability skills will be able to get a job and increase productivity.

Implications

The findings and conclusion of the study on perceived employability skills of diploma-level civil engineering students who are about to finish their course can be helpful for graduates, institutions, employers, policymakers, and future researchers to enhance employability skills. The findings can also be helpful for the Council for Technical Education and Vocational Training (CTEVT), which is the apex body that regulates the TVET system in Nepal, to address issues directly related to employment, such as amendments to the curriculum. Some of the implications are presented in the following section.

Implication to Students

The perceived employability skills of the students are low in core skills. So, they need to increase their knowledge as well as occupational skills. Similarly, students have to pay attention on generic skills as well. Group assignments, field work, project work are helpful to increase core as well as generic skill. Students have to give equal importance to all three themes of employability skills to secure employment.

Implication to Academic Institutes

The study findings reveal that the students from private institutes have the lowest perceived employability skills. Similarly, among the three themes of

employability skill, students have the lowest level of skill in core skill followed by generic skill and personal attributes. Academic institutions must provide practical exposure to students to enhance core skills. This can be done by adding sufficient tools and equipment to the lab and workshops and giving students enough time to practice. Apart from core skills, students must also be involved in group assignments, field-based project work, and team-building exercises, which are helpful to develop generic skills.

Implications to the Employers

Employers need to work closely with the TVET institutions and the apex body to revise the curriculum as per the market demand and address the deficiency in employability skills the students have been experiencing. Employers should also be ready to provide real-world learning opportunities to the students so the transition will be smooth for both the students and the employers.

Implications to the Apex Body (CTEVT)

CTEVT needs to pay special attention while providing affiliation and renewal of private institutions. Physical facilities, tools, and equipment, and lab and workshops, which are essential for students to get practical exposure, need to be fully functional as it has an impact on the core skills of the students. Similarly, generic skills and personal attributes also need to be included in the curriculum. In the same way, CTEVT has to give the lead role to businesses and industries for timely curriculum revisions as per market demand.

Implications to Policy Makers

While formulating policies, policymakers have to consider all three themes of employability skills and prepare the curriculum accrodingly. In same way, policymakers should also suggest concerned bodies to make extracurricular activities part of their main course as these activites have a huge role in developing generic skills and personal attributes. To meet the demand of the changing labor market, policymakers also need to suggest the concerned authorities to curtail the lengthy process of curriculum development, revision, and occupation identification.

Implications to Future Researchers

This research only focused on the perceived employability skills of graduating students with a diploma in civil engineering, but this study does not address several issues. There is a possibility of conducting similar studies in other sectors, such as hospitality, agriculture, and health and comparing the results with those of

engineering sectors. Furthermore, this study can be helpful to research the following issues/areas:

- Perceived employability skill of students in different occupations of the engineering stream
- Comparing the perceived employability of students in the service, manufacturing, IT, etc.
- Perceived employability of students from employers' perspective
- The gaps between the employability skills that students acquired and employers' expectation
- Factors for a low level of core skills among the students
- Employers' role to develop the required skills from the student

Final Remarks

This research journey has been exciting, and it gave me good exposure to blend TVET experience with academic knowledge. I have been working in the TVET sector for over a decade, and as a TVET practitioner, I always wanted to dig deep into the issues related to TVET. In most of my conversations with the employers, I often heard that our TVET graduates lack the skills they are looking for. So, once I enrolled for MPhil, I decided to look at this issue closely. The rounds of discussions while drafting and finalizing the questionnaire were very time-consuming. However, an important lesson from this tedious process is that if you have a good construct, only the research process will head in the right direction.

After the construct was ready, I conducted the pilot testing. No matter how good your construct is, something is always missing or incomplete, and the same thing happened to my construct. The feedback and suggestions from the participants helped me finalize the construct, and I also realized the importance of pilot testing. It did not take me long to enter the data in SPSS; however, interpreting the data in proper language was a challenge. While going through the data analysis process, I realized that it is important to have deep and sound knowledge of the data analysis tools to interpret the findings correctly. I watched various YouTube videos and got help from my friends to analyze the data. I am confident that the findings of this study will be helpful to all the stakeholders of TVET, and it will add one brick to the development of TVET in Nepal.

