

# TECHNICAL EDUCATION IN COMMUNITY SCHOOL (TECS) INSTRUCTORS' EXPERIENCE IN TEACHING-LEARNING

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Kathmandu University  
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# **Technical Education in Community School (TECS) Instructors' Experience in Teaching-Learning**

**Bikash Ghaju**

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**Bikash Ghaju**

## ACRONYMS

|         |  |
|---------|--|
| ACIN    | Accountability Initiative                                  |
| AutoCAD | Auto Computer-Aided Design                                 |
| B.E.    | Bachelor in Engineering                                    |
| CEDEFOP | European Centre for the Development of Vocational Training |
| CTEVT   | Council for Technical Education and Vocational Training    |
| DI      | Discipline In-charge                                       |
| EVENT   | Enhanced Vocational Education and Training                 |
| GPS     | Global Positioning System                                  |
| I.Sc.   | Intermediate in Science                                    |
| IVET    | Initial Vocational Education and Training                  |
| KUSOED  | Kathmandu University, School of Education                  |
| M.Ed.   | Master in Education  |
| MIG     | Metal Inert Gas  |
| MoE     | Ministry of Education                                      |
| MTVET   | Master in Technical and Vocational Education and Training  |
| NQ      | Not Qualified  |
| SEE     | Secondary Education Examination                            |
| SLC     | School Leaving Certificate                                 |
| TECS    | Technical Education in Community School                    |
| TIG     | Tungsten Inert Gas   |
| TITI    | Training Institute for Technical Instruction               |
| TSLC    | Technical School Leaving Certificate                       |
| TVE     | Technical Vocational Education                             |
| TVET    | Technical and Vocational Education and Training            |
| VET     | Vocational Education and Training                          |
| ZPD     | Zone of Proximal Development                               |

## ABSTRACT

Technical education in community school (TECS) program intends to provide technical and vocational education to all the youth, regardless of their socio-economic status, and geographical location that influences the use of physical facilities, human resources, and the administration of community secondary schools. The Diploma in Civil Engineering is one of the promising programs that aim to produce a middle-level workforce in the engineering field. It is not easy for instructors to experience systematic teaching-learning at TECS schools.

This research interprets the participating instructors' experiences in teaching-learning related to the course of the diploma in Civil Engineering at TECS schools. Their shared experiences have been transcribed and narrated in the form of their stories. All their stories have been thematically analyzed.

This study explores the need to conduct technical programs in separate infrastructure or separate schedules from general education to ensure that it has adequate modern tools and equipment. The Diploma in Civil Engineering program has high job prospects and it supports further studies, nevertheless, the curriculum has to be updated and revised as per market needs and demands. The program needs to include work-based learning to prepare a workforce that has high potential and employability.

An issue is students' low prior competency which leads to poor results and an ineffective teaching-learning process. Technical instructors are to be motivated and retained through equitable salaries and facilities along with a good rapport and their professional development. The retention of the instructors is one of the main reasons for a good result.

With the research questions in mind, the research concludes that most of the students enrolled in the program on family pressure rather than self-motivation; enrolment of weak students due to weak entrance system, and lack of self-motivation. Those instructors were found more motivated and satisfied where infrastructure was separate for TECS than where TECS was being conducted inside the premises of general schools as that created troubles in class and practical work conditions. The instructors experienced the curriculum of the diploma in Civil Engineering was outdated, however, it had high prospects for employment and further education. The instructors experienced teaching as an avenue of knowledge and a good profession, but they were not ready to work in TECS schools of villages. Adequate teaching-learning materials, good rapport with school administration, and equal facilities like general stream teachers could motivate the instructors toward teaching-learning at TECS schools. The respective instructors' experience portrays the present scenario of the course, issues, and challenges as well as the way forward for proper operation of the Diploma in Civil Engineering course at TECS schools in Nepal.

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# CHAPTER I

## INTRODUCTION

This study is an exploration of how technical instructors experience their teaching-learning in Technical Education in Community Schools (TECS). In the context of Nepal, the TECS program is viable as it helps the students increase the access and expansion of technical and vocational education. However, at present, the program is unable to attract a large quality pool of students, parents, and instructors.

Instructors have to work in conditions that lack the motivation and necessary infrastructure. This is further exasperated by limited struggling students, outdated curriculum, and unsuitable teaching-learning materials. Related literature and policy are reviewed on the basis of the research questions. For theoretical reference to the study, Lev Vygotsky's social constructivism theory was adopted.

To narrate the instructors' experience, four instructors of the diploma in Civil Engineering program from two TECS were purposively interviewed. Their narratives of teaching-learning experiences were documented as stories that were presented under themes that included teaching-learning environment, curriculum, and motivation of instructors'. The findings from the research are discussed based on the themes. Finally, the summary, conclusion, and implications of this study are discussed.

### **Selection of the Topic**

I started my career as a primary school teacher. I have worked for more than ten years as a teaching staff as well as in the administration staff in a variety of schools and colleges. As a teacher, I felt a great responsibility for the future of the children that I worked with. It was challenging but I persevered in establishing a good rapport with parents and the administration of the schools. As a teacher, I was expected to ensure that my students do well academically. Vendeyar (2017) states that teachers are instrumental in implementing and spearheading educational changes. Teaching must combine critical thinking, exploring self-reflective skills, and fostering socio-cultural justice that helps them enact a culturally sustaining pedagogy and socio-culturally responsive teaching. "In so doing, teaching became a class act of human compassion" (Robertson, 2000, p. 89). I also strongly believe that the teachers are instrumental in driving educational change, and they represent human compassion. Teachers are the primary implementers of the curriculum in the classroom and have contact with students. Consequently, their experiences can be a milestone to identify the real issues and challenges and to foster teaching-learning of an institution.

Having a passion for teaching, I switched my academic stream from management to education and completed a Master in Education (M.Ed.) from Tribhuvan University. During my thesis and practicum, I visited some community schools and could empathize with the poor condition of the schools from a teacher's lens. After coming to study Master in Technical and Vocational Education and Training (MTVET) at Kathmandu University, School of Education, I have come to know various aspects of Technical and Vocational Education and Training (TVET). Yet, I have been feeling difficulty coping with the TVET field since I had no prior experience of it.

Last year, we got a chance to research in Nawalpur for four days, and I presented a paper entitled “Youth attraction toward TVET: A study of Nawalpur” at the International Conference on TVET for Employment, Income, and Job Quality, held on 11 and 12 September 2019 at Dhulikhel. That empirical research gave me insights to understand the various dimensions of TVET and people’s perceptions toward it. Moreover, I got the real experience of collecting data conducting interviews for academic research. Our university started the “Research Methodology” course from the first semester and continuously pushed us to complete our dissertation on time. I had difficulty choosing a topic and had to change two proposals due to a lack of knowledge. During our formal class and, sometimes, in our informal chats, I came to know about the ‘Technical Education in Community School (TECS)’ program. It was planned to implement this program in all general secondary schools by the Council for Technical Education and Vocational Training (CTEVT). In this regard, Shrestha (2013) states that the TECS program is viable in the context of Nepal to address poor, deprived, unemployed, and geographically disadvantaged areas at a low cost.

The general schools where the TECS program is conducted are called TECS schools. The number of TECS schools is increasing yet there are a lot of problems associated with it. The government has a large number of investments in school education, programs, and students. They view TECS as a viable program in the Nepali context to help the students by improving the living conditions of the poor, and the underprivileged by imparting hard skills.

I strongly believe that when teachers’ experiences are documented through this research, it provides insights into the changing situation of TECS schools. It also identified practices that are working along with issues and challenges faced by the curriculum, teaching-learning processes, and student experiences.

## **Context of the TECS Program**

Technical Education in Community School (TECS) program, previously known as Annex division, was started in 2000 to provide technical education and vocational training to the youth as part of the general school curriculum. The program was conceptualized to implement technical education and vocational training to optimally use the existing physical facilities, human resources, and administrative structure of the general secondary schools (Council for Technical Education and Vocational Training [CTEVT], 2020).

The program offers technical education to the disadvantaged and out-of-school youths within the premises of general secondary school education through sharing the physical facilities, human resources, and the management of schools. It is the cost-sharing mechanism between the government and the local community and is operated by the schools and communities (Sharma, 2012).

Regarding the CTEVT Annex program concept paper (2001), Shrestha (2013) states that it was assumed to prepare a basic level skilled workforce through vocational training by incorporating it in school curricula. Some exemplary initiatives under the Ministry of Education, Science and Technology were the multi-purpose schools in the 1960s, vocational education schemes in the 1970s, and technical school schemes in the 1980s. But vocational schools could not convey employable skills, so intensive practice-based skilled training was demanded in the national and international

labour markets. Likewise, the technical schools under the CTEVT were limited in numbers and the CTEVT affiliated private technical schools would charge high fees. Thus, the TECS program was merged with the general secondary schools was a more cost-effective skill development scheme that would address the training needs of the poor, deprived, and geographically and socially disadvantaged groups.

The study also found that the high turnover rates of technical education educators were primarily because of low remuneration. This is further made worse by a lack of infrastructure, appropriate fund management, program management, and marketing. The issue is that infrastructure even though when initiated was recent and updated would soon become obsolete as they were not upgraded (Sharma, 2013). To overcome this, an integrated human resource approach is to be adopted to motivate instructors. In addition, the examination and testing system, accreditation system, instructors' pedagogical system, monitoring, and supervision system, and professional development of the instructors are to be well organized to strengthen and sustain the TECS program.

### **Instructors' Teaching-learning Experience at TECS Schools**

Technical and Vocational Education and Training (TVET) has higher job prospects than general education. When individuals are equipped with specialized technical skills, they become more market-oriented (Kanel, 2015). There are two modalities of technical education integration in community schools in Nepal — Technical Vocational Education (TVE) in general secondary schools of grades 9 – 12. The TECS program is an 18-month Technical School Leaving Certificate (TSLC) and 3-year Diploma level. The TECS program was started in a community school in 2000 with TSLC; Diploma in Certificate levels was started from the 2012/2013 academic session. The main objective of the TECS program is to provide accessible technical education to all and to fulfil the requirement of local technical education by utilizing the physical infrastructure, human resources, and administrative structure of the community schools (CTEVT, 2020).

Technical and vocational education is likely to give real-world work experience, so it has a better opportunity of employability than that of general education. In this context, the TECS program through diverse courses are assumed to address the problems of economically, socially, and geographically backward groups. However, there are lots of issues and challenges in implementing TVET in secondary schools — old curriculum, enrolling academically weak students, lack of industry linkage, poor infrastructure and lack of teaching-learning materials, and low social recognition (Ncube & Tshabalala, 2014).

The effect of teaching experiences is reflected through their practices and beliefs. The more experience teachers have, the more they believe in constructivism; and the less they believe in direct transmission (Berger et al., 2018). The experience of the teachers and their motivation affect the teaching-learning in an institution. Technical teachers' performance in classrooms and other learning environments are influenced by factors such as their view of teaching, beliefs about the subject and the existing situation, knowledge on the subject, professional skills in management and organization, personal characteristics, teaching behaviors and situations (Mahini et. al., 2012).

The teaching-learning experience of the teachers in TECS schools could explore a wide range of

information embedded with infrastructure, teaching-learning materials, curriculum, students' competency and motivation, their career prospects, teachers' motivation, and their rapport with the administration. Their experience could help to visualize the situation of TECS schools, issues in teaching-learning, and the way forward for the smooth operation of TECS schools.

## **Statement of the Problem**

Technical Education in Community School (TECS) program tends to provide accessible technical and vocational education, so school-based technical and vocational programs are to be expanded and these subjects are prioritized in secondary schools in communities with low socioeconomic status (Ministry of Education, Science and Technology [MoEST], 2016). The TVET Act of Bagmati province (2018) emphasizes the establishment of polytechnic schools; permission for TVET programs to community, private, cooperative, and non-governmental sectors; and mobile training programs in the catchment area of technical schools. The number of TECS schools is significantly increasing — 397 in 2018/19 and 534 in 2019/20 (CTEVT, 2020). However, only aiming at increasing the number of TECS schools cannot give a reasonable outcome. A study by Al-smadi and Hussein (2018) depicts that there are academically weak students, unwillingness to enroll in TVE, lack of modern tools and equipment, high unemployment, and inferior view toward TVET education system of Jordanian society.

These scenarios quite match the Nepali TVET context. Bhattarai (2009) points out the problems such as teacher-pupil ratio, infrastructure problem, erratic payment of salaries, compulsion to teach poor and marginalized children, irregularity of the children, and illiterate parents. Adding more problems that limit teacher motivation in public technical schools in Nepal, Koirala and Dhungana (2015) portray that most trained instructors do not want to work in rural schools due to remoteness and lack of opportunities. Necessary teaching materials are not provided to them. Moreover, poverty, lack of parental education, and lack of teaching-learning environment impact students' result in exams.

On the one hand, there is a high investment of nation, schools, and students in TECS schools and contemporary market demands are to be addressed. On the other hand, TECS teachers are facing issues related to infrastructure, teaching-learning materials, curriculum, students, and own motivation. This affects the quality of TECS. As there is a lack of work-based learning, the technical education of TECS schools is unable to provide real-world experience to the graduates. Teachers' turnover is also an issue in TECS schools. A primary issue is the lack of provision for the permanent position of teachers that serves as a demotivating attribute for teachers to continue as technical educators.

These issues raised questions such as — What is the technical teachers' experience about teaching in TECS schools? How do they experience a teaching-learning environment? How do they express about the curriculum of the diploma in Civil Engineering regarding job and education prospects? What do they say about their motivation at TECS schools? How do they express the issues and challenges regarding teaching-learning? What do they suggest to overcome the issues? These queries provoked me to carry out research work on this aspect. In this respect, I looked for the research studies carried out on teachers' teaching-learning experience in public technical and vocational schools in Nepal, and these concerns were found missing in the teaching-learning of TECS schools. This study concentrated on these issues.

## **Research Purpose**

The purpose of the study was to explore the experiences of TECS instructors. The study aimed at documenting the narratives of the instructors' experiences on their teaching-learning at TECS schools.

## **Research Questions**

To explore the above-mentioned purpose, I framed the following research questions:

1. How do the instructors perceive their teaching profession at TECS schools?
2. How do the instructors experience the teaching-learning environment at TECS schools?

## **Significance of the Study**

This study portrays the experiences of the instructors regarding teaching-learning issues at TECS schools and their possible solutions related to the Diploma in Civil Engineering program. A teacher is a key person in teaching-learning, directly involved in shaping students and parents and determining the teaching-learning of the institution. The TVET policymakers can use evidence from this study to create more conducive policies in terms of student enrolment mechanism, infrastructure development, curriculum, and the instructors' facilities.

The study supports the TECS schools to identify the weak areas and may manage in such a way to motivate the teachers as well as the students toward teaching-learning activities. The study can be helpful for future research, especially in the area of the diploma in Civil Engineering program of TECS schools containing the instructors' experience in teaching-learning, their motivation, TECS schools, students, curriculum, and prospects. The study may also help the learners to explore more about TECS schools in Nepal.

## **Delimitations of the Study**

This study was delimited to the participating instructors' teaching-learning experience in the diploma in Civil Engineering at TECS schools under CTEVT. Similarly, the study was delimited to the instructors' shared experience in the teaching-learning environment, curriculum relevance, and their motivations.

## **Organization of the Study**

Chapter one begins with a brief introduction of my research journey concerning the issue that triggered my interest along with introducing the context of the TECS program and the concept of instructors' experience in teaching-learning at TECS schools. The main issue of the study is explored in the statement of the problem that is followed by research purpose; and based on the purpose, the research questions are formulated. The possible contribution of this study is encompassed in the significance of the study. The next section deals with delimitations of the study. Finally, an overview of the study is presented in the organization of the study section.

Chapter two is a review of related literature containing five sections. Starting with a thematic review,

followed by a policy review concerning Technical Education in Community Schools (TECS) program in Nepal. For theoretical referents, Lev Vygotsky's social constructivism theory was adopted. Section four elaborates the research gap of the study. The chapter concludes with the essence of Chapter two.

In Chapter three, I discuss the methodology of this study. I use narrative inquiry as a research method. Then information generating techniques with the selection of site and participants, and meaning-making process are elaborated. Finally, I present quality standards along with ethical considerations and the chapter essence.

Chapter four is about narrating the experience of TECS instructors related to teaching-learning in the diploma in Civil Engineering program. I narrate their experiences and insert their statements wherever necessary to substantiate the claims I make. Their experiences are articulated in the story form with consideration of the themes framed by the research questions.

In Chapter five, I discuss the teachers' experience in terms of infrastructure, students' prior competency, curriculum, and teachers' motivation based on the stories of the participants.

In Chapter six, I summarize the research study including its key findings. Likewise, I draw conclusions based on the discussions in earlier chapters. Finally, I conclude the chapter with the mention of possible implications that I perceived from this study.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

This chapter critically reviews the relevant literature for the research under four different sections — thematic review, policy review, theoretical referents, and the research gap. The thematic review covers definitions of teaching-learning, the Diploma in Civil Engineering of TECS schools, and the experiences of instructors in teaching-learning at TECS schools. The policy review section discusses policies related to technical school. For theoretical referent, Lev Vygotsky's social constructivism theory is discussed to address the issues raised in this research. The contextual and methodological gaps are identified in the literature in the Research Gap section.

#### **Technical Education in Community School (TECS) Program**

There are different models of technical and vocational education. Technical education in community schools (TECS) is one of the promising models catering to technical and vocational education in Nepal. Formerly known as Annex division, technical education is a collaborative program between CTEVT and the Department of Education operated in general schools. There is a provision to share the inculcated costs between the government and the local community (Sharma, 2012). Taking a reference from a concept paper of CTEVT (2001), Shrestha (2013) says that TECS programs are cost-effective skill development schemes offered in general high schools. As private technical schools affiliated with CTEVT are expensive, TECS programs are practical alternatives accessible to the poor and the marginalized at the grassroots level. There are two levels of programs — an eighteen-month Technical School Leaving Certificate (TSLC) and a three-year diploma. TSLC is for Secondary Education Examination (SEE), previously named as School Leaving Certificate (SLC), passed and failed students, and diploma is for SEE/SLC passed students with specific grades in particular subjects as per the course.

However, contrary to assumptions, stating World Bank (2007) report of Bangladesh, Agrawal (2013) presents that financing of Vocational Education and Training (VET) is very high — the unit cost of VET is three times higher than that of general higher education. The government has to focus on improving the efficiency of the system rather than expansion, and a clear policy statement for the VET sector needs to be the government's immediate priority. Likewise, talking to VET of India, Agrawal (2013) portrays through the World Bank (2008) report that, though the unemployment rate of VET graduates is higher, the rate is lower than that of general secondary graduates, and the average daily wages of VET graduates both in regular and casual workers are also higher than that of general secondary graduates. The capacity in the VET programs is 3.1 million students per year, and the government of India has set a target of up-skilling 500 million people by 2022. Community-based TVET institutions have a major role in up-skilling people.

As discussed in the above-paragraph, the studies show that, despite the costs of technical education being higher than general education, the return on investment is higher. To spread access to technical and vocational education, policies of the government need to prioritize TVET sectors. There are a variety of



TVET education models across the world that include either exclusive vocational schools or diversified secondary schools with general academic and vocational courses.

The overall performance of the TECS program in Nepal is satisfactory in the initial phase. Only students' fees and grants from CTEVT are major income sources. Infrastructure and teaching-learning materials are to be improved at the pace of time and requirements. It is necessary to develop a strong quality assurance system with significant improvement in examination and testing system, accreditation system, instructor/trainer's system, monitoring and supervision system and, curriculum and teaching-learning material development.

In a case study on instructors' motivation in technical schools, Koirala and Dhungana (2015) found that the instructors believed that their salaries were not enough to support their families. Additionally, part-time instructors were further dissatisfied and demotivated due to the lack of adequate financial incentives. Moreover, teachers working in rural settings were more dissatisfied than the urban ones. Part of reason was that teachers did not want to work in rural technical schools because of the remoteness, and lack of other growth opportunities. This was further exasperated by an inadequate supply of teaching materials and laboratory facilities. The working condition was further made difficult because of political interference and general strikes. While students learning and exam performance were influenced by poverty, lack of parental education, and inappropriate teaching-learning conditions. The study gave me insights to embed the various influencing factors in technical institutions that helped me explore the issues in TECS schools.

Drawing from the above discussion, I state that the TECS programs are most fitting for the Nepali context, however, it needs to be strengthened and tailored with relevant infrastructure, market-based curricula, competent teachers and students, systematic examination mechanism, and contemporary teaching-learning materials with the pace of time.

## **Defining Teaching-learning in Technical Schools**

Teaching-learning refers to the academic activities of educational institutions. Stating teaching and learning in two dimensions, Sequeira (2012) mentions that learning is a relatively permanent change: the change through developing a new skill, understanding a scientific law, and changing an attitude. And teaching is a set of events designed to support the internal process of learning. The role of a successful teacher, as Fallows (2003) describes, is the need to develop the graduates' portfolio of high-level skills that are not only useful in higher education but are also transferable beyond the restraints of the academic world. These skills are to be developed through the variety of activities that the students undertake whilst in higher education.

The literature clarifies teaching-learning as educational activities of teachers and the students to prepare the graduates with a high level of knowledge, skills, and attitude for higher education as well as for the world of work. Vocational teaching-learning can be regarded as a process and product. It is a process by gaining employability skills and knowledge, and product by relating it to the acquisition of job competencies (Sarikaya & Yildirim, 2019; Wilson & Peterson, 2006). Teaching-learning of the diploma in Civil Engineering at TECS School also aims at preparing the graduates with knowledge and skills for employability as well as further education. Talking about the teaching-learning environment, Guney

and Ali (2012) include the pedagogical philosophy, curriculum design, social climate, and physical environment.

Similarly, Sarikaya and Yildirim (2019) through their qualitative study in Turkey explored the recommendations on five main themes for improving higher vocational education. These include student-centered recommendations, teacher-centered recommendations, curricular recommendations, contextual recommendations, and policy recommendations. The participants' perceptions and experiences showed that teaching and learning at higher vocational schools were affected by teachers' prior knowledge, industry experience and currency, teacher skills, personal traits, and professional development. Likewise, students' learning orientation, prior learning experiences, learning approach, and personal traits are influencing factors. Besides these, regarding educational context, resources, administration, school environment, relations with employers and community, and the curriculum and its responsiveness also affected the teaching and learning. Among all, the participants respond with high regard toward the national education system, educational policies concerning vocational education, and local and institutional-level administration.

Though this study encompasses the perceptions of teachers, students, and administrators, nevertheless, the recommendations based on the findings provide various influential factors of teaching-learning at technical schools that included administration, curriculum, teachers, students, employment, and policies.

From the discussion so far, I argue that teaching-learning of the technical and vocational subject is affected by infrastructure, teaching-learning materials such as lab, library, tools and equipment, curriculum, students' competency, result, and the teachers' motivation. Teaching-learning of technical school is concerned with employability skills and knowledge for the world of work as well as for further education.

### **Instructors' Experience in Teaching-learning at Technical Schools**

Based on a narrative study on vocational teachers' experience, Kopsen (2014) finds that vocational teachers need to have their own vocational experience and competence. It is perceived that vocational teachers would highlight the teaching of practical skill; however, they highlight the multidimensional aspect of teaching-learning — the structural and relational conditions and the challenges of fostering teenagers with different social practices. The students' lack of interest and engagement in teaching-learning are major challenging aspects of vocational teaching. So, the teachers tend to agree more with constructivist beliefs than with direct transmission of belief. They thought that promoting the intrinsic motivation of their students is more relevant than promoting extrinsic motivation.

The study shows that technical and vocational teachers of TVET schools need to be experienced and competent. The vocational teachers not only should have practical skills but also have experiences of engaging teenage students who come from a variety of backgrounds in the teaching-learning practices. Hence, they must be equipped to manage classrooms with a variety of tools. Therefore, it becomes essential for teachers to embrace a constructivist teaching approach.

Ncube and Tshabalala (2014), through their quantitative study in rural Zimbabwe in rural secondary

schools, showed that the teachers had a positive attitude toward the TVET program. However, most of the students and parents had negative attitudes toward it. Most of the students preferred the academic stream to the vocational program. There was a deficit of trained technical teachers as those who belonged to the faculty of arts had to teach these programs. This made it difficult to link students with industries. There was also a scarcity of financial resources to implement TVET programs. The situation was made even difficult as there were inadequate tools and equipment along with appropriate rooms to properly teach students.

The study highlights multiple challenges faced by the teachers while implementing TVET programs in secondary schools. The program is quite similar to technical education in secondary schools for grades 9 – 12 in Nepal. The study provides insights into my research. Specifically, it assists in developing an interview guideline.

Talking about the experience of the instructors in teaching-learning on Engineering Drawing in Nigeria, Diraso et al. (2013) found that performance was affected as there were inadequate numbers of drawing instruments and drawing studios. Moreover, the classes were overcrowded and the background of the students was an issue. Concerning franchising skills (2007), Chauhan (2017) states that skill programs of TVET are largely supply-driven and the curriculum fails to satisfy employers or self-employment needs of the students. Consequently, the employment rate of TVET school graduates is not satisfactory. Referring to Kusago and Posner (2007), Chauhan (2017) adds that such TVET schools do not have decent learning environments, and there are no appropriate physical facilities and teaching-learning materials to meet the demands of the job market. And most of the technical teachers also argue that there is a lack of leadership training opportunities. Emphasizing teachers' motivation, Chauhan (2017) claims that, if leaders and faculty members are dissatisfied with their leadership style and with their job, they are likely to quit their job, or start being absent, or become overstressed. Ultimately, it leads to a poor organizational result.

From the above discussion, I assert that technical and vocational teachers experience a lack of appropriate physical facilities, a poor background of the students, a supply-driven curriculum, and a lack of leadership opportunities. These challenges result in skill mismatch, teachers' dissatisfaction, and poor performance which ultimately lead to poor academic and organizational results. The technical and vocational teachers experience lots of challenges in teaching-learning in TVET schools.

## **Policy Review**

Regarding technical and vocational aspects of secondary schools, the Ministry of Education, Science and Technology (2016) states objectives and strategies: a provision for options and accredited learning pathways between technical and general secondary education; a comprehensive support scheme for such schools and support packages for underachieving schools; expansion of school-based technical and vocational programs; and prioritizing these subjects in secondary schools in communities with low socioeconomic status. The TVET Policy (2012) highlights the importance of TECS schools stating — TECS program and Vocational Training Centers are to be established in each election area; improving framework of technical education, vocational training programs are also to be conducted through TECS schools; and socially and economically deprived interested citizens are to be provided scholarships, discounts, and convenient loan facilities for their access and participation.

This policy document focuses on the need for strengthening technical and vocational education through the secondary school level; a school-based TVET program is appropriate, hence, community schools are to be empowered by collaborating with local and national private sector organizations to include students with lower socioeconomic status.

The National Education Policy (2019) addresses TVET education. This includes establishing at least one research center for TVET development in each province; gradually manage free and convenient loan facilities for TVET students; creating appropriate conditions for an apprenticeship, internship, and on-the-job training with a partnership with employing organizations; teaching license system for TVET instructors; and development of the national standard for face-to-face, and online teaching and training in TVET programs. The education policy addresses more access to the citizens to TVET regardless of socioeconomic and geographic status through different approaches of TVET instruction experienced in the national and international education system.