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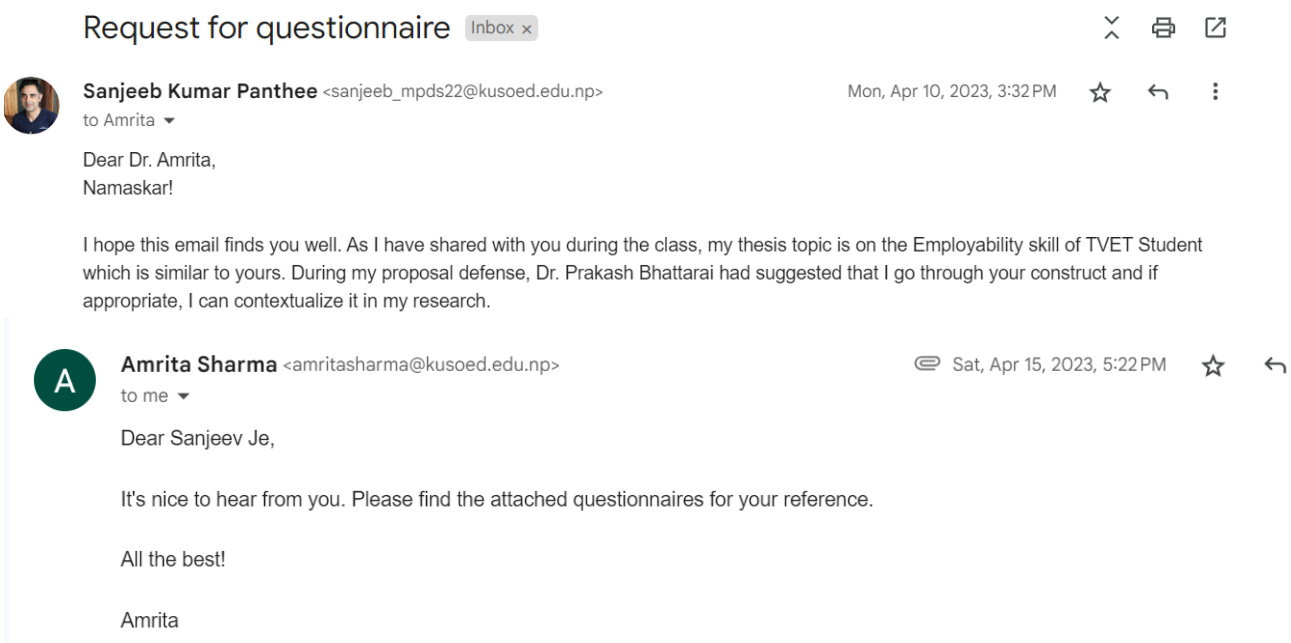
ANNEXES

Annex 1: Permission to Contextualize Questionnaire



Request for questionnaire Inbox ×

Sanjeeb Kumar Panthee <sanjeeb_mpds22@kusoed.edu.np> Mon, Apr 10, 2023, 3:32 PM
to Amrita

Dear Dr. Amrita,
Namaskar!

I hope this email finds you well. As I have shared with you during the class, my thesis topic is on the Employability skill of TVET Student which is similar to yours. During my proposal defense, Dr. Prakash Bhattarai had suggested that I go through your construct and if appropriate, I can contextualize it in my research.

Amrita Sharma <amritasharma@kusoed.edu.np> Sat, Apr 15, 2023, 5:22 PM
to me

Dear Sanjeev Je,

It's nice to hear from you. Please find the attached questionnaires for your reference.

All the best!

Amrita

Annex 2: Letter for Survey

Kathmandu University
School of Education

August 3, 2023

To Whom It May Concern

Mr. Sanjeeb Kumar Panthee (KU Reg. no. 031098-22) has been studying MPhil in Development Studies at the School of Education of this University since February 2022. For the completion of his MPhil Dissertation, he is conducting a research on *"Perceived Employability Skill of Diploma Level Engineering Student: A Survey in Kathmandu Valley."*.

In course of his research, he is currently visiting different places where he needs to consult libraries, research centers, educational consultancies and related government and non-government organizations & schools. He is collecting data for his research from educationists, policy makers, development activists and educational administrators.

Therefore, I would like to request the concerned organizations and personalities to co-operate him on his research activities.

Prof. Bal Chandra Luitel, PhD
Dean

Annex 3: Questionnaire

अध्ययनको लागि प्रश्नावलीहरु

<u>डिप्लोमा तह सिभिल ईन्जिनियरिङ्ग बिषयको अन्तिम वर्षमा अध्ययनरत बिद्यार्थीहरुको रोजगार क्षमता सीपका बारेमा गरिएको अध्ययनको प्रश्नावली २०८०</u>

यहाँलाई नमस्कार,

मेरो नाम सन्जीब कुमार पन्थी हो। म काठमाडौं विश्वविध्यालय, स्कुल अफ एजुकेशन एम.फिल (M.Phil) तहमा अध्ययनरत छु। मेरो थेसिसको लागि म यो सर्वेक्षण गर्दैछु। मेरो थेसिसको शिर्षक डिप्लोमा सिभिल ईन्जिनियरिङ्ग अन्तिम बर्षमा अध्ययनरत बिद्यार्थीहरुको रोजगार क्षमता सीप सम्बन्धि धारणा भन्ने बिषयमा हो। यस सर्वेक्षणमा यहाँहरुलाई यथार्थ जवाफ दिनुहुन अनुरोध गर्दछु। म यहाँहरुलाई विश्वस्त बनाउन चाहन्छु कि यस अध्ययबाट प्राप्त सबै तथ्यांकहरु गोप्यरुपमा राखिनेछ र सम्पूर्ण सुचनाहरु यस अनुसन्धान कार्यका लागि मात्रै प्रयोग गरिनेछ। यो सर्वेक्षणका लागि यहाँहरु लाई १५ देखी २० मिनेटको समय लाग्ने छ।

खण्ड क: परिचय

१. लिङ्ग: पुरुष ☐ महिला ☐ अन्य ☐

२. जातियता: ब्राम्हण ☐ क्षेत्री ☐ नेवार ☐ जनजाती ☐ दलित ☐ ☐ मधेशी अन्य .....

३. स्थायी ठेगाना (जिल्ला): | १ | २ | ३ | ४ | ५ | ६ | ७ | प्रदेश नम्बर:

भौगोलिक अवस्थिति: हिमाल ☐ पहाड ☐ तराई ☐

परिवेश: शहरी ☐ ग्रामिण ☐

४. व्यवसाय: बुवाको व्यवसाय.....आमाको व्यवसाय.....

५. तपाईले SEE गर्नु भएको विद्यालयको प्रकार: निजि विद्यालय (Private School) ☐ ☐ सरकारी विद्यालय(Government School)

तपाईंले SEE गर्नु भएको कक्षामा भएको बिद्यार्थी संख्या: ☐ पुरुष ☐ ☐ महिला

८ तपाईले अहिले पढीरहनु भएको सि.टि.ई.भि.टि (CTEVT) अन्तर्गतको विद्यालयको प्रकार:

आंगिक(Constituent) ☐ साझेदारी(Partnership) ☐ सामुदायिक ☐ टेक्स(Community TECS) ☐ निजि(Private) ☐

तपाईंको कक्षामा भएको बिद्यार्थी संख्या: ☐ पुरुष ☐ महिला ☐

तपाईंको विद्यालयमा अतिरिक्त क्रियाकलापहरु कत्तिको हुन्छ? धेरै ☐ ठिकै ☐ हुँदैन ☐

९ तपाईको डिप्लोमा तहका सेमेस्टरहरुमा आएको प्रतिसत (Percentage): पहिलो ☐ दोश्रो ☐ तेश्रो ☐ चौथो ☐