The TVET Act of Bagmati province (2018) also enumerates quite similar TVET education policy as — the establishment of training and research centers; establishment of polytechnic schools; permission for TVET programs to community, private, cooperative, and non-governmental sectors; management of instructors, training package and training centers to run temporary and mobile training programs in the catchment area of a technical school, and standardization in teaching and training license, pedagogy, curriculum, and skill testing. The TVET act has formulated systematic considerations for TVET development in Bagmati province addressing the education act and the TVET policy (2012). There are lots of provisions for TVET development including the concept of polytechnic schools, research centers, mobile training centers; the flexibility to open TVET institutes for cooperatives and private sectors; and standardization in the aspects of TVET teaching and learning.

Addressing the TECS program, the CTEVT Strategic Plan (2014 - 2018) also focuses on the initiation of TECS schools in all election constituent areas; the fund is to be managed to conduct vocational training in TECS; regional offices are to be activated for running TECS programs, supervision, and monitoring of examination to TECS program; and communication system in the result of TECS program is to be developed through 2018. The strategic plan articulates the role of TECS schools to be developed through regional offices. Though TECS schools could not reach all election areas as per the plan, nevertheless, the numbers of TECS schools rose to 534 till the fiscal year 2019/2020 from 397 the last year (CTEVT, 2020). TECS schools, especially, focus on access to all in TVET education regardless of caste, ethnicity, gender, geography, and economic status through a systematic mechanism for sustainable development of TECS schools.

## **Theoretical Referents**

The study on the instructors' experience in teaching-learning at TECS schools is concerned with structural and constructive knowledge, skills, and attitudes; hence Lev Vygotsky's social constructivism theory was adopted. According to Vygotsky (1978), attention is to be the first function in the psychological structure underlying the use of tools. The ability or inability to direct one's attention is a crucially determinant factor for the success or failure of any practical operation. The practical intelligence of children is different as they are capable of reconstructing their perception. Children can

master their attention through an indicative function of words and can create new structural centers in the perceived situation.

In the premises of teaching-learning, Vygotsky (1978) through three major theoretical positions makes a case for learning. The first school of thought assumes that child development is independent of learning; development is a prerequisite for learning. If a child is not mentally matured and prepared, no instruction will be useful. Likewise, the second theoretical assumption views learning as development; development as the mastery of conditioned reflexes; the learning process is completely blended with the process of development. And the third theoretical position is simply the combination of learning and development. On the one hand, maturity depends on the development of the nervous system; on the other hand, learning is itself a developmental process. Teachers can construct knowledge, skills, and attitudes through social interaction within schools, project works, and professional development activities.

The theory emphasizes the importance of learners' maturation and readiness for the learning process. Until and unless students are capable of attaining content, self-motivated, and interested in the course, teaching-learning of classroom or fieldwork will not be effective. Likewise, teachers are also to be motivated and ready for instruction. It helps me to explore teachers' experience, especially in students' competency and motivation as well as instructors' motivation toward teaching-learning activities. From Vygotsky's point of view, social interaction through participation in joint activities and internalization of collective working provides learners with the intellectual development of the culture and the world, if they get a more skilled peer or adult (Bozkurs, 2017 as cited in Rogoff, 1999). Stating a similar view, Fosnot and Perry (1996) mention that learning requires learners' self-organization and invention, whereas teachers need to allow learners to generate their hypotheses and models as possibilities to reinforce their learning. Constructivism is a learning theory, not a description of teaching. Newly constructed beliefs can be actualized in practice when graduates get their first job; mentor program needs to be in place throughout the first year of teaching; with faculty visiting, supporting graduates, collaboratively teaching, and helping them to put into practice strategies from their newly constructed beliefs about teaching and learning.

The Zone of Proximal Development (ZPD) is also Vygotsky's contribution to learning under social constructivism theory. ZPD is a certain developmental zone that can be achieved with the considerable assistance of experienced persons. The students have a certain capacity of learning at the beginning, and they cannot reach beyond ZPD in a period (Wass & Golding, 2014). Similarly, teachers also achieve the zone through good rapport building, professional development courses, and the assistance of experienced senior staff.

Teaching-learning of Diploma in Civil Engineering can be effective through participatory interaction between an experienced teacher and competent students; a student can learn from their peers, teachers, and environment. Teachers can also construct new knowledge and experience in the course of interaction. With the assistance of the instructors, students can construct new knowledge and skills, whereas, with the assistance of seniors and colleagues, teachers can develop their profession. This is why Vygotsky's social constructivism has been adopted as an appropriate theory for this research.

## **Research Gap**

The study by Shrestha (2013) on TECS School states that it is a viable program that addresses poor, deprived, and geographically disadvantaged communities. The report of the World Bank in Bangladesh and India highlights the importance of technical and vocational education and training with the collaboration of the government. Chauhan (2017) and Diraso et al. (2013) portray the vocational instructors' experience in teaching-learning, their identity, motivation, and challenging TVET implementation in secondary schools in some national and international practices. The studies present the vocational teachers' experience of higher secondary schools, vocational schools, and training centers. I could not find any research on technical teachers' experience in general community schools where formal TVET programs are integrated like TECS program in the Nepali context.

Ncube and Tshabalala (2014) adopt a quantitative survey method; Koirala and Dhungana (2015) apply a case study, and Sarikaya and Yildirim (2019) conduct a semi-structured interview and non-participant observation to express teachers' experience in technical education. I could not find a narrative inquiry approach. And these studies are found scattered in overall challenges faced by vocational teachers, however, my study is specific to identify the TECS instructors' experience in teaching-learning. So, as a research gap, this study narrates the instructors' teaching-learning experience in Diploma in Civil Engineering at community schools in the Nepali context where TECS programs are being run.

## **Chapter Essence**

In this chapter, I presented thematic and policy review, theoretical referent, and research gap. Under thematic review, I reviewed teachers' experience in teaching-learning at technical schools, Technical Education in Community School (TECS) program, and defining teaching-learning in technical schools. I reviewed some policies related to technical and vocational education in Nepali schools. I incorporated Lev Vygotsky's social constructivism theory as a theoretical referent that focuses on learning through interaction in a social setting. Finally, I discussed the research gap to acknowledge how my research was different from that of others.

## CHAPTER III

### RESEARCH METHODOLOGY

This chapter discusses the research methodology of the study. Starting with the meaning and importance of narrative inquiry as a research method, I discuss the procedures used for information generation. Selection of site and participants for research provides a glimpse of research location and participants. I also outline the process of analysis and meaning-making that I adopted for this research. The chapter ends with a discussion on quality standards and ethical considerations that I followed for this research.

#### **Narrative Inquiry as a Research Method**

Narrative inquiry is a method of study that starts with the experiences of individuals as they express. It is a process of reporting the experiences of individual research participants in chronologically ordering the meaning of those experiences (Creswell, 2007). A narrative is understood as a spoken or written text giving an account of an event/action or series of events/actions, chronologically connected (Czarniawska, 2004).

I also understand narrative inquiry is a method of expressing participants' shared experiences in chronological order. As a researcher, I narrated the participants' stories and experiences exactly as they told me making my research interesting. I adopted narrative inquiry for my research to reflect the stories of my participants, i.e. instructors' experience about teaching-learning in diploma in Civil Engineering at TECS schools.

According to Dwyer and Emerald (2017), different approaches are described as making use of narrative methods. Stories can be fully formed by the participants, and then analyzed by the researcher, or in the form of snippets of data that are narrated by the researcher. The inquiry may either focus on the experiences of the individual or illuminate larger-scale social narratives. I narrated their stories whatever they shared with me. And my inquiry focused on highlighting both individual and social narratives — from the technical teachers' self-perspectives on their motivation to teaching-learning dimensions such as students, curriculum, career prospects, and the TECS schools.

Exploring teachers' perceptions regarding their professional development experience, Nugent (2007) mentions that the narrative inquiry approach in the research reveals the participants' voices uncovered through their oral accounts of their professional development experiences. In line with Nugent (2007), my research is also based on documenting the teachers' voice on their experience on teaching-learning. Hence, narrative inquiry as my research method helped me bring the experiences and the stories of my participants.

#### **Information Generating Techniques**

In this research study, I used mainly interviews and field notes as information generating techniques. I generated the required information i.e., the stories of personal experience through interviews or

conversations, retelling the stories based on narrative elements, and rewriting their stories into a chronological sequence, and incorporating the participants' settings (Creswell, 2007). To meet the purpose of the study, interviews, and field notes were adopted as information generating techniques.

## **Interview**

In my research, I used the semi-structured interview technique as the information and knowledge-generating technique. "One of the most common ways of generating qualitative data is through interviews" (Dwyer & Emerald, 2017, p. 12). It helped me understand the experience of technical instructors in teaching-learning at TECS schools by talking casually and interacting with them.

I prepared interview guidelines, especially focusing on the research purpose and the research questions. I formulated the themes for the interview with the support of my dissertation supervisor. I provided my research details to my participants to make them feel free in an informal setting. The interviews took place where they felt comfortable and at their convenient time. I used my mobile phone to record audio of the whole interview with their consent. All I did was for their comfort and convenience, protection of their privacy, and confidentiality.

## **Field Note**

Field note is also an information generating technique that I used. It helped me note down important information that triggered new ideas from the conversation during the interview. It does not mean that I noted down the whole interview, but I superficially wrote down some points which I felt important.

## **Site Selection**

I chose the Kathmandu valley as my research site. I selected two specific community schools where the TECS program was integrated and offered a diploma in Civil Engineering. And one school had a separate infrastructure for the TECS program and another school had been conducted inside the general school premises. I selected these research sites to explore the different technical teachers' teaching-learning experiences in different settings.

## **Participants Selection**

The participants for this research were the instructors of the Diploma in Civil Engineering program in TECS schools. One of the participants, Ramesh, is a civil engineer who owns a consultancy in Lalitpur. He has been teaching Building Construction and Estimating Costing for the Diploma in Civil Engineering in Suryodaya Secondary School for four years. Another participant, Suwas, is also a civil engineer, working in a consultancy in Lalitpur. He has been teaching Applied Mechanics, Theory of Structure, Structure Design and Irrigation Engineering for a Diploma in Civil Engineering for two years at the same school. Similarly, the third participant was Hari, who has been teaching Material and Workshop in both TSLC and Diploma in Civil Engineering; Road and Bridge for TSLC and AutoCAD (Computer-Aided Design) for Diploma in Civil Engineering in Chandramukhi Secondary School for four years. My fourth participant was Dipika, a Master in Structure Engineering, who



previously worked in the engineering drawing field, and now only teaching in Chandramukhi Secondary School. She has been teaching Basic Hydraulics and Irrigation for a Diploma in Civil Engineering; and Water Supply Engineering and Surveying for TSLC for three years.

I selected four instructors of Diploma in Civil Engineering from two TECS schools purposively. I maintained inclusiveness regarding gender and geography. One of my research participants was a woman and one was from out of the Kathmandu Valley. I stated the purpose of my research and asked for their consent. I met the participants frequently and interviewed them at their convenient time and place. They preferred to be interviewed at their schools and their consultant offices in some cases. I used pseudo-names for all the participants and their TECS schools. Through the series of interview sessions and fieldnotes, I explored the teaching-learning experiences of instructors in different settings.

### **Meaning Making Process**

The narrative study is not said or written straightforward; it is a conversation between people that is a process of the ongoing negotiation of meaning with exploring different contemporary forms of the field (Squire et al., 2008). The researcher conducted in-depth interviews and later recounted the stories, centering the stories around a theme, connecting meanings among interviewees' responses, and linking the stories to a common meaning (Creswell, 1997). To generate coherent meaning, I transcribed the audio recordings shared by the technical instructors. Then I read and re-read the transcriptions to locate patterns of their experience in teaching-learning at TECS schools. After that, I could develop the themes to illuminate their meaning based on the research questions as informed by the literature review.

Highlighting the meaning into a narrative study, Jovchelovitch and Bauer (2000) state that narrative is not only the chronological sequence of events that are unfolded by the storyteller but also has a non-chronological dimension. When events are integrated into a story, they allow for the meaning-production operation of the plot. The plot gives coherence and meaning to the narrative, and the context of the events, actors, descriptions, morals, and relationships usually in a form of a story. From the interviews of technical instructors regarding their experience in teaching-learning at TECS schools, I analyzed their narratives in non-chronological dimensions of the events to portray coherence and meaning to the narratives and the context of the TECS schools, students and instructors related aspects, curriculum, and career aspects, issues and challenges, and ways forward to sustain the diploma in Civil Engineering program in TECS schools through the technical instructors' perspectives.

### **Quality Standards**

Quality standards are to be maintained by the researchers to assure the needed quality of the study. The study holds on the interpretive paradigm that deals with different aspects of truth, and it tries to seek the understanding and meaning-making of the participants and situations, where the subjectivity of the researcher is also largely accounted for. For that, different methods are considered to judge the quality standards of qualitative research. I followed the principles of trustworthiness, and credibility to maintain the quality standards of this research study.

Stating trustworthiness as an exhaustive search for evidence and contrary evidence, transparently using research procedures, Yin (2015) explains a sense of trustworthiness about research study depends on explicitly and methodically selection of study topic, study site, participants, and specification of data collection approach. To gain trustworthiness in my research study, I met the technical instructors in their TECS schools and consultancies. The repeated interaction with the participants and storytelling through informal conversation and semi-structured interviews helped me draw a rich description of their teaching-learning experiences in Diploma in Civil Engineering at TECS schools.

The trustworthiness of findings is reflected in the representation with many feasible perceptions reconstructed from the data as indicated by credibility. “A credible study provides assurance that the researcher properly collected and interpreted the data so that the findings and conclusions accurately reflect and represent the world that was studied” (Yin, 2015, p. 85). As a researcher, I checked whether I had complete information or not. For credibility, I visited the schools and their consultancies two times each. I gave the constructed stories to the participants for verification. I also quoted their voices directly to ensure credibility.