कृपया प्रत्येक वाक्यलाई ध्यान पुर्बक अध्ययन गरी यहाँको सहमति वा असहमतीलाई (१- पूर्ण असहमत देखि ६ - पूर्ण सहमत) चिन्ह लगाई जवाफ दिनुहुन अनुरोध गर्दछु।

खण्ड ख : <u>प्रश्नावली</u>

Employability Skill रोजगार क्षमता सीप		**Strongly Disagree पूर्ण असहमत**	**Disagree असहमत**	**Slightly Disagree थोरै असहमत**	**Slightly Agree थोरै सहमत**	**Agree सहमत**	**Strongly Agree पूर्ण सहमत**
		1	**2**	**3**	**4**	**5**	**6**
1	**Generic Skill (सामान्य सीप)**						
1.1	**Communication Skill (संचार सम्बन्धित सीप)**						
डिप्लोमा सिभिल ईन्जिनियरिङ्गको अध्ययनले मलाई							
1.1.1	आफ्नो बुझाई लाई राम्रो सँग ब्यक्त गर्न सक्ने क्षमताको विकास गरेको छ। (Share Understanding)	**1**	**2**	**3**	**4**	**5**	**6**
1.1.2	अरुको कुरा ध्यान पूर्वक सुन्न प्रेरित गरेको छ। (Listen Acively)	**1**	**2**	**3**	**4**	**5**	**6**
1.1.3	आफुले नबुझेको कुरा बिना हिचकिचाहट सोध्न प्रेरणा दिएको छ। (Ask Question)	**1**	**2**	**3**	**4**	**5**	**6**
1.2	**Problem Solving Skill (समस्या समाधान सम्बन्धित सीप)**						
डिप्लोमा सिभिल ईन्जिनियरिङ्गको अध्ययनले मलाई							
1.2.1	समस्याको पहिचान गर्न मद्दत गरेको छ। (Identify Problem)	**1**	**2**	**3**	**4**	**5**	**6**
1.2.2	समस्याको बिश्लेषण गर्न सक्ने क्षमताको विकास गरेको छ। (Analyze Problem)	**1**	**2**	**3**	**4**	**5**	**6**
1.2.3	साथीहरु सँग परामर्स गरी समस्याको समाधान गर्ने सीपको विकास गरेको छ। (Solving Problem)	**1**	**2**	**3**	**4**	**5**	**6**
1.2.4	समस्याको बर्गिकरण गरि सबैभन्दा उत्तम उपाय छान्ने तरिकाहरु सिकाएको छ। (Choosing Best Option)	**1**	**2**	**3**	**4**	**5**	**6**
1.3	**Team Work Skill (सामुहिक कार्य सम्बन्धित सीप)**						
डिप्लोमा सिभिल ईन्जिनियरिङ्गको अध्ययनले मलाई							
1.3.1	साथीहरुसँग समन्वय गर्ने कला सिकाएको छ। (Coordinating with Friends)	**1**	**2**	**3**	**4**	**5**	**6**

1.3.2	सुझाब लाई ग्रहण गर्न सक्ने क्षमताको विकास गरेको छ। (Accepting Suggestion)	**1**	**2**	**3**	**4**	**5**	**6**
1.3.3	समुहमा छलफल हुँदा सकारात्मक सुझाब दिन प्रेरित गरेको छ। (Provide Positive Feedback)	**1**	**2**	**3**	**4**	**5**	**6**
1.3.4	टिममा आफ्नो भूमिकाको बारेमा जानकार बनाएको छ। (Aware of Role)	**1**	**2**	**3**	**4**	**5**	**6**
1.3.5	टिम सदस्य भएर प्रभावकारी रुपमा काम गर्न सिकाएको छ। (Effective Team Member)	**1**	**2**	**3**	**4**	**5**	**6**
1.4	**Initiative (अग्रसरता सम्बन्धित सीप)**						
डिप्लोमा सिभिल ईन्जिनियरिङ्गको अध्ययनले मलाई							
1.4.1	**नयाँ नयाँ खालका समाधान खोज्न मद्दत गरेको छ।** (Innovative Solution)	**1**	**2**	**3**	**4**	**5**	**6**
1.4.2	**रचनात्मक सुझाब दिन** प्रेरित गरेको छ। (Creative Solution)	**1**	**2**	**3**	**4**	**5**	**6**
1.4.3	समुहमा काम गर्दा कामको सुरुवात गर्न पहल गर्ने क्षमताको विकास गरेको छ। (Taking Initiative)	**1**	**2**	**3**	**4**	**5**	**6**
1.4.4	समस्याको समाधान गर्न मेरो पहलले मद्दत गर्छ भन्ने आत्मविश्वास जगाएको छ। (Confident on My Initiation)	**1**	**2**	**3**	**4**	**5**	**6**
		Strongly Disagree	**Disagree**	**Slightly Disagree**	**Slightly Agree**	**Agree**	**Strongly Agree**
		पूर्ण असहमत	**असहमत**	**थोरै असहमत**	**थोरै सहमत**	**सहमत**	**पूर्ण सहमत**
		1	**2**	**3**	**4**	**5**	**6**
1.5	**Learning (सिकाई सम्बन्धित सीप)**						
डिप्लोमा सिभिल ईन्जिनियरिङ्गको अध्ययनले मलाई							
1.5.1	नयाँ कुरा सिक्न उत्सुक बनाएको छ। (Curious to Learn)	**1**	**2**	**3**	**4**	**5**	**6**
1.5.2	नयाँ कुरा सिक्न समय खर्चिने बानी बसालेको छ। (Spend Time to Learn)	**1**	**2**	**3**	**4**	**5**	**6**
1.5.3	जुनसुकै ठाउँमा भएपनि नयाँ कुरा सिक्न प्रेरित गरेको छ। (Learn Anywhere)	**1**	**2**	**3**	**4**	**5**	**6**
1.5.4	नयाँ कुरा सिक्न नहिचकीचाउने बानी बसालेको छ। (Not to Hesitate to Learn)	**1**	**2**	**3**	**4**	**5**	**6**
1.5.5	सिकाईलाई निरन्तर update गर्न प्रेरित गरेको छ। (Update Learning)	**1**	**2**	**3**	**4**	**5**	**6**

2	**Core Skill (मुख्य सीप)**						
2.1	**Knowledge (सिभिल ईन्जिनियरिङ्ग सम्बन्धित ज्ञान)**						
मैले पढाईको दौरानमा सिकेको ज्ञान लाई ईन्जिनियरिङ्ग सँग सम्बन्धित समस्याहरुको							
2.1.1	विश्लेषण गर्न प्रयोग गर्न सक्छु । (Analyze Engineeirng Related Problems)	**1**	**2**	**3**	**4**	**5**	**6**
2.1.2	समाधानको निम्ति प्रयोग गर्न सक्छु । (Initiate for Solving Problem)	**1**	**2**	**3**	**4**	**5**	**6**
2.1.3	Design गर्न प्रयोग गर्न सक्छु । (Design Engineering Works)	**1**	**2**	**3**	**4**	**5**	**6**
मलाई सिभिल ईन्जिनियरिङ्गको क्षेत्रमा भएका							
2.1.4	समस्याहरुको बारेमा ज्ञान छ । (Knowledge on problems in the area of Civil Engineering)	**1**	**2**	**3**	**4**	**5**	**6**
2.1.5	नयाँ नयाँ टेक्नोलोजीहरुको विकासका बारेमा राम्रो ज्ञान छ। (Knowledge on Technology Developed)	**1**	**2**	**3**	**4**	**5**	**6**
2.2	**Skill (सिभिल ईन्जिनियरिङ्ग सम्बन्धित सीप)**						
2.2.1	मैले पढाईको दौरानमा सिकेको सीप लाई आफ्नो काम गर्नु पर्ने क्षेत्रमा अरुको मद्दत विनानै काम प्रयोग गर्न सक्छु । (Apply Skill)	**1**	**2**	**3**	**4**	**5**	**6**
2.2.2	म ईन्जिनियरिङ्ग टेक्नीसियनको रुपमा क्षेत्रका कामहरु लिएर गर्न सक्षम छु । (Undertaking Work)	**1**	**2**	**3**	**4**	**5**	**6**
2.2.3	मेरो विषयमा फिल्डमा परिक्षण गर्न म सक्षम छु । (Conduct Field Experiment)	**1**	**2**	**3**	**4**	**5**	**6**
2.2.4	मेरो विषयमा परिक्षणबाट आएको परिणाम (Result) लाई ब्याख्या गर्ने सीप म संग छ। (Interpretation of Result)	**1**	**2**	**3**	**4**	**5**	**6**
2.2.5	म परिक्षणबाट आएको रिजल्ट को आधारमा सिफारिस गर्न सक्छु। (Recommendation of Finding)	**1**	**2**	**3**	**4**	**5**	**6**
		Strongly Disagree	**Disagree**	**Slightly Disagree**	**Slightly Agree**	**Agree**	**Strongly Agree**
		पूर्ण असहमत	**असहमत**	**थोरै असहमत**	**थोरै सहमत**	**सहमत**	**पूर्ण सहमत**
		1	**2**	**3**	**4**	**5**	**6**