## **Ethical Considerations**

I understand the importance of ethical consideration in academic research when it is carried out in the real world of the participants. “The essence of the ethical conundrum in narrative research derives from the fact that the narrative researcher is in a dual role—in an intimate relationship with the participants and a professionally responsible role in the scholarly community” (Josselson, 2007, p. 538). Therefore, while documenting the technical teachers’ teaching-learning experience in Diploma in Civil Engineering at TECS schools, I was fully aware of the standard principles of ethical considerations in line with the ethical guidelines of the School of Education, Kathmandu University.

As this study involved the technical instructors in sharing their experiences associated with teaching-learning in Diploma in Civil Engineering at TECS schools, at first, I sought consent from the TECS schools and the instructors with the help of the letters from the School of Education, Kathmandu University. Secondly, I provided enough information regarding my research purpose so that they could decide whether they would participate in the research. As Josselson (2007) states that a good narrative practice requires intense collaboration with the participants about the topic so that participants can inform about their life or experience that matches the researcher’s interest. Informing my research participants about the purpose and objectives of my research and their agreement to be the participants in this research was crucial for me to establish a favourable rapport and interaction for the series of interview sessions.

To ensure that participants were unharmed both physically and mentally during as well as after the research, I built a good rapport with them that facilitated them to share their experiences comfortably and smoothly. Since narrative research is concerned with human emotions, I empathically listened to their stories without being judgmental. I was concerned and emotionally responsible to espouse the principle of no harm and risk.

Before collecting the information through interviews and field notes using audio recording, my participants were assured that their information would be highly valued and confidential. I maintained

the privacy of their information throughout the research. In the case of this research, the sharing of my participants' experiences incorporated various personal, sensitive and implicit ideas. Disclosing such information could affect participants' identity, schools' prestige and environment, and their professional career. Thus, I assigned participants and schools with pseudo names and their schools to maintain their privacy, confidentiality, and anonymity. Similarly, the information or any materials related to the participants, their schools, consultancies, and transcribed audio recordings and field notes have been kept safely to preserve their right to confidentiality.

## **Chapter Essence**

In this chapter, I discussed the methodology adopted in this research. It commenced with the narrative inquiry as to my research method. In-depth interviews of the technical instructors were the primary way to draw information from the participants. The selection of research site and participants, crafting meaning out of participants' narratives, and the quality standards adopted along with the ethical considerations were discussed in this chapter.

## CHAPTER IV

# NARRATING INSTRUCTORS' TEACHING-LEARNING EXPERIENCE

In this chapter, I analyze and discuss the narratives of the instructors' experience in teaching-learning at TECS schools in line with the theoretical construct developed in Chapter two. I narrate their stories of experiences they shared during the interview sessions. I integrate their experiences into a coherent meta- of the story of instructors' experience about teaching-learning in TECS incorporating the actual words of the participants to give them authentic voices about their experiences.

### Stories of Participating Instructors

In this section, I narrate the stories of four of my research participants concerning my research.

#### Story of Ramesh

I met Ramesh through a friend at their TECS School after their classes. The friend informed him about the research that I was carrying out. Before the formal interview, we three talked for a while. He expressed his interest to study MTVET. I gave some information about the program and that helped break the ice instantly. After an informal conversation for about five minutes, our friend left the room. I asked his permission to record the interview sessions and taking short notes. We had an interview for about half an hour. During the interview, he talked on mobile two times and told me that he had to leave early. He left for an emergency with a promise to meet again.

I showed the transcripts of the interview sessions of Ramesh to my dissertation supervisor. I was told to dig more into participants' stories for the empirical evidence-based scenario. After few days, I made a call to Ramesh and arranged for a meeting for an interview session. He called me to his consultancy office at Satdobato, Lalitpur. We had an additional interview for about ten minutes. Ramesh has been teaching for a diploma in Civil Engineering at Suryodaya Secondary School since its establishment. He is also a civil engineer and runs a consultancy firm with two other engineers.

Ramesh was a student of Diploma in Civil Engineering in 2000 and he completed his Bachelor in Civil Engineering. He lives near Suryodaya Secondary School. In 2015, his certificate was submitted for getting approval to establish a Diploma in Civil Engineering in the school. Since then, he has been teaching Engineering. He was teaching the course on Building Construction and Estimating Costing. He enjoyed teaching and regards it as an avenue of knowledge because he found a theoretical base for his practical works in the engineering field. He expressed:

*Regarding personal practice, we engineers have only gone through the practical experience without much theoretical knowledge, so, we have forgotten many things. Now, the contents have been updated and new things could also be learned because we need to study before teaching. That has technically benefitted me.*  
(Field note, January 30, 2020)

Teaching made him laborious and updated. Since the TECS School was near his home, he could utilize his morning time there. TECS stream was in a separate building from the general stream of Suryodaya Secondary School. The infrastructure of TECS School is around 500 meters different from the general school. Ramesh felt that the teaching job in the TECS School was secure and interesting.

Ramesh's community school had separate provisions and infrastructure for both the TECS program and general education. While we started talking about teaching-learning materials, he acknowledged the difficulties in managing teaching-learning materials, lab and equipment in the starting phase, but he added that lots of things were now provided. In a question about what particular things were added, he specified the increased teaching-learning materials, labs, tools and equipment with confidence and pride:

*We have a computer each. For bricklaying, plumbing, carpentry, group work there is a set for two/three students. In this way, there are enough tools and materials in every lab for practical work in all semesters. The library condition is good; there are sufficient books for all subjects and all students. We have added mainly slump test machine, total station and theodolite. Teaching materials, lab and equipment are sufficient, so I'm satisfied here.* (Field note, March 15, 2020)

His statement indicated the school management was supportive. His experience in the teaching-learning environment was quite positive. The school had general and technical streams, but Ramesh said he did not have to connect with general teachers so he did not feel different behavior from the school management between technical and general teachers. He was satisfied with the behavior and supportive nature of the school management.

He regarded the students' enrolment trend good because many students wanted to be enrolled for the program last year even after fulfilling the quota. But, the long absenteeism of the students made him upset. He blamed some students who came to study on their parents' force. Recalling the past, he exemplified one of the reasons for a long absentee, "Some students from Dolpa remain absent for a long time during Yarsagumba (Cordyceps) season." The students from out of the Kathmandu Valley remained absent for a long time. To tackle the problem, he revealed that the school sent marks as per attendance and those who remained long absent were getting NQ (Not Qualified) too. He further expressed that the students had to focus on studies; practical time and resources had to be added to motivate them. In the meantime, he claimed that students were more motivated in technical subjects than general subjects. He found them maximally motivated when new technical things and materials were used and applied. To motivate the students toward teaching-learning, he showed the bright future of technical subjects nationally and internationally.

While we were talking about academic result, Ramesh seemed to be excited and stated with pride:

*This year we secured the 3<sup>rd</sup> position in the 6<sup>th</sup> semester all over Nepal. Twenty-five students out of forty-seven passed last year. Our result is good; we are continuously securing top ten positions among CTEVT affiliated schools. The regular pass trend is around fifty percent.* (Field note, January 30, 2020)

Having the school near his home and being schooling time in the morning he was very happy teaching there. Moreover, teaching for Diploma in Civil Engineering was helping in his professional career as well. Enrolment and result trends were good, and the students were motivated toward teaching-

learning. Only long absenteeism of some students was a problem for him. The school management was supportive and there was a good rapport in school. Ramesh was satisfied at school and experienced a good teaching-learning environment.

Ramesh regarded Diploma in Civil Engineering program as a gateway to B.E. Being a practical-based education, he stated it was different from other sectors and instructors had to be assigned as per their specialization subject, experience, interest and capacity. Talking about the curriculum of the program, he expressed strong dissatisfaction; making a metaphorical example, he argued:

*I studied the same contents twenty years ago. It's not fair teaching 'Hallo' (plowing cart with oxen) at the time of tractor generation. Hallo is no more in use now. Let's talk about Survey, we have to study a Chain Survey that is no more in practice. In building construction, we still have to study like Esbester roof sheet, plaster, perish which have been currently out of use. There is a difference between what the students are studying and what is in the market. They study one thing, but modern technologies would have been available in the market, those aspects are not in the existing curriculum.* (Field note, January 30, 2020)

He found a gap that the modern trend of the labour market was missing in the curriculum which means the students' learning and real demand of labour market were different. But on the other hand, he gave a self-example that he could be a civil engineer and instructor after studying Diploma in Civil Engineering program. Though he did not have exact data, he claimed that approximately fifty percent of graduates got jobs and among other graduates, some were doing interns, some were in preparation for the public service commission and B.E. It showed the program had high prospects in terms of jobs in different fields and further education.

To make the program effective in all the TECS schools, he strongly stated that the curriculum had to be updated to meet the market demands. Tools and equipment had to be sufficient; CTEVT had to monitor well as he felt difficulty getting instructors in Kathmandu and showed sympathy to the TECS schools in the village. He believed that the students had to be motivated toward teaching-learning. In a question about how he motivated, he replied interestingly:

*Mainly, I tell them that the future is good. As we are students of science and technology; we will get jobs soon; the income will be good. You will get better jobs, better income and better output in comparison to your expenditure. There is a good opportunity in Nepal and foreign countries.* (Field note, March 15, 2020)

Though the curriculum is outdated as stated by Ramesh, Diploma in Civil Engineering program has good prospects in terms of jobs in the national and international market. It is a gateway to B.E. and further education. By maintaining a good system of monitoring and infrastructure development, updating curriculum, managing competent instructors, and motivating students, the Diploma in Civil Engineering program of TECS schools could be improved more so that the program could attract the local students of the Kathmandu Valley too.

## Story of Suwas

Suwas, whose permanent residence was outside the Kathmandu Valley and currently living at Sinamangal, was an instructor of Suryodaya Secondary School. One of my friends approached Mr. Suwas as he was living near my residence. I thought I would meet him around our common area but he informed me that he was too busy and usually went out early in the morning and came back late in the evening. He called me to his consultancy office at Kupandol, Lalitpur. When I reached there, he was drawing a map on a computer. It was a huge consultancy office and all the rooms were filled with people. After waiting for ten minutes, he gave instructions to his two assistants and paid attention to me. He thought he would have to fill a questionnaire. When I said we had to have an interview and we needed a separate room for that. He took me to the kitchen; at that time no one was there. He was also interested in joining MTVET, so, we started our talk with that. Then he said he had to go out soon so I took his permission to record the interview and took a short note. Initially, he seemed in a hurry and tried to give very short answers but later on, along with my questions he also went deeper. We had an in-depth interview for half an hour and agreed to talk again in case of necessity.

Suwas had a Diploma in Civil Engineering and then completed his B.E. He started the teaching profession in Suryodaya Secondary School two years ago. He has been teaching Applied Mechanics, Theory of Structure, Structure Design and Irrigation Engineering. He said he was only doing part-time as an instructor. Regarding the advantages of teaching engineering, as a civil engineering practitioner he stated:

*Teaching is my part-time job and it's quite relevant to my profession. There are many benefits of teaching. In B.E. as per seven subjects in a semester, we studied around fifty-six subjects in four years. Everything could not be understood, we could only remember little things and we almost forgot them. Now, many contents are being recalled due to teaching.* (Field note, March 15, 2020)

Suwas also took teaching as an avenue of knowledge and experience. Teaching could help in his engineering profession. He also revealed that he was offered to teach engineering in another school. If time was managed, he would join there too. So, he seemed happy with the teaching profession at TECS School. However, he did not take only teaching as a secured job. Giving the scenario of remote villages, he said experienced engineers would not go there even he would not go because there would not be other opportunities except teaching. Since he was a part-time instructor, he did not take care of whether there were different behavior and facilities between general subject teachers and technical instructors. He was happy with his teaching profession at the TECS School in the condition.

For him, teaching in the TECS School was interesting because his community school had separate infrastructure for Diploma in Civil Engineering program, it was like a real technical college. From Suwas' point of view, technical education is quite different from general education. To show the reason, he emphasized here with an example:

*In Arts and Commerce, teachers come to class; give a one-way lecture with notes and go. But in my class, I never give notes, they are practical. There are numerical exercises, without doing them; it's no use in this stream. Due to a technical subject, I think there is less disturbance than in other subjects.* (Field note, March 15, 2020)

He noted that some students enrolled in the program because of family connections rather than on merit. This had become normal. He blamed the entrance system of CTEVT for the enrolment of weak students. He stated, “Entrance means only written test based on SLC/SEE, at that time they passed the entrance, there was no interview.” That’s why the result was not up to his expectations, some students failed in some subjects, however, he expressed pride that the result in his subjects was good and overall result of his school was better than that of other schools.

Suwas revealed there were lots of technical schools in the eastern part of Nepal, so he found most of the students were from the western part of Nepal. Nevertheless, he stated that the students got long vacations after each board exam and during Dashain and Tihar festivals, so, he did not notice absenteeism and dropout problem there. The only problem for him was those arrogant students. They could not be motivated, and he stated motivating them to academic activities was beyond his ability. In the case of interested students, he assisted them in whatever way possible. Even after his effort if some students did not understand, that was their weakness.

Initially, there was a science lab only. As per Suwas, science lab materials were cheaper than the materials required for an engineering lab. Gradually, the school was able to manage other tools and equipment like survey and structure-related tools and equipment which would cost five to seven lakhs. Regarding other instructors, he was satisfied that all labs were complete. The school management was supportive and procured whatever he demanded; those requirements were fulfilled. He took students a couple of times to a building =construction site when all the materials were used. Regarding field visits, he mentioned his regular visit to irrigation project for the sixth semester:

*There are only a few irrigation projects in Nepal. I take students to Sarlahi. Besides Sarlahi, there’s Sikta Irrigation Project. There are Koshi canal and Bagmati Irrigation Project too but all the components of the irrigation project were not there. All the components of irrigation are available in Sarlahi Project. I was teaching irrigation and it was an irrigation project.* (Field note, March 15, 2020)

He found a good teaching-learning environment there. Field visits, lab works, books, tools and equipment were sufficient. Since he was a part-time instructor, he did not pay attention so he did not find any weakness in the teaching-learning environment at school. He was doing a part-time job in the TECS School and someone proposed to him another job in teaching but he did not want to leave Suryodaya Secondary School. He said he was comfortable and motivated with the behavior of school management and other colleagues. He was found positive toward the teaching-learning environment of the school.

From Suwas’ point of view, the curriculum of the Diploma in Civil Engineering was fair in the context of the time frame. Diploma in Civil Engineering students would study the same course in B.E. Civil Engineering though the course for B. E. was a bit more detailed. Comparing to a four-year B.E., he found inadequate time in Diploma in Civil Engineering because the first-year course was of I. Sc. (Intermediate in Science), Engineering was taught for two years and it was not possible to complete the whole curriculum in detail. He also emphasized that diploma courses could produce sub-engineers who could do supervising work rather than designing. Regarding the difficulty of curriculum, he thought it would depend on the subject teachers. He also argued that the existing curriculum was not enough and there should be some improvements. He said it would be difficult to



complete the curriculum in three years if other contents were added. He genuinely replied, “I haven’t seen the whole curriculum, I can say only about my curriculum, and I am satisfied with the existing curriculum of my subjects”.

The existing curriculum of Diploma in Civil Engineering could produce a middle-level workforce in the engineering field. It is a gateway to B.E. and also related to science. Talking about job prospects of the program, he confidently replied:

*Yes, there’s a high possibility of getting jobs after a diploma. I also first studied the Diploma in Civil Engineering. After my diploma, I got a job. Then I continued my B.E. and work simultaneously. After completing my B.E., now I am running this consultancy and teaching in the school. I am still getting job offers, so I am sure the graduates will get jobs easily.* (Field note, March 15, 2020)

Though it had high jobs and further education prospects, Suwas expressed worry about TECS schools and technical education in the villages. In his opinion, facilities meant teaching-learning facilities rather than urban facilities. There had to be facilities of good teachers, lab and equipment. But he clearly said a fact, “If I were told to go to a village to teach only, it’s not sufficient for me because here I’m teaching and working in a consultancy. An engineer doesn’t go there to teach only neither do I.” His focus was on producing technical teachers and providing them specific facilities in those circumstances. In this way, a Diploma in Civil Engineering, as well as the TECS program, could attract youth.

## **Story of Hari**

I selected Chandramukhi Secondary School where the program Diploma in Civil Engineering was running. I made a phone call to the coordinator through a friend. I was called at school. I met the principal on the school premises, I explained him the purpose of my visit with a letter from Kathmandu University, School of Education (KUSOED). He showed me the way to the TECS department. I went there and met the coordinator. The department was in a room inside the school. The coordinator called two instructors - Hari and Dipika - and introduced them to me. I talked to them for about ten minutes regarding my study objective and the themes of the upcoming interview. They gave an appointment for the next day, so we exchanged our mobile numbers and departed.

The next day, I reached the TECS department at the predetermined time, Hari was waiting for me. He took me to a vacant classroom. After getting permission from him, I took out my note copy, a white sheet, pen and my mobile for sound recording. We had an interview for about one hour. He was a resident of the area and professionally he was a civil engineer. He was teaching Material and Workshop for both TSLC and Diploma in Civil Engineering, Road and Bridge for TSLC and AutoCAD for Diploma since the beginning of the program in that school. He was also working as an exam coordinator. Besides his job in the TECS School, he was doing some part-time works like drawing work on building maps and building analysis. The school was near his home and he was doing extra work, in that sense, I assumed that he was satisfied.

From the starting of the interview, he poured his grievances on physical infrastructure because the TECS program was being conducted in the same general school premises. He argued:

*The technical school has to be looked like its name with a separate environment, but we have general schools, TECS and plus-two are in the same building. The first impression of this school is general school and plus-two college. We are trying to convince but many people don't know about technical subjects in our school. So, Civil Engineering under diploma program is in shadow in this school.* (Field note, March 18, 2020)

There was a space problem; sometimes TECS stream could not get rooms to conduct exams and sometimes even for regular classes. There were some labs like a Material lab, Workshop lab, Science lab, Computer lab, and Drawing lab. But there were no Mechanical Structure lab, Hydraulic lab, and no enough materials for some subjects in the third year, only theory was taught there. So, Hari did not find effective teaching-learning activities in some subjects. He stated that despite their effort, things could not have happened yet, however, he was hopeful that the school management would gradually fulfil the requirements. Explaining the uniqueness of the library he expressed, "We have the book bank system in the library; every student takes required books from the library for every semester. There is no problem with library service."

He experienced that technical terms were difficult to memorize; it would not be difficult to remind them about daily life materials. But in some subjects like Surveying, when the students could see and apply materials and equipment, they could understand more.

He revealed that problems in TECS schools would start with an entrance system. Since the students already got pass marks in SLC/SEE certificate, if there were only forty-eight students in the entrance that was the quota, all would pass the entrance. Then as his words, it would be like a collection rather than the selection of the students. He also stated that due to the increment of TECS schools all over Nepal, the rate of enrollment outside the Kathmandu Valley was decreasing. In that case, there was a high chance of enrolling academically weak students. He found it challenging to teach as students needed extra attention and were often weak in grasping concepts. In his opinion, the school management could apply strategy to retain their own SLC/SEE appeared students. But technical subjects had not been the first choice of the students and parents.

There were normally three/four dropout cases every year. Regarding the reason for it, Hari shared:

*It's because of the students' psychology. At first, they come to study with a whim. In the first semester, they need to give more time; it's difficult to study, so dropout is more in the first semester. After that, due to difficulty in taking exams, some students leave in the middle too.* (Field note, March 18, 2020)

It seemed there was poor counselling; students and parents lacked knowledge about subjects, and of course the selection process. That's why he blamed for the poor result. His Chandramukhi Secondary School had only a twenty-five to thirty per cent pass rate on average and it was not a good result according to the record of CTEVT. To improve the results, Hari suggested the school had to conduct exam preparations; feedback of teachers and students had to be incorporated; students had to be given real work training, and good eligible students for the program could be collected through proper advertisements and scholarship schemes.

He showed dissatisfaction with the behavior and response of the school management. Technical instructors were not getting the same facilities as the teachers of plus-two. They were not getting grades and salaries like government staff from general schools. TECS department could not get an

office helper and discipline in-charge (DI) despite their frequent request. He felt that there was a lack of proper understanding between school management and technical instructors. The school did not try to motivate technical instructors. Overall, he was not satisfied with the teaching-learning environment of his TECS School.

Concerning other instructors too, he argued the curriculum of Diploma in Civil Engineering is a little bit vast and they had to complete the course in a condensed way since there was too much content for a semester. He also blamed that curriculum was not changed as per market demand. He urged Global Positioning System (GPS) had to be inserted into the curriculum and both individual and group practical works had to be managed well. Nevertheless, he found a good job and further education prospects of the program. Highlighting the job prospects, he shared some empirical experiences:

*Some graduates are running their consultancies. I can remember Sunil and Sanjay who are doing entrepreneurship. Sometimes they bring map works, sometimes they do building analysis. Let's say there are more works in this field. Some are working in corporations; some are in municipalities. The course prepares sub-engineers. Most of the pass-out students have jobs.* (Field note, March 18, 2020)

He further showed different jobs and entrepreneurship aspects of the program. He meant project work in Surveying and Building Construction were supportive for employability. While asking about how he convinced students, Hari replied with confidence, “An engineer cannot work at the grassroots level, they charge a very high salary for such work. After studying this course for three years, you can assist engineers as overseers.”

He also portrayed some problems in other TECS schools that he drew from others' statements during his training at Training Institute for Technical Instruction (TITI). The condition was not good in remote villages. In some places, getting a sufficient number of students was a great challenge. While in some places, it was very difficult to convince the local people about technical subjects. Though technical programs like Diploma in Civil Engineering had a good prospect, he urged to do feasibility study of the program and it had to address the demand of local people and the market. TECS schools had to motivate instructors like Hari through their participation in decision making, providing viable salary and grading facilities, motivating students and parents, and managing required instructional materials so that a harmonious teaching-learning environment could be created.

## **Story of Dipika**

I interviewed both instructors - Hari and Dipika - on the same day because from the next day onwards schools would be closed due to COVID-19 lockdown. After completing the interview session with Hari, I searched for Dipika but I was informed that she had gone home. I called her and requested her for the interview that day as there would be an obstacle later. She reached there in one hour and we also went to the same classroom. She was also keen to be a part of a dissertation because she also had pending her master's dissertation due to lack of time. I shared some ideas on how I managed time for the dissertation till then she became comfortable for the interview. I also asked her permission for audio recording and note-taking stating privacy and ethical consideration. We had the interview for about an hour.

Dipika was teaching in Chandramukhi Secondary School for three years including her part-time.

Before her teaching job, she worked in a private firm related to estimating and valuation for two years. She also worked with her uncle related to building drawing for one and a half years. Her office was far from her home and she did not have her private vehicle at that time. After her marriage, due to her household chores and delivery case, it was very difficult for her to travel by public vehicle. So, she had to leave the job. While she was not doing a job, she saw a vacancy at that school which was quite near her place, she applied for the position and got the job. She did not have a particular plan to enter a teaching job. Coming to the teaching profession, she realized it was comparatively better than other jobs. She explained the reason:

*Teaching job is better than other jobs because I can teach here whatever I have learned. Through teaching, I have understood how to teach as per the level of the students. I could deliver whatever I got from my engineering degree. Recently, I have also got an opportunity to attend some sketch-up programs, I have learned some new things.* (Field note, March 18, 2020)

Teaching students at Diploma in Civil Engineering level at TECS school was a better option for her because she could apply her prior education and experience, the school was near her home, she was learning how to teach as per level, and she was getting other opportunities for professional development. She said a technical teacher needs to have both academic qualifications and work experience. But she was disappointed with the teaching-learning environment. She revealed that the school could not convince local ethnic groups about the importance of technical education. Moreover, there was an engineering college near her school. Students would prefer plus-two in science for B.E. rather than spending one more year in Diploma in Civil Engineering. Most of the subjects and contents like Venturimeter, measurement of pressure gauge, and inverted equipment meter were taught superficially in Diploma in Civil Engineering while those would be taught in-depth in B.E. So, the diploma program was not preferred by the local students.

As per her experience, the number of applicants was decreasing, so, they were compelled to enroll weak students to fill the quota. Due to this reason, she had to struggle a lot to finish the course in time. Likewise, she could not teach in-depth matters because she had to spend more time teaching basic things. Giving an example of such a problem, she stated, "Some students even don't know how to find out the area of a triangle, for such students, teaching contents like integration and derivatives is tough." Though there were one or two dropouts every year she thought that would affect other students. She revealed the result was not satisfactory; however, it had been better than before. She claimed there used to be more failure students in Hydraulics, but after she started teaching it with another instructor, the situation improved. As she shared, there used to be a high turnover of the instructors before her that was a major problem of TECS schools. It meant the retention of the teachers is one of the main reasons behind the good result and students' motivation.

Dipika expressed another problem related to TECS and general stream in the same premises:

*Sometimes school children's departure time happens during our practical works; sometimes their break occurs. In the afternoon during our practical, plus-two and school break time occurs. While we do survey practical, other students play in the same place. So, there is a high chance of instrument damage and loss. And sometimes we have to leave class before time during other exams at school.* (Field note, March 18, 2020)

She was hopeful for a better teaching-learning environment as separate infrastructure was being constructed for TECS. She also experienced different behavior from school management between general teachers and technical teachers. She was angry that she was getting a lower salary than plus-two teachers from the general stream, neither there was a grading scheme for technical instructors. Regarding other instructors, she also felt the school management regarded the low level to the TECS department. She knew there were no good instructors, no sufficient tools and equipment in technical schools of villages. Nevertheless, she praised the rapport among the coordinator and the colleagues. Since almost all teachers would have the same kind of problems, especially from the same students, collaborative work made it easy for her to handle such problems. When she got frustrated with weak students, she got motivation from the coordinator's statement, "It is not meant to teach students who are already genius; in the teaching profession, our main duty is to teach those who don't understand."

I noticed she got angry while talking about lab, tools and equipment. She shared:

*As I teach Hydraulics, there is only one piece of equipment to measure velocity that is also used for Irrigation. There are almost all tools and equipment for Survey but in the absence of a Venturimeter and other equipment, we show videos to teach contents like measurement of pressure gauge, critical flow or laminar flow. And another thing, there is no space to insert those tools and equipment. It requires a large space to construct labs.* (Field note, March 18, 2020)

She was getting enough reference books; she believed all the students would also get required books through the book bank system in the library. Talking about the existing curriculum, she shared it was viable in terms of teaching and learning; lab works mentioned in the curriculum were also sufficient to learn basic things. In her opinion, the Diploma in Civil Engineering was a basic course that would help students in B.E. She clearly said, "It's not sure the diploma graduates can do designing of hydropower. If they go to sectors like water supply, they can measure the flow of a river. The course is very supportive of B.E." In terms of objective and time frame, she took the curriculum appropriately. From her point of view, adding content would have no value until tools and equipment could be managed.