3	**Personal Attributes (व्यक्तिगत विशेषताहरु)**						
3.1	**Attitudes (मनोबृत्ती)**						
	डिप्लोमा सिभिल ईन्जिनियरिङ्गको अध्ययनले मलाई						
3.1.1	आफ्नो काम प्रति ईमान्दार हुन प्रेरणा दिएको छ। (Honest to Job)	**1**	**2**	**3**	**4**	**5**	**6**
3.1.2	आफ्नो संस्था प्रति ईमान्दार हुन सिकाएको छ। (Honest to Organization)	**1**	**2**	**3**	**4**	**5**	**6**
3.1.3	दिईएको काम उत्साही भएर गर्न प्रेरित गरेको छ। (Work Enthusiastically)	**1**	**2**	**3**	**4**	**5**	**6**
3.1.4	काम प्रति जिम्मेवार बनाएको छ। (Responsible Towards Work)	**1**	**2**	**3**	**4**	**5**	**6**
3.1.5	सकारात्मक सोँचका साथ काम गर्न प्रेरणा दिएको छ। (Work with Positive Thinking)	**1**	**2**	**3**	**4**	**5**	**6**
3.1.6	नयाँ नयाँ कुरा सिक्न प्रेरित गरेको छ। (Motivated to Learn New Thing)	**1**	**2**	**3**	**4**	**5**	**6**
3.2	**Traits (गुण/स्वभाव)**						
	डिप्लोमा सिभिल ईन्जिनियरिङ्गको अध्ययनले मलाई						
3.2.1	काम प्रतिको लगाब बढाएको छ। (Attachment to Work)	**1**	**2**	**3**	**4**	**5**	**6**
3.2.2	नैतिकवान बन्न सिकाएको छ। (To be Ethical)	**1**	**2**	**3**	**4**	**5**	**6**
3.2.3	काम सफल बनाउन पूर्ण मिहिनेत गर्नुपर्छ भन्ने पाठ सिकाएको छ। (Effort to Work)	**1**	**2**	**3**	**4**	**5**	**6**
3.2.4	काम प्रति संबेदनसिल हुनुपर्छ भन्ने महसुस गराएको छ। (Sensitive to Work)	**1**	**2**	**3**	**4**	**5**	**6**
3.2.5	संस्था प्रति संबेदनसिल हुन प्रेरित गरेको छ। (Sensitive to Organization)	**1**	**2**	**3**	**4**	**5**	**6**

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Annex 4: Post Hoc Test for Ethnicity and Perceived Employability