Regarding job prospects of the Diploma in Civil Engineering program, Dipika expressed her views with excitement, "As much as I know, almost all graduates are working except those who feel lazy to work. Even such students are working whose result has not been published yet." Even before the result, students were getting jobs meant the program had really good job prospects. She showed the potential job sectors of the program would be road construction, water supply, building construction, structure-related fields. She was also sure the graduates could start their own business. To motivate her students toward teaching-learning, she frequently told her students:

*After studying technical education like this, you don't need to stay idle. You can do especially AutoCAD, survey, drawing, and drafting. So, if you learn well from here, you don't have to worry about the job, and you will be economically benefited.* (Field note, March 18, 2020)

Though the Diploma in Civil Engineering program had good job and further education prospects, Dipika was worried about the future of the TECS program and the courses. Referring to other instructors from out of the Kathmandu Valley, TECS schools were increasing as mushroom farming, but there were

no good instructors and required materials. The instructors had to be given specific facilities so that they could be attracted toward teaching in remote villages. To motivate instructors like her, she wished for reasonable salaries and facilities, sufficient tools and equipment, a good attitude toward technical education by the school administration, separate infrastructure for the TECS program, academically good students, and a proper budget could create a harmonious teaching-learning environment in TECS schools.

*Table 1 : Participants' Teaching-learning Experience*

| <b>Experience</b>   | <b>Ramesh</b>                 | <b>Suwas</b>                         | <b>Hari</b>                          | <b>Dipika</b>                                   |
|---------------------|-------------------------------|--------------------------------------|--------------------------------------|---|
| Infrastructure      | Separate infrastructure       | Technical school look                | Impression of general school         | Joint building with general                     |
| Tools and Equipment | Increased a lot than before   | All instructors said sufficient      | Not enough for the third year        | Like nil for my subjects                        |
| Students            | Parents force so absenteeism  | Some arrogant that's normal          | Some join in a whim and drop         | Weak students from entrance                     |
| Result              | Continuous in top ten         | Better than other schools            | Very poor among TECS                 | Better now still there is a poor result         |
| Curriculum          | Phase-out in the market       | Gateway to B.E., As the time it's OK | To be added new areas like GPS       | As an objective, it is basic of B.E.            |
| Job Prospect        | Job, intern, test preparation | As for my teaching and consultancy   | Some are in their own business       | Result waiting students got a job               |
| Teaching Profession | Theoretical knowledge         | Avenue of knowledge                  | Main job as near home                | Better to apply B.E. knowledge, teaching skills |
| Job Security        | Near home, morning time       | Could not make it full time          | No grade, no government salary scale | As a mother, near, better than other jobs       |
| Rapport             | Very good so continuing       | Part-time, no care but OK            | No demand fulfils, poor              | Good within TECS depart.                        |

## Chapter Essence

In this chapter, I presented the teaching-learning experiences of my four participating instructors in the form of stories. I narrated their teaching-learning experiences on what they shared about teaching in TECS schools, what challenges they were facing, and how teaching-learning of TECS schools could be improved, especially regarding Diploma in Civil Engineering program. At last, I presented a table summarizing the participating instructors' teaching-learning experience as per the themes of the study.

## CHAPTER V

### UNDERSTANDING INSTRUCTORS' TEACHING-LEARNING EXPERIENCE

This chapter finds the instructors' experience in their teaching-learning in the Diploma in Civil Engineering program at TECS schools. Their experiences in teaching-learning are discussed as per their sharing related to the teaching-learning environment, the relevance of the curriculum, and their motivation. The findings of the research from the interview are also discussed regarding the research purpose, research questions, literature review, and meaning-making process.

#### **Teaching-learning Environment: Infrastructure Matters**

It was found that physical infrastructure along with teaching-learning materials, lab and equipment played major differences in effective teaching-learning activities. Instructors from Suryodaya Secondary School, Ramesh and Suwas were motivated and satisfied as they had the adequate and appropriate infrastructure and teaching-learning materials. While instructors from Chandramukhi Secondary School, Dipika and Hari were demotivated and unsatisfied as a result of inadequate resources and infrastructure. In Suryodaya Secondary School, the TECS department was in a separate building. So, they did not experience any different behavior between general subject teachers and TECS instructors from the school management. They happily said that teaching-learning materials, labs, and equipment were being increased, and they were satisfied with the current infrastructure.

On the other hand, instructors from Chandramukhi Secondary School were not satisfied with the infrastructure because the TECS department was inside the general school building. The instructors shared that people perceived the school as only a general school. Taking an example from nearby polytechnic school, Hari stated that technical education would be perceived well when it would have a separate physical infrastructure like a technical institute. It was quite difficult to change the people's existing perception, but it could be easy to convince people about technical education when the technical stream is separated from general education. Dipika also presented in the same line that there was a well-equipped engineering college near her school, so students preferred directly B.E. after a two-year ten plus-two/grade 12 rather than a three-year Diploma. In that way, they were getting weak students for the technical program.

They also found difficulty conducting practical works inside the premises where general school and general ten plus-two were also being conducted. The instructors also stated that there was a lack of labs and equipment. It shows TECS program is to be conducted either in a separate building or in a separate schedule but not in a general education building. On the same note, in a study on instructors' experience in teaching Engineering Drawing in Nigeria, Diraso et al. (2013) found teaching-learning was affected due to the lack of drawing instruments and drawing studios. Hari and Dipika expressed that it would be better if the TECS department had a separate infrastructure, and also shared a separate building that was being constructed for the TECS program in their school.

From the instructors' point of view, infrastructure matters in teaching-learning of engineering; it is better to have a separate set of resources and infrastructure to conduct classes in a different time slot. According to the instructors, the result of Suryodaya Secondary School was better than that of Chandramukhi Secondary School. And they regarded infrastructure would matter in the teaching-learning environment and the outcome as well.

Regarding the impacts of infrastructure on teaching vocational education, Amadi and Ohaka (2018) state that adequate infrastructure could arouse students' learning interest, improve students' skills on handling tools and equipment, enhance the better explanation of concepts on vocational education. Whereas poor infrastructure could reduce teachers' performance, limit the competency of students' understanding which could affect the effective delivery of vocational curriculum contents and distract educational motivation for students. In a study, Ogbuanya and Okoli (2014) also express that if training stations were equipped adequately, TVET could function effectively. Stating one of the underlying principles of TVET that the students had to be trained with the machines, tools, equipment, process, and in a replica of the real workplace, but the authors accused the potential teachers of technology and practitioners of inadequate tools and equipment in Nigeria. The participating instructors also revealed that they would show videos and conduct mock workshops when tools and equipment were not available.

In this research study too, Dipika and Hari were not satisfied with teaching due to a lack of tools, equipment, and labs. Hari accused that behind the poor result, the poor teaching-learning environment was the main cause. He stated that conducting practical works inside the school premises was difficult since the practice of other subject students would also be on the same premises. He elaborated that the physical infrastructure and teaching-learning environment of the school looked like general school only, not like technical school. Like the statement of Ncube and Tshabalala (2014), Dipika also shared most of the local students and parents had a negative attitude toward TVET programs. Almost all the students from the same school chose the academic stream rather than the technical stream. And she shared that there was a high chance of damaging instruments while conducting practical works in the same premises where other students were also present.

Comparatively, Ramesh and Suwas were found more motivated toward infrastructure. Ramesh explained that teaching-learning materials were increased in comparison to the previous years, so he was satisfied with the infrastructure. Taking reference to other teachers too, Suwas also mentioned in the same line that the school increased teaching-learning materials more than before, so he said it was enough. There were separate buildings and separate teaching-learning materials for TECS School. Due to adequate teaching-learning materials and a separate building, Suwas and Ramesh said that they were satisfied with infrastructure and motivated toward teaching-learning. They were found addressing the TECS School as a technical college. In this way, infrastructure affects directly the teaching-learning environment of TECS schools.

From Lev Vygotsky's constructivist perspective, learners learn through social interaction which is established by social relationships. Learners construct meaning from reality but not only what they are taught in their learning environment. So, constructivism refers to the learning that involves constructing, creating, inventing, and developing their knowledge and meaning (Liu & Chen, 2010).



The Diploma in Civil Engineering program lacks work-based learning opportunities, so the students are not getting the real world of work experience.

Considering social interaction as an axiom of modern psychology, Vygotsky (1986) states that social interaction is based on the rational understanding that requires some system of means and it is an intentional transmission of experience and thought. Likewise, about the teaching-learning environment, Vygotsky (1978) argues that learning does not alter the overall ability to focus attention but it develops various abilities to focus attention on a variety of things. According to this view, special training affects overall development when its elements, material, and processes are similar through specific domains. The students can construct specific meanings through social interaction with external artefacts and from the reality of teaching-learning activities they involve in the classroom and the practical field. Likewise, professional development courses can provide learning opportunities for teachers.

Suwas takes his sixth-semester students to irrigation projects, and Ramesh takes his students to the construction sites, Dipika and Hari create mock workstations in the school to construct knowledge from reality and social interaction. Work-based learning is absent in both schools. As Vygotsky's constructivism, teachers tried to conduct practical works to provide a real-world work experience through social interaction and knowledge creation, however, work-based learning needs to be incorporated to provide a real-world of work. Nevertheless, through social interaction during practical works, field visits, and classroom teaching-learning, both students and teachers learn different aspects of work and life. Dipika shared that she learned how to deal with students of different levels, and with the collaborative effort of instructors and the coordinator, she was able to handle problematic students and difficult conditions. Likewise, students were getting jobs even before their results that show the students could construct the required knowledge and skills through practical works and field visits. All the participating instructors said they experienced their teaching profession as an avenue of knowledge as they could reconstruct their prior learning.

Constructivism undertakes to learn as a process of constructing knowledge rather than only acquiring it. As per the constructivist theory, infrastructure has to be designed as articulated spaces because sometimes students need places to be alone for intrapersonal intelligence, and sometimes for social interaction (Guney & Ali, 2012). As per the teachers, the Diploma in Civil Engineering consists of practical based subjects like Mathematics, Science, Designing and Structure of Engineering. In the same line of constructivist theory, the experience sharing of the teachers in this study also shows that TECS programs need to have a separate infrastructure with a student-friendly structure and technical teaching-learning environment with adequate tools and equipment, labs and libraries as teaching-learning materials.

When TECS schools have the separate infrastructure, as Hari and Dipika said, people would take it as a technical school. Having enough books and practical materials, as Suwas and Ramesh said, students were motivated toward teaching-learning activities and the overall result was good. Concerning other instructors' views, Suwas informed me that tools and equipment as teaching-learning materials were adequate in all the subjects. The teaching-learning environment is determined by the infrastructure and teaching-learning materials; they have to create pictures of technical institutes that could attract

students and instructors toward attaining learning outcomes effectively and efficiently.

### **Students' Prior Competency Affects Teaching-learning**

According to the participating instructors, the Diploma in Civil Engineering is a specific technical program that requires numeric proficiency, knowledge of science, and structural aptitude. So, the students also need to be interested and capable of adopting all theoretical and practical subjects. One of the most crucial factors for teaching-learning is the prior competency of the students. It was found that some students were forced by parents who were not self-motivated and most of the students were from out of the Kathmandu Valley. Hari and Dipika claimed that only two/three students came to study because they were interested. The rest were forced by their family members. After hearing the instructors, it is speculated that the Diploma in Civil Engineering programs of TECS schools is not able to attract local students.

Regarding the participating instructors, there is a loophole in the enrolment system. There is only a written exam as entrance, and the students with required grades in SEE get pass marks automatically before the entrance. Ramesh found good numbers in the entrance and said some students were contacted for enrolment after the entrance test of the previous year. But he faced a problem with the long absence of some students though the school gave NQ to such students. In such cases, he blamed their parents. Due to the poor entrance system, Suwas found some arrogant students who could never be motivated though they were given individual assistance as he gave personally to their benches.

On the one hand, as per provisions made in the TVET policy (2012) and the TVET act of Bagmati province (2018), TECS schools are increasing in all parts of Nepal. It is viable, accessible and affordable regardless of social, economic and geographical aspects. But on the other hand, Hari revealed the number of applicants in his school was decreasing. Similarly, for the sake of fulfilling the quota, i.e. forty-eight seats, the entrance had been like the collection of the students rather than selection. Hence, he related the prior competency of the students to the poor result of his school, i.e. twenty-five to thirty per cent was the regular pass rate.

Due to the low enrolment of competent students, Dipika found it challenging to complete the course on time. She had to work with students who didn't have basic mathematical knowledge such as how to calculate the area of a triangle. So, to teach them derivatives and integration was highly challenging. Moreover, she also revealed that some students did not appear after the tiffin break. So, she blamed the prior competency and attitude of the students behind the poor result and disturbance in teaching-learning. According to Dipika and Hari, applicants were decreasing due to the increment of TECS schools all over Nepal. Hari also revealed another fact on enrolment of low competent students; he said that entrance of technical education occurred after the entrance of the general stream. To fulfill the quota of forty-eight students, low competent students also could get a chance to be enrolled in the technical stream.

Based on the World Bank (2007) report of Bangladesh, Agrawal (2013) portrays the unit cost of VET is three times higher than that of general higher education. So, the government has to focus on improving the efficiency of the system rather than expansion, and a clear policy statement for the VET sector. Regarding the instructors from outside the Kathmandu Valley, Hari and Dipika revealed that

TECS schools were increasing as mushroom farming but there were a lack of tools and equipment, experienced and competent instructors, potential students, and a lack of facilities and opportunities for the instructors in TECS schools of remote villages. So, rather than expanding TECS schools, a proper feasibility study regarding market needs and public demand has to be done.

Suwas thought that the written entrance of Diploma in Civil Engineering was likely to be simple as the contents were from SEE/SLC, and the students had fresh memory in their minds. But when they have to study different contents in the Diploma in Civil Engineering, some students found it very difficult. He said with frustration that some students were in bad company and they could never be motivated though he assisted students individually. His statement was like the statement of Diraso et al. (2013), over-crowded class and the background of the students affected the teaching-learning environment. Regarding students, Hari added that most of the students enrolled in the technical stream due to a whim and parents' force but in reality, it would be so difficult to study and maximum time had to be devoted. Due to this reason, some students would quit their studies in between. Similarly, stating examples of the students from Dolpa, Ramesh highlighted the reasons for being absent for long. During Yarsagumba season and festivals, students stayed absent for a long time. Though they made calls to the parents and gave NQ to them, Ramesh pointed absenteeism was a major problem for him.

Showing the effect of students' competency as the statements of the teachers, Lukas (2014) emphasizes that technological tools only would not create the content themselves but more skilled teachers and interested students could benefit from them as they could create a better life in the class. Referring to his examples of problematic and shy students, their psychology, motivation and aptitude affect directly the teaching-learning environment. Based on the participants' information, they indicate that the entrance system is not effective; parents' force on choosing the subject; and increment of TECS schools in many parts of Nepal (CTEVT, 2020). Consequently, the TECS schools are getting low competent students. Due to that, three out of four participating instructors said there were three/four dropouts and some absenteeism cases every year. Though the dropout rate seems small in number, Dipika said the scenario could affect other students.

The academic result of Chandramukhi Secondary School was poor. Dipika and Hari argued the prior competency of the students was one of the prime causes behind the poor result and they were also feeling difficulty in teaching. Moreover, a lack of tools and equipment also is the main reason behind the poor results. As Guney and Ali (2012) state that pedagogical philosophy, curriculum design, social climate, and physical environment are to be in good condition for an effective teaching-learning process. Suwas argued that around seventy per cent of good students would come; it was normal to have some disturbing students in every class. Ramesh thought the long absenteeism was difficult to improve; nevertheless, the students could be motivated toward teaching-learning and the result could be improved.

Dipika mentioned that the result in Hydraulics was better than before because there used to be teachers' instability. Later, she taught the subjects by sharing them with an experienced teacher. And after gaining some experience, she started teaching the whole course alone. As Suwas argued a good teacher could make a difficult curriculum easy, it depends on the teacher. He seemed proud to make all students pass in his subjects by individual guidance. Here, Vygotsky's zone of principles of the

Zone of Proximal Development (ZPD) to two aspects. She could also achieve the principles of the ZPD, after getting assistance from the experienced teacher. This enabled her to improve the students' achievements. The ZPD includes the social constructivist method where students act first on what they do on their own, and then they can learn the new concepts with the assistance of the teacher (Vygotsky, 1986). Suwas helped the students assisting individually in their benches to let them meet ZPD; however, he also said that there was a limit to motivate students; teachers could not go beyond the limit exactly students could not be taken beyond ZPD at a certain time. Ramesh motivated his students by showing them their career prospects, whereas Hari was doing consultancy works with his graduate students and that could motivate the students to increase their zone of proximal development.

Adopting Vygotsky's social constructivism theory, Kalina and Powell (2009) elaborate on his scaffolding process. Scaffolding is an assisted process of ZPD that argues learners can learn more effectively when they have the support of others. It helps students achieve the next level of understanding with the assistance of teachers, peers or other adults. About the participating teachers' words, no matter the students are weak in their studies, they can achieve learning objectives if they are cooperative with teachers and peers. Talking about a student, Dipika exemplified that the boy was on top three, but he was not proficient enough in English before, and he used to write all technical words of English into Nepali.

The discussion above provides evidence that the prior competency of the students can affect the teaching-learning of the TECS schools. Effective teaching-learning and a good result is a collaborative approach between teachers and students. Students' background, their aptitude, parents' education, peer companion, and their motivation highly affect teaching-learning and their achievements. Those factors create problems such as absenteeism, dropout, class miss, gang formation, the curriculum in superficially, poor results, and negative impressions of the program.

### **Outdated Curriculum but No Problem**

The Curriculum of Diploma in Civil Engineering under the TECS program in Nepal is prepared by the Curriculum Division of CTEVT. The participating instructors expressed that the existing curriculum has outdated content and it does not address the demand of the market. For example, Ramesh revealed that he studied the same syllabus in Diploma in Civil Engineering during 2000-2003 and he is teaching the same 20 years later. He said the curriculum did not address the need of students when they would go to the job markets. In line with Bhurtel (2016), Ramesh argued updating of the TEVT curricula in Nepal with the changing demand of the job market was never seriously considered. Suwas also studied Diploma in Civil Engineering before he did his B.E.; he also felt the necessity for updates in the content in the curriculum. He argued the contents related to engineering with a focus on practice needed to be added so that the students when they entered the job market would not face any problem.

Hari also shared similar views. In terms of time, it could be difficult to add content as he elaborated the curriculum was in a condensed form. Borrowing other teachers' words too, he said that they felt it difficult to complete the syllabus in time. He suggested that the curriculum needed to include

GPS and modern technology-based designing and construction. But Dipika said she did not feel the syllabus was outdated because Diploma in Civil Engineering is a basic course for B.E. She clarified that the graduates would not do designing of hydropower; they could do basic jobs like measuring the water flow of the river. However, she focused on the lack of tools and equipment in her school. She argued that there was no use in adding content unless there were adequate tools and equipment.

Regarding the existing TVET curriculum, Bhurtel (2016) narrated the experience of one of the participant students that modules such as TIG (Tungsten Inert Gas) and MIG (Metal Inert Gas) welding were strengths of the welding curriculum. But the students were not getting certain required tools and materials. In the case of parts breakdown in the workshop, it would take a very long time to be fixed. Considering that, the respondent expressed there was no valid point in including the modules in the curriculum. However, the need of the time was to replace the outdated content with the modern technology-based one with relevant teaching-learning materials.

The issue of modernizing the curriculum of TVET is a common problem of South Asia and not a unique phenomenon of Nepal. Portraying a four-year Diploma in Engineering curriculum in Bangladesh, Haolader and Nickolaus (2012) mention that the contents were inflexible and the curriculum mainly focused on theoretical matters. The program was delivered through polytechnics with only twelve weeks of in-company training. The authors also compared it with the curriculum of vocational schools in Germany which was a learning field-based curriculum and that focused on practice-oriented learning and teaching, which could foster the trainees' knowledge transfer capability. The curriculum of the Diploma in Civil Engineering is to be enriched with modern technological content with adequate practice-oriented teaching-learning.

The instructors found the curriculum of Diploma in Civil Engineering similar to the curriculum of B.E. in Civil Engineering, but only depth is different. It is a promising gateway to B.E. The instructors commonly revealed that one positive aspect of the curriculum is that the graduates were easily saleable in the job market. Ramesh and Suwas represent the graduates of Diploma in Civil Engineering under CTEVT who studied B.E. too. They are currently working in consultancy firms and teaching engineering subjects in Diploma in Civil Engineering at Suryodaya Secondary School. Moreover, Suwas was hopeful of getting jobs easily, and Ramesh speculated that half of the graduates were working, and others were preparing for B.E. and public service commission. Though the result of the Diploma in Civil Engineering of Chandramukhi Secondary School was not good, both instructors Hari and Dipika were hopeful of their graduates being employed. Dipika even revealed that some students started jobs before their graduation results were published. Hari also cited some entrepreneurial examples of his graduates and his collaborative works with them.

Agrawal (2013) portrays through the World Bank (2008) report on India's VET that the unemployment rate of VET graduates is higher than that of general education. On the same note, Al-smadi and Hussein (2018) find high unemployment of TVET graduates in Jordan. Likewise, referring to franchising skills (2007), Chauhan (2017) states skill programs of TVET are largely supply-driven; the curriculum fails to satisfy the employers or self-employment needs of the students. Regarding the TVET curriculum of Nepal, Bagale (2015) blames that there is a mismatch between the TEVT curriculum and the job market. However, all four participating instructors had contrasting

experiences regarding employability. As per their versions, the Diploma in Civil Engineering program is an appropriate gateway to B.E. and it has high job prospects in fields like construction, hydropower, irrigation, road, water supply, municipalities, and corporations.

Here, I argue that both schools have graduated only one batch each; the graduates were few in numbers so their demand might be high, so, they got jobs easily. Another thing, no one had an exact record of graduates and their existing condition, they shared as much as they saw and heard. This may be the reason that most of the graduates have been employed. But a tracer study of Accountability Initiative (Accountability Initiative [ACIN], 2016) also supports the information that I received from my research participants. As per the study, the employment rate is a minimum of 30% in the Diploma in Civil Engineering; however, 82% of graduates are either in employment or engaged in education. The study reveals that a significant number of Diploma in Civil Engineering graduates are studying higher education. The result strengthens the instructors' claim that the curriculum is similar to B.E. and the Diploma in Civil Engineering is a promising gateway to B.E.

Diploma in Civil Engineering curriculum can be said viable with the definition of appropriate curricula by Watters and Christensen (2014) that the term appropriate is to emphasize, to the extent, on the formal course structures and resources to achieve the intentions of the gateway project with the skills and knowledge for the transition from school to higher education or work. About the teachers, some graduates are working, some are preparing for B.E., and some are preparing for the public service commission examination. As they took the Diploma in Civil Engineering course as a gateway to B.E. with similar contents, the existing curriculum can be said viable in the context of our country.

Behind a good employment situation, Hari argued that engineers would not do grassroots level work, overseers from diploma courses would do such works. He also stated that almost all graduates were doing jobs and entrepreneurship because the pass percentage was very low. Some graduates were found operating consultancy and doing map and design works with him. To his record, the graduates were working in municipalities, consultancies, and corporations too. Dipika claimed that only one or two lazy students might not have jobs. In her words, a Diploma in Civil Engineering is a basic course to be prepared for B.E. and students can get works like AutoCAD, survey works, drawing and drafting, and the potential sectors are roads, water supply, building construction, structure related fields. According to Suwas, Nepal is a developing country, so there are lots of opportunities in the engineering field. Ramesh also showed the prospects for engineering jobs in Nepal and the international market. The respondent instructors were hopeful for job assurance. Despite the course needs more cost than general education, the teachers expressed hope that the students would get more returns. In the context of cost, the TECS School is viable to address poor, deprived, unemployed, and students from geographically disadvantaged areas at low cost.

A study on job prospects of IVET (Initial Vocational Education and Training) learners by the European Centre for the Development of Vocational Training (CEDEFOP) (2015) finds that some of the learners shared anxieties, whereas others were more confident about their job prospects. The students with a vocational qualification expressed better labour market prospects than the students with a less practical qualification from the general track. The survey study produced results that vocational pedagogy impacts learners' confidence and transition. A study in Hetauda, Makwanpur, reveals that

job prospects for graduates from technical schools are higher than those from general schools. The study finds that more than 90% of the graduate students from the Makwanpur Technical School are employed. (Kusago & Phuyal, 2009).

This study on the experience of the Diploma in Civil Engineering instructors from TECS schools also shows that technical and vocational subjects are likely to have more opportunities than general subjects. That's why the Diploma in Civil Engineering graduates of both schools had high employment and further education prospects. However, the curriculum needs to be revised and updated at the pace of time and market demand. A work-based learning model needs to be incorporated into the curriculum to provide a real-world work experience. It has been necessary to motivate potential students towards TECS schools through a market-oriented curriculum and applicable practical works.

### **Instructors' Motivation to Influence Teaching-learning**

The instructors' motivation has been found relative in terms of different aspects. Ramesh and Suwas seemed to be motivated toward teaching-learning in the Diploma in Civil Engineering program at TECS School in many ways. Being students of the Diploma in Civil Engineering program and working as civil engineers, both instructors took the teaching career as an avenue of knowledge, as they recalled the content and got theoretical knowledge for their practical fields. More or less Hari and Dipika also took it as an avenue of knowledge, as they got opportunities of training, and learning from the seniors, and they were also applying their prior knowledge.

Ramesh and Suwas were not aware of the salary and facilities of the general school, and they said that they never felt different behavior between general subject teachers and technical subject teachers from the school management. The school is quite near the residence of Ramesh, and he was happy that he could utilize his time in the morning. He said that he was motivated and satisfied, so he had been working since its establishment. As Suwas notified, he was approached by another technical school, so he also stated that he was satisfied there. It seems their job is secure there. However, Suwas said he would refuse to teach in villages because there would not be any other works as in the Kathmandu Valley, and he could do teaching part-time only. On the same note, Koirala and Dhungana (2015) portray that most trained instructors do not want to work in rural schools due to remoteness and lack of opportunities. Necessary teaching materials are not provided to them. Ramesh also gave the main reason for joining the technical school — the school was near his home and he could use the time in the morning only. Nevertheless, both teachers said they were getting ample cooperation from the school management.

But Hari showed that he was not satisfied because the TECS teachers were not getting as much salary as a general subject and plus-two teachers. They were not getting grade facilities as well. He did not take his teaching job as a secured job, so he was not satisfied there. Besides teaching, he was engaged in drawing work on building maps and building analysis. He had also a complaint that the school management did not respond to their demands. As he informed, they could not get D.I. and office helper. Shah et al. (2012) also conclude a similar result that instructors' participation in the decision-making process and performance recognition could make them more motivated and enthusiastic towards working in the institution. Teachers are to participate in decision making and their performance is to be recognized to motivate them toward the teaching-learning process.

While Dipika, the teacher of the same school had contrasting experiences regarding rapport. She was getting a supportive environment there; the coordinator was a cooperative and inspirational person. The colleagues were also collaborative and that enabled her to overcome other issues related to students' behavior and teaching-learning. Concerning the salary and other facilities, she agreed with Hari. Giving reference to other TECS teachers, she also described that almost all school management considered the TECS department as a low-level department, and good teachers would be reluctant to teach in villages because there were no specific facilities and tools and equipment. Regarding the concern, Koirala and Dhungana (2015) also felt that the salary and benefits of instructors were inadequate to support their families. Teachers in rural areas with low pay scales were found more demotivated and there was high staff turnover as well. Dipika revealed that the result of the students would be affected by the teachers' motivations.