Ethnicity of the Respondents		Mean Difference	Sig.
Bramhin	Kshetry	-.21434	.113
	Newar	.16270	.391
	Janjati	-.00709	.964
	Dalit	-.43460	.064
	Madheshi	-.24779	.168
	Others	-.72845*	.035
Kshetry	Bramhin	.21434	.113
	Newar	.37704*	.028
	Janjati	.20725	.120
	Dalit	-.22026	.315
	Madheshi	-.03345	.834
	Others	-.51411	.124
Newar	Bramhin	-.16270	.391
	Kshetry	-.37704*	.028
	Janjati	-.16979	.367
	Dalit	-.59730*	.020
	Madheshi	-.41049*	.049
	Others	-.89115*	.014
Janjati	Bramhin	.00709	.964
	Kshetry	-.20725	.120
	Newar	.16979	.367
	Dalit	-.42751	.067
	Madheshi	-.24070	.177
	Others	-.72136*	.036
Dalit	Bramhin	.43460	.064
	Kshetry	.22026	.315
	Newar	.59730*	.020
	Janjati	.42751	.067
	Madheshi	.18681	.453
	Others	-.29385	.445
Madheshi	Bramhin	.24779	.168

	Kshetry	.03345	.834
	Newar	.41049*	.049
	Janjati	.24070	.177
	Dalit	-.18681	.453
	Others	-.48066	.175
Others	Bramhin	.72845*	.035
	Kshetry	.51411	.124
	Newar	.89115*	.014
	Janjati	.72136*	.036
	Dalit	.29385	.445
	Madheshi	.48066	.175

Annex 5: Post Hoc Test for Province and Perceived Employability

Province of the Respondent		Mean Difference	Sig.
	Madhesh	-.33333	.097
	Bagmati	-.00102	.996
	Gandaki	.43644	.079
	Lumbini	.03892	.886
	Karnali	-.41532*	.045
Koshi	Sudur Paschim	-.14646	.476
Madhesh	Koshi	.33333	.097
	Bagmati	.33231*	.013
	Gandaki	.76977*	.000
	Lumbini	.37224	.113
	Karnali	-.08199	.599
	Sudur Paschim	.18687	.228
Bagmati	Koshi	.00102	.996
	Madhesh	-.33231*	.013
	Gandaki	.43746*	.027
	Lumbini	.03993	.859
	Karnali	-.41430*	.004
	Sudur Paschim	-.14544	.302
Gandaki	Koshi	-.43644	.079
	Madhesh	-.76977*	.000
	Bagmati	-.43746*	.027
	Lumbini	-.39752	.150
	Karnali	-.85176*	.000
	Sudur Paschim	-.58290*	.007
Lumbini	Koshi	-.03892	.886
	Madhesh	-.37224	.113
	Bagmati	-.03993	.859
	Gandaki	.39752	.150
	Karnali	-.45423	.058
	Sudur Paschim	-.18537	.437
Karnali	Koshi	.41532*	.045

	Madhesh	.08199	.599
	Bagmati	.41430*	.004
	Gandaki	.85176*	.000
	Lumbini	.45423	.058
	Sudur Paschim	.26886	.099
Sudur Paschim	Koshi	.14646	.476
	Madhesh	-.18687	.228
	Bagmati	.14544	.302
	Gandaki	.58290*	.007
	Lumbini	.18537	.437
	Karnali	-.26886	.099

Annex 6: Post Hoc Test for CTEVT School and Perceived Employability School

Type of CTEVT School		Mean Difference	Sig.
	Partnership	-.78701*	.000
	TECS	-.27080	.101
Constituent	Private	.10238	.538
Partnership	Constituent	.78701*	.000
	TECS	.51620*	.002
	Private	.88939*	.000
TECS	Constituent	.27080	.101
	Partnership	-.51620*	.002
	Private	.37318*	.000
Private	Constituent	-.10238	.538
	Partnership	-.88939*	.000
	TECS	-.37318*	.000

Annex 7: Random Cluster Sampling