Likewise, Gameda and Tynjala (2015) reveal their respondent teachers' perception — being treated unfairly and plead for reasonable pay. The instructors were not only receiving salaries below the living wage but also low compared to other professions. Dipika stated discrimination was rampant even in the same teaching profession. She considered certain salary increments after the increment of the government employees, however, she also did not feel secured since not having any grades and incentives.

There is the issue on teachers' recognition that she accused that the TECS teachers were getting less salary than plus-two teachers of the general school. They neither got grades nor was the level of teachers determined. It seems that their job is not secured at school. Regarding that Kopsen (2014) states that a substantial part of teaching vocational subjects is to guide students into working life, however, the focus is not the teaching of professional skills. Many instructors do not want to teach in rural schools due to remoteness and lack of opportunities (Koirala & Dhungana, 2015). It signals that Suwas does not take the teaching job as a secured job; nonetheless, he accepted that teaching is interesting and is beneficial to him. Ramesh seems satisfied with his teaching career, whereas Dipika seems satisfied with many aspects but not with some. She also used to work in different organizations, but she could not continue due to household chores. In her evaluation, the teaching job is better than other jobs for her. However, she was not satisfied due to inadequate teaching-learning materials. Likewise, Hari also expressed more grievances than motivation. It was found that the participating instructors did not get ample opportunity for their professional development. To turnover issue, the instructors are to be provided reasonable remunerations and professional development activities.

In the context of teachers' motivation and satisfaction, CEDEFOP (2015) enumerates suggestions that vocational teachers need to be addressed with multiple pedagogic dimensions to maximize impact. Teachers and trainers are to be supported by adequate curricula, teaching materials and learning environments that permit the full range of dimensions. As the teachers' statements, teachers could be motivated internally through external factors. Teachers are to be well equipped so that their motivation and satisfaction could be nourished for effective teaching-learning activities.

In the case of the participating instructors' motivation and satisfaction, I relate to the motivation-hygiene theory of Frederick Herzberg (1968), who argue that there are two types of factors affecting human satisfaction — motivator and hygiene. Motivator factors are intrinsic to the job such as achievement,



recognition, work itself, advancement, and personal growth. Hygiene factors are extrinsic to the job such as policy and administration, supervision, interpersonal relationship, salary, job security, status, and working conditions. From the findings of a study, Herzberg narrates that motivators were the primary cause of satisfaction, and hygiene factors were the primary cause of unhappiness on the job. Motivators cause a high level of job satisfaction; their absence causes dissatisfaction. Though hygiene factors do not produce motivation or satisfaction, yet they are necessary to avoid dissatisfaction.

The cause of being motivated for Suwas and Ramesh was mainly due to motivator factors that they took teaching in the Diploma in Civil Engineering program as an avenue of knowledge. Teaching was helping them in their engineering field. They were getting recognition and were enjoying their jobs. Moreover, they were also getting enough hygiene factors as the school administration was always cooperative, the interpersonal relationship as well; and they were happy with the salary and status that their job seems secure. Whereas Hari complained that the school management did not respond to their demands; no grades on salary, no technical school environment, no effective examination of practical works, no job security, and no recognition like general teachers. His statement shows that he is dissatisfied with many aspects; both intrinsic and extrinsic factors are in a miserable condition.

But in Dipika's opinion, there is a good rapport between colleagues and coordinator; teaching job is better than other jobs; she is applying her knowledge of B.E. there, and she has learned how to deal with different levels of the students. However, she also complains about not having equal salaries and grades like teachers from general schools and lack of teaching-learning materials. She had got a more positive experience of intrinsic and extrinsic factors; however, she had a few complaints on hygiene factors. She was not satisfied with practical works and remuneration; however, she is not dissatisfied, and her school needs to collaborate with teachers and address their demands to motivate teachers like herself and Hari as well.

The teacher is a prime agent who teaches the students using the curriculum and available resources to attain instructional objectives. Hence, teachers are to be motivated and satisfied. Only focusing on hygiene or extrinsic factors can make teachers not to be dissatisfied but cannot make them motivated and satisfied. So, motivator or intrinsic factors are also to be provided to the teachers. Motivated and satisfied teachers are actively involved in teaching-learning activities and motivate the students that will give effective and efficient learning outcomes. So, teachers are to be motivated towards teaching-learning in TECS schools through equitable remunerations, good rapport, professional development activities, and recognition.

## **Chapter Essence**

This chapter discussed the findings based on the instructors' experiences shared during the interview sessions. My research participants take that infrastructure and students' competency matter in the teaching-learning of TECS School. The curriculum was noted to be outdated; however, it was still able to produce employability and further educational prospects. The instructors are to be motivated through attractive salaries and facilities, creating good rapport, participating in decision making, and involving in training and recreational activities for their professional development so that they can be retained. Finally, the participating instructors' experience regarding their motivation was found mixed i.e., some took it positively while others negatively.

## CHAPTER VI

### SUMMARY, CONCLUSION AND IMPLICATIONS

This chapter begins with the summary of the research study. After summarizing the main idea of the research, I discuss the essence of findings based on research questions are incorporated in the conclusion. Finally, the implication of this research study is presented aiming for policymakers, the schools, and future researchers.

#### **Summary**

The Diploma in Civil Engineering under TECS program in Nepal aims to prepare a middle-level workforce in engineering with a prospect for employment in the national and international job market. The relevant instructors' teaching-learning experiences are to be incorporated to know the depth of the contemporary situation, issues and challenges, and the way forward in the field which gives insights regarding affiliation and operation of technical programs such as the Diploma in Civil Engineering in the community schools. Technical and vocational education is more expensive than general education; it can result in more severe conditions in the country than general education if it fails to prepare the market demanded workforce. How the technical instructors experience their teaching-learning in the Diploma in Civil Engineering at TECS schools is to be realized well to do feasibility study as well as for sustainable management of the course in community schools.

The literature on technical and vocational education and training (TVET) schools show that the TECS program is viable in the context of Nepal to address poor, deprived, unemployed, and students of geographically disadvantaged areas at low cost as it is an embedded program in the community schools. About different scholars, technical instructors experience that the teachers are to be equipped in their fields; technical infrastructure and teaching-learning materials are to be adequate; background of the students affect teaching-learning, and people are to be well aware of TVET education and its benefits. Lev Vygotsky's social constructivism theory portrays that learners learn from social interaction, and being able to construct knowledge is meaningful learning that is a crucial part of the Diploma in Civil Engineering program.

To explore the teachers' teaching-learning experience in the Diploma in Civil Engineering at TECS schools, a qualitative research method has been applied with a narrative inquiry. Four Diploma in Civil Engineering teachers from two TECS schools has been interviewed purposively. For analysis and presentation of the data, three main themes — teaching-learning environment, experience in curriculum, and teachers' motivation have been formulated.

Regarding the teachers' teaching-learning experience in the Diploma in Civil Engineering program at the two TECS schools, it has been found that those teachers are satisfied and motivated who have a good rapport with the administration. Teachers have taken teaching the subject as an avenue of knowledge and the Diploma in Civil Engineering program as a gateway to B.E. Due to poor entrance system, delay entrance than in general plus-two, and increasing numbers of TECS schools across

the country, applicants are decreasing, so weak students are also getting a chance to fulfil the quota. Moreover, most of the students are from out of the Kathmandu valley and are forced by their family members to choose the Diploma in Civil Engineering. The lack of competency and interest of the students causes absenteeism, dropout and affect teaching-learning activities as well as the achievement of students. However, the curriculum has a positive prospect in terms of employability and further study, yet the curriculum needs to incorporate modern technologies to replace the outdated contents.

The instructors hardly take teaching as a secured job as they give secondary priority to it. Some instructors are not motivated because of a lack of hygiene factors as prescribed by Herzberg, such as not getting equal salaries and grades like general subject teachers, and there is a lack of teaching-learning materials in their schools. From the teachers' point of view, proper planning on a feasibility study of the program, adequate teaching-learning materials, competent and self-motivated students, updated curriculum, and good rapport between school administration and the teachers are to be well embraced for systematic and sustainable operation of the Diploma in Civil Engineering program in TECS schools.

Teaching in TECS schools is still not a secured job. Technical schools have to be distinct pictures of the technical image, so, there has to be separate infrastructure for technical programs in TECS schools. Low prior competent students are the main reason behind the poor result and ineffective teaching-learning. They can be enrolled because of fewer applicants and requirements to fulfil the quota. The existing curriculum of the Diploma in Civil Engineering program seems to have high job prospects and is supportive for further study, however, the curriculum is to be updated and revised as per the market trend. Modern tools and equipment are to be managed, and students are to be given the opportunity of work-based learning. There can be good rapport through participating teachers in decision-making, providing reasonable salaries and facilities, and providing professional development activities. In this way, technical instructors can be motivated toward teaching-learning.

## **Conclusion**

Technical schools are diverse from general schools; infrastructures of technical schools are designed as articulated spaces for intrapersonal and social interaction as social constructivists' perspectives. TECS program is a supplementary program in general secondary schools aiming at the utilization of physical infrastructure, human resources, and the management of the school. It is challenging to conduct both general education and technical education in the same building and at the same time. Separate infrastructure for the TECS department gives the impression of a technical school and makes it comfortable for teaching-learning activities, especially outdoor practical work.

TECS schools are increasing in number and are making technical education more accessible. It creates a challenge for the TECS schools in the Kathmandu Valley to have good students. Due to the low number of applicants, they often fill the seats and the allocated quota by admitting any student who comes without assessing their abilities or meeting the entrance criteria of CTEVT. Those weak students become problematic and are a challenge to teach as they lack basic prior knowledge. This leads to teachers not being able to focus on the actual content of the syllabus of the Diploma of Civil Engineering program. Moreover, the lack of labs and equipment, and no opportunity for work-based

learning, leads to the production of undertrained human resources.

Based on the objectives and time duration of the course, the curriculum of the Diploma in Civil Engineering program is viable. The course is a gateway to a bachelor in civil engineering as most of the contents are similar, only depth is different. Likewise, it has good employability and further education prospects, yet the curriculum is to be updated at the pace of time and market needs. Because of the outdated curriculum, students learn different knowledge and skills than the contemporary labour market.

Teaching in the Diploma in Civil Engineering program is an avenue of knowledge. Instructors can recall their prior learning; gain theoretical background for their engineering profession, and learn how to deal with different levels of students and colleagues as prescribed by social constructivism theory. Instructors' retention plays a positive role in students' results and their motivation. Technical instructors of TECS schools are motivated when they get equal remunerations and recognition as general teachers; technical teaching-learning environment; good rapport with management and colleagues; other income opportunities; and ample opportunities for professional development.

## **Implications**

The Diploma in Civil Engineering program at TECS school is a viable program in the Nepali context. Experiences of the concerned instructors suggest revising enrolment policy, curriculum development, infrastructure, and the instructors' remuneration and facilities. The study also suggests that the program is to be launched as per demand and conduct a needs analysis in the community. Policymakers are to incorporate modern technologies demanded by the concurrent national and international labour market. The study finds the necessity of separate infrastructure for the TECS program from general subjects in the school. And technical instructors' remuneration and facilities policies are also to be worked out.

The TECS schools having a Diploma in Civil Engineering may use this study as a reference. This study may contribute knowledge to the schools about the distribution of equal salaries and facilities to both technical and general teachers, and keep a good rapport with all teachers. The ideas on how to manage the library, labs, tools and equipment, and fieldwork also can be attained from this study. This study may also provide insights to know how to promote the program and create a technical impact on the school in the community.

Likewise, this research can be an appropriate source of knowledge to those research scholars who want to research the different aspects of TECS schools. This study only narrates the Diploma in Civil Engineering instructors' experience in teaching-learning at TECS schools of the Kathmandu valley. Future researchers can carry out a mixed-method study. The experiences of the students, parents, and principals could also be studied. Similar studies can be conducted in different parts of the country. TECS teachers' job satisfaction, pedagogy, evaluation, and their experience in different levels and aspects of TECS schools can also be researchable areas. This research may support the advocate for improving the Diploma in Civil Engineering program in community schools in a sustainable way to motivate and satisfy all the stakeholders toward effective teaching-learning.

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## About the Author

Bikash Ghaju is a master's graduate in education from Tribhuvan University. He has entertained in teaching and training from young pupils to graduate adults in a handful of schools, colleges, and language institutes for more than a decade. His keen interest in Technical and Vocational Education and Training (TVET) led him to Kathmandu University School of Education for his second master's degree in TVET.

This publication "Technical Education in Community School (TECS) Instructors' Experience in Teaching-learning" finds milestones in the teaching-learning environment, curriculum and its prospect, instructors' motivation, and students' achievement in TECS schools. The study claimed that most of the students enrolled in the program on family pressure rather than self-motivation. It further explored the need to conduct technical programs in separate infrastructure or separate schedules from general education.

## Linking Education with Labor Markets (LELAM) Project 2021

Linking Education and Labour Markets: Under what conditions can Technical Vocational Education and Training (TVET) improve the income of the youth? (LELAM-TVET4INCOME) a six-year project (2017-2022) implemented in Nepal, Benin, Chile and Costa Rica. The Swiss Federal Institute of Technology (ETH Zurich) is the leading partner of the project. The LELAM project is financed by the Swiss Agency for Development and Cooperation (SDC) and the Swiss National Science Foundation (SNSF) under their joint "Swiss Programme for Research on Global Issues for Development" (r4d program). The project aims to understand how policymakers in low- and middle-income countries can improve the youth labor-market situation by strengthening social institutions and their interdependence with formal, non-formal and informal TVET. It also aims to analyze the conditions under which TVET improves gainful employment and job quality and thereby improves the incomes of the youth.